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Sciences**

**The determinants of mothers' access to antenatal healthcare in
South Africa: insights from the Eastern Cape Province**

By

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List of Acronyms and Abbreviations

ANC- Antenatal Care

BANC- Basic Antenatal Care

DHS - Demographic Health Survey

DNH - Dora Nginza Hospital

FANC- Focused Antenatal Care

MCH - Maternal and child health

MDG - Millennium Development Goal

MMFR- Maternal Mortality in Facility Ratio

MMR - Maternal Mortality Ratio

NDoH - National Department of Health

NMR - Neonatal Mortality Ratio

QI - Quality Improvement

SAMRC - South African Medical Research Council

SADHS - South Africa Demographic Health Survey

SDG - Sustainable Development Goals

SSA - Sub- Saharan Africa

SPSS - Statistical Package for the Social Sciences

StatsSA - Statistics South Africa

UNICEF - United Nations Children's Fund

UNICEF - United Nations International Children's Emergency Fund

UN - United Nations

WHO - World Health Organization

Declaration

Declaration I hereby declare that 'The Determinations of Mother's Access to Antenatal Healthcare in the Eastern Cape: Insights from the Eastern Cape' is my own work, that it has never been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Shenitha Bhosale



Signed:

Date: November 2023

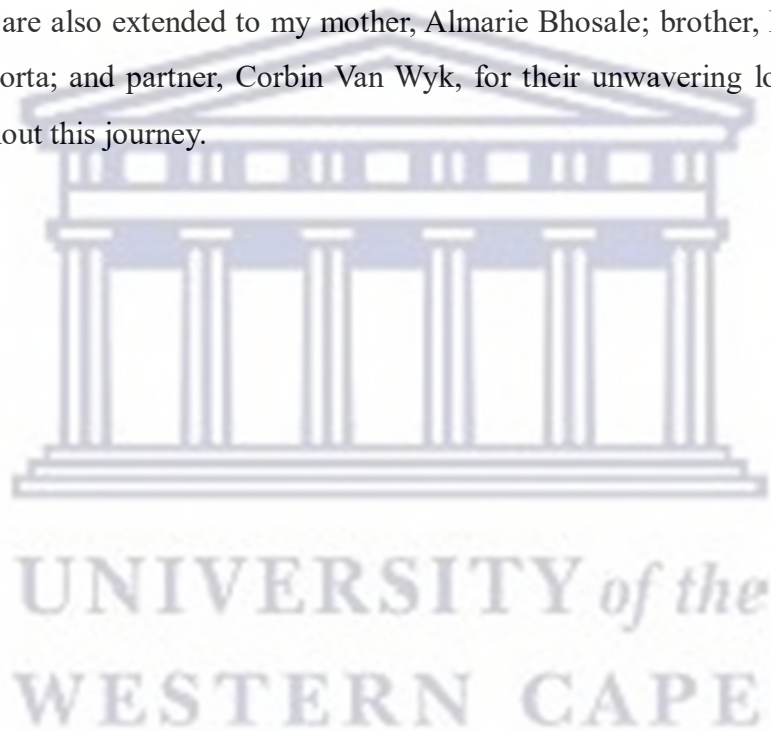


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Abstract

Eastern Cape Province has historically experienced challenges in its improvements and provisions for women's access to primary healthcare facilities. Women in the Eastern Cape province continue to lack access to antenatal care; in some cases, the mother and unborn child suffer terrible consequences. For this reason, the study aimed to identify the profile of women who access and utilise antenatal care in Eastern Cape Province. The study measured the relationship between women's socio-demographic, socio-economic characteristics and the timing of antenatal healthcare, number of antenatal healthcare visits, and blood pressure monitoring among women living in the Eastern Cape. The study used data from the South African Demographic and Health Survey 2016.

In this study, univariate analysis was employed to define the characteristics of the women. Bivariate analysis was used through cross-tabulation to determine the relationship between the women's characteristics, the timing of the antenatal healthcare visit, the number of antenatal healthcare visits, and whether their blood pressure was taken during pregnancy. Chi-square testing was conducted to assess the association between the women's characteristics and access to antenatal healthcare. Multinomial logistic regression was performed to identify the factors influencing antenatal healthcare access. The data was analysed using SPSS version 28 and Excel.

The study found that age, marital status, population group, wealth index and working status influenced the women's timing of their first antenatal healthcare visit, the number of antenatal healthcare visits and their blood pressure being monitored during pregnancy. Therefore, the South African Government, specifically the Policy Makers and the Eastern Cape Department of Health, must consider increasing awareness of the importance of proper antenatal healthcare utilisation.

Keywords: South Africa, antenatal healthcare, wealth index, maternal health, Socio-economic status.

CHAPTER 1: INTRODUCTION

1.1 Background of the study

This study examines the factors associated with women's access to antenatal healthcare within the Eastern Cape province in South Africa. Maternal health is a fundamental factor in the growth and prosperity of the population in the Eastern Cape and across the globe (Miller and Belizán, 2015; Girum and Wasie, 2017). Pregnant women are at a heightened risk of death or injury to themselves or their infants if they are not provided with appropriate care and attention during prenatal care and up to the time of childbirth (Appiah et al., 2020). The advantages of antenatal healthcare are undoubtedly indisputable, particularly in alleviating maternal and prenatal mortality and morbidity. Maternal morbidity is any health condition attributed to or exacerbated by pregnancy and childbirth that has a detrimental effect on the mother's health (WHO, 2022; Lange et al., 2019). Therefore, maternal healthcare accessibility is a pressing global issue that is of paramount importance to any society, particularly in low- and middle-income nations (Mashamba-Thompson et al., 2016; Ekpenyong et al., 2019).

According to the World Health Organization report (2023), these words ring true in light of significant failures in maternal health across the globe, emphasizing the extreme inequalities in access to healthcare, with one woman dying every two minutes from childbirth or pregnancy. For instance, studies show that, in 2020 alone, an estimated 287,000 women died during or after pregnancy and childbirth. The report indicates that nearly 95% of maternal mortality occurred within lower and middle-income countries where most of these deaths could have been avoided (WHO, 2023). The World Bank (2016) suggest that in most developing countries, the constraints of inadequate antenatal care services prohibit women from accessing facilities that would otherwise lower the chance of dying while giving birth. Notably, the primary causes of maternal mortality worldwide, accounting for a significant proportion of maternal fatalities, are hemorrhage (predominantly postpartum), infection, pre-eclampsia and eclampsia hypertension, obstetric complications, and unsafe abortion (Say et al., 2014).

Antenatal healthcare services must be available, allowing pregnant women to access various healthcare services, including health promotion, diagnostic and screening, and disease prevention. These services are essential for maintaining normalcy and for the early detection of abnormalities that could be life-threatening to the unborn child and the mother. Despite this, many pregnant women in developing countries lack access to these services (Konje et al., 2018; Mutowo et al., 2021). Studies indicate that maternal mortality represents one of the world's major public health concerns (Say et al., 2014; Girum and Wasie, 2017). From this perspective, the realisation of the Sustainable Development Goal (SDG), particularly Goal 3 on health, which seeks to reduce the worldwide rate of maternal mortality to below 70 per 100,000 live births by 2030, necessitates an increase in the availability of high-quality maternal services to the most vulnerable women (Atuoye et al., 2020). Sub-Saharan Africa is a region with a higher maternal mortality rate than other regions globally.

According to WHO (2019), the region had the highest rate of maternal mortality in the world in 2017, at 542 deaths for every 100 000 live births, and the highest rate of stillbirths at 28.7 per 1000 live births. The average global mortality rates for newborns and children under five are currently 17 and 37 per 1000, respectively (UNICEF, 2020). However, this is not surprising given that more than 75% of deliveries reportedly occur outside official medical institutions worldwide (Dantas, Singh and Lample, 2020). Access to maternal health care remains a problem in low and lower-middle-income countries, with South Asia and Sub-Saharan Africa bearing the brunt of this challenge. Ideally, studies by Banda, Charles and Hazemba (2012) depict that late initiation of antenatal healthcare in Sub-Saharan Africa is widespread, regardless of the nation, area, culture, or demographic. The prevalence of late antenatal healthcare presentation in this region is attributed to a variety of factors, such as a low socioeconomic background, lack of supportive partners, work commitments, and a lack of prenatal planning (Gross et al., 2012; Jinga et al., 2019). Owing to this, it is clear that if the UN is to achieve its Sustainable Development Goal (SDG) 3 objectives, particularly in Africa and regions affected by conflict, it will require more than doubling its current progress (Sharrovet al., 2022).

It is tragic for the mother's family and society when a woman dies during pregnancy, birth, or shortly after delivery. Alkema et al., (2016) found that in 2015, an estimated 303 000 women died from pregnancy-related causes, with a staggering amount of 2.6 million stillborn babies born and half of them taking place during the third trimester. To reduce global maternal mortality rates, the World Health Organization (WHO) has recommended that mothers should have eight or more antenatal healthcare visits, as this can reduce perinatal deaths by up to 8 per 1000 births compared to 4 visits. The guidelines recommend that pregnant women should have their first visit during the first 12 weeks' gestation, with subsequent visits taking place at 20, 26, 30, 34, 36, 38 and 40 weeks of gestation. This is because evidence by WHO (2016) has indicated that a higher frequency of antenatal care visits is associated with a reduced likelihood of stillbirths. In addition, the new guidelines provide guidance on the appropriate care to be provided to pregnant women during each appointment with a health provider. This includes advice on maintaining a healthy diet, avoiding tobacco and substance use, engaging in physical activity, blood tests, tetanus vaccination, malaria and HIV prevention. Additionally, guidelines on fetal measurements, including ultrasound, and advice on managing common physiological symptoms, including nausea, back pain, and constipation, are to be given (WHO, 2016).

These new recommendations were welcomed as studies conducted in the past on antenatal healthcare in South Africa indicated that over 60 % of women go to their first antenatal healthcare appointment after 20 weeks of pregnancy (Barron et al., 2013; Schnippel et al., 2015). Additional research has shown that 6% of women give birth without ever receiving antenatal healthcare visits during pregnancy (Barron et al., 2013; Solarin and Black, 2013). In response to the recommendations, the South African Health Ministry adopted the new guidelines in April 2017 (Hlongwane et al., 2021). The ministry formed a package of care called Basic Antenatal Care Plus, intending to increase the quality of antenatal care by providing evidence-based interventions across a minimum of eight antenatal care contacts, with an increased number of contacts during the third trimester of pregnancy.

Therefore, a woman must seek medical attention when she thinks she could be pregnant or when her period first stops to receive confirmation of her pregnancy and additional support (Department of Health, 2016). It has been found that early attendance at the medical facility facilitates early problem detection and resolution. As a result, antenatal healthcare should be started at the appropriate time (Department of Health, 2016).

The Maternal Mortality in Facility Ratio (MMR) in South Africa is a measure of the number of maternal fatalities that occurred during pregnancy, childbirth, and approximately 6 weeks after childbirth or within 42 days after termination of pregnancy, regardless of the duration and location of pregnancy and the underlying cause of death. This indicator is calculated as the number of maternal deaths per 100,000 live births that occurred in a facility (NDoH, 2021). Outwardly, over the previous few years, South Africa's Morbidity and Mortality Ratio (MMR) has decreased. The mortality rate peaked in 2012 at 144,9 per 100,000 live births, and it has since progressively declined, reaching 88,0 deaths per 100,000 live births in 2020 (statsSA, 2022).

It should be noted, however, that this is only the case in some provinces of South Africa. Compared to the Western Cape, which had the lowest MMFR in 2020 with 43,6 deaths per 100,000 live births, the Northern Cape had a mortality rate of 109,9 deaths per 100,000 live births and the Eastern Cape had a mortality rate of 108,2 deaths per 100,000 live births. (statsSA, 2022). Similarly, South Africa is doing reasonably well from the outset as it holds an average Neonatal Mortality Rate (NMR) of 11/1 000 live births (Mackay et al., 2022). However, the inequalities can be seen through the differences within the provinces, as by province, neonatal mortality rates range from 6.9/1,000 in the Western Cape to 14.2/1,000 in the Northern Cape.

Moreover, within the Eastern Cape districts, premature infant mortality ranges from 7.5/1,000 to 17/1,000 (Mackay et al., 2022). These results demonstrate the urgency of the need to take action to reduce the number of maternal deaths. A significant proportion of these adverse outcomes can be prevented by providing high-quality prenatal and postpartum care (Blencowe et al., 2016). South Africa still faces many challenges, like inequality and significant healthcare gaps, which must be considered (United Nations, 2020).

The aforementioned high Maternal Mortality in Facility Ratio (MMR) and Neonatal Mortality Rate (NMR) that women face within the Eastern Cape is partly due to disparities in access to healthcare in South Africa, exacerbated by the nation's poverty and inequality. The poorest people in society sometimes reside in the remotest places, have the least access to healthcare, and frequently receive care that falls short of the required national standards. Despite improvements in the country, these improvements in access and service quality have yet to be made uniformly (McLaren et al., 2013; Visagie and Schneider, 2014). The lack of access to healthcare is particularly acute in the Eastern Cape, where impoverished populations face various difficulties, such as a lack of access to public healthcare services and limited financial resources.

The Eastern Cape is the poorest province in South Africa; 12.7% of households are poor, and 878 000 people live in poverty. Furthermore, roughly 70% of households in the Eastern Cape are impoverished and double the national average of 37% in rural regions (Willie, 2011; StatsSA, 2015; StatsSA, 2016). As a result, Abrams (2022) argues that the most economically disadvantaged and vulnerable individuals in South Africa are more likely to suffer from health issues and are less likely to be able to access and use healthcare services. This is apparent for the women in the Eastern Cape as they were found to delay their antenatal healthcare appointments due to a lack of healthcare availability and accessibility. Kaswa et al., (2018) argue that rural communities are notorious for having few resources and fewer competent healthcare providers. Even though visits to the antenatal healthcare clinic regularly are essential for reaping the full potential of antenatal healthcare treatments (Appiah et al., 2020).

It is challenging to get to the clinics in a geographically dispersed community (Peltzer et al., 2005). The scholars found that, in the Eastern Cape Province, many women must travel more than an hour to get to their closest clinic, as there is very little public transportation, and emergency services are challenging to reach. Travelling long distances can thus be a barrier to fully utilize maternal healthcare services such as antenatal care, particularly in rural areas where women have a low socioeconomic status (Silal et al., 2012).

Subsequently, financial difficulties become a barrier to the frequency with which these women seek care, as pregnant women may be unable to afford transportation to the hospital (Tsawe and Susuman, 2014). Concerns about safety by rural pregnant women in the Eastern Cape Province have been recognised as a significant contributing factor to the underutilization of clinic-based prenatal care services (Kondile, 2017). When seeking antenatal care services, some women must travel through dangerous squatter camps, fields, and rivers, increasing their chances of being raped or murdered. As a result, many women opt not to attend antenatal healthcare services unless they're accompanied by someone for security purposes.

Women's quality of care at their antenatal care visits is crucial. However, poor and insufficient service quality was identified as a significant predictor of late antenatal healthcare booking for women in the Eastern Cape (Kaswa et al., 2018). This is because pregnant women were found to be commonly discouraged from attending antenatal healthcare clinics due to healthcare professionals' poor attitude, insensitivity, and harshness. A research investigation found that women in rural areas were more prone to book late due to a lack of healthcare resources. They were accompanied by long clinic waiting times and queues as contributing factors to late antenatal care visits (Banda et al., 2012). This, in turn, discourages them from attending antenatal care clinics, as they spend many hours waiting in lines after travelling significant distances to meet health care providers (Banda et al, 2012).

A study conducted on pregnant women's perspective on the late booking of antenatal care services at Mbekweni Health Centre in the Eastern Cape found that women's perception and knowledge influence their decision on the time at which antenatal care visits were booked (Ramprakash et al., 2018). Many women view pregnancy as a natural physiological process and avoid antenatal care visits until they are forced to by a medical problem (Ramprakash et al., 2018). The study further indicates that many women who experience no problems during their pregnancy were less willing to attend antenatal care visits as they did not experience the need for it (Ramprakash et al., 2018). This is because women do not regard being pregnant as an urgent health risk, and thus they do not believe that early booking for antenatal health care visits is essential (Myer and Harrison, 2003).

In the Eastern Cape, research has identified cultural considerations as a barrier when using maternal health care services and antenatal care (Tsawe and Susuman, 2014). This is because

culture is an essential concept that shapes people's beliefs and how they live in South Africa. By their cultural beliefs, some women, for example, prefer to give birth at home with the assistance of traditional birth attendants rather than going to a hospital or clinic (Simkhada et al., 2008). Antenatal healthcare is crucial as it offers a platform for critical medical procedures such as illness prevention, screening, and diagnosis (Blencowe et al., 2016).

The health of the mother and foetus can be enhanced by using timely and suitable evidence-based practices during antenatal healthcare. In the existing body of literature, the study on women's access to antenatal healthcare is more generalised across all nine provinces of South Africa. However, no single study has focused on the Eastern Cape Province as a case study, knowing that the healthcare in Eastern Cape Province still needs to improve due to insufficient health facilities and health professionals. In addition, only some studies tackling women's access to antenatal healthcare did not pay attention to the factors determining the timing of the first antenatal healthcare check, the number of antenatal healthcare visits, and whether their blood pressure was monitored at each antenatal healthcare visit. This study investigates the relationship between the sociodemographic, socioeconomic, and place of residence variables and the timing of the first antenatal healthcare visit, the number of antenatal healthcare visits, and if women's blood pressure is checked each antenatal healthcare visit.

1.2 Research questions

Eastern Cape Province has historically experienced challenges in its improvements and provisions for women's access to primary healthcare facilities. This is especially evident in the high rates of neonatal mortality. This study focuses on determining access to necessary antenatal care among mothers within the Eastern Cape province in South Africa.

The following research questions guide this study:

- Is there a relationship between women's sociodemographic characteristics such as age, marital status, population group, level of education, and the timing of the first antenatal healthcare visit among women in Eastern Cape?

- Does the number of antenatal healthcare visits differ by type of residence where women live, such as rural and urban areas of the Eastern Cape?
- Does socioeconomic characteristics such as wealth index, and working status of women living in Eastern Cape influence their blood pressure check during antenatal visit?
- Does having access to medical insurance increase the number of antenatal healthcare visits women have in the Eastern Cape?

1.3 Problem statement

According to Heywood (2013), the Eastern Cape Province's health outcome and health service indicators are among the country's worst. Two major reports, by the Treatment Action Campaign and Human Rights Watch, highlighted weak accountability mechanisms in their analyses of health systems failure in the Eastern Cape (Human Rights Watch, 2011). The province's health system is usually viewed as exceptionally poor. It is politicised and might be said to be in a state of "chronic emergency," even though a few hospitals, clinics, and individuals are frequently cited as exemplary exceptions (Heywood, 2013).

Women's antenatal care needs in rural parts of the country are still being neglected, and some cases' have horrific outcomes for the mother and infant. This is evident with the Dora Nginza Hospital (DNH) in the Nelson Mandela Bay district of the Eastern Cape province, which had historically the highest NMR count in South Africa, with 34.4 neonatal deaths per 1,000 live births in 2016 (Mackay et al., 2022). As a result, a quality improvement (QI) process was subsequently instituted to reduce neonatal mortality.

Little is known about women's characteristics such as age, marital status, educational level, working status, type of residence, medical insurance, frequency of media exposure, population group and wealth index. Moreover, the influence those characteristics have on women's timing of their first antenatal check, the number of antenatal visits during pregnancy, and whether blood pressure is taken during pregnancy are still under-researched in the existing body of the literature. For this reason, this study seeks to investigate the profile of women who access and utilise the antenatal healthcare facilities in the Eastern Cape province.

Further, the study measured the relationship between women's sociodemographic, socioeconomic, location variables, health-related characteristics and the timing of antenatal healthcare, number of antenatal healthcare visits, and blood pressure monitoring among women living in the Eastern Cape. Hence, the sociodemographic and socioeconomic factors determining women's antenatal healthcare behaviour in the Eastern Cape Province of South Africa were investigated in this regard.

1.4 Objectives of the study

This study aims to identify the profile of women who access and utilise antenatal care in Eastern Cape Province and the sociodemographic and socioeconomic factors contributing to barriers these women face.

The specific objectives of the study are as follows:

- To measure the relationship between women's sociodemographic characteristics such as age, marital status, level of education, population group and the timing of first antenatal healthcare visit among women in Eastern Cape Province.
- To investigate whether the number of antenatal healthcare visits differs by type of residence where women live, such as rural and urban areas of Eastern Cape Province
- To determine whether socioeconomic characteristics such as wealth index and working status of women living in Eastern Cape influence their blood pressure check during antenatal visit.
- To investigate whether women who hold medical insurance have more antenatal healthcare visits.

1.5 Significance of the study

Although the burden of using antenatal healthcare services varies by social class, it disproportionately lies on underprivileged women who lack access to healthcare and experience several types of physical location (UNICEF, 2018).

In environments with limited resources and high fertility rates, the risks of dying during labour are also significant, and the lifetime risk of the impact of maternal factors is magnified (UNICEF, 2018). Consequently, we must inquire into women's access and utilisation patterns of women's use of antenatal healthcare facilities and the obstacles they experience when accessing this vital service and treatment. Hence, the need for this research to examine the use of antenatal healthcare access among women in the Eastern Cape Province.

The research will contribute to understanding antenatal healthcare services women in the Eastern Cape Province have. Health promotion initiatives created to make pregnant women aware of antenatal healthcare services will produce recommendations that could help increase knowledge of and perception of antenatal healthcare services and accessibility for women in the Eastern Cape Province. The data may be utilised to create development strategies to increase pregnant women's utilisation of antenatal healthcare services and enhance access to prenatal care services. Providing antenatal healthcare services accessibility is crucial for giving pregnant women the confidence they need to encourage early antenatal healthcare initiation. Evaluating pregnant women's understanding of antenatal healthcare will also help identify gaps, allowing for well-informed intervention program design.

1.6 Hypothesis

In this study, the following hypotheses were tested:

- Women's individual characteristics such as age, marital status, level of education and population group influences the timing of first antenatal healthcare visit among pregnant women in Eastern Cape Province.
- The number of antenatal healthcare visits differ by type of residence where women live such as rural and urban area of Eastern Cape Province.
- The socioeconomic characteristics such as wealth index, working status, of women living in Eastern Cape influence their blood pressure being checked during antenatal visits.

- Women who hold access to medical insurance, have a higher number of antenatal healthcare visits during their pregnancy in the Eastern Cape

1.7 Delimitation of the study

This study is only limited to the Eastern Cape Province. It seeks to investigate the factors determining the timing of antenatal healthcare visits, the number of antenatal healthcare visits, and to assess whether blood pressure is monitored during antenatal healthcare visit. The study comprises women participants who are in reproduction age between 15 and 49 years old.

1.8 Definitions of major terms

Antenatal care (ANC): is care given to expectant women in order to identify high-risk pregnancies and educate them so that they might experience a healthier delivery outcome (McNellan et al., 2019)

Healthcare Facilities: Healthcare facilities are institutions that provide medical care. This includes clinics, hospitals, and specialised treatment centres (Department of Health KwaZulu Natal, 2001).

Maternal morbidity: is defined by the World Health Organization as any health condition that is attributable to and/or exacerbated by pregnancy and childbirth that has adverse effects on the health and wellbeing of the mother (Firoz et al., 2013).

Prenatal health care is the identification and treatment, of inauspicious maternal and infant outcomes, as well as interventions to address psychosocial stress, detrimental health behaviours such as substance abuse and adverse socioeconomic conditions (Alexander and Kotelchuck, 2001).

Perinatal mortality: is the sum of all fetal deaths occurring after 22 (or 28) weeks of pregnancy and all live births occurring up to 7 days after birth (Bakketeig, 2008).

Socioeconomic Status: Socioeconomic status is an individual or group's social standing or class. It is measured as a combination of education, income, and occupation.

1.9 Thesis outline

This study has six chapters on women's access to and use of antenatal healthcare. Chapter 1 features the study's purpose, the questions that will guide it, the hypotheses that will be tested, the study's significance, restrictions, and definitions of interest. Chapter 2 presents two basic categories of literature that include theoretical frameworks and empirical frameworks. The first section discusses pertinent hypotheses on how people access and use healthcare services. The following empirical analyses of antenatal healthcare utilisation are examined in this literature section. The policy framework pertinent to antenatal healthcare is reviewed at the tail end of this chapter.

Chapter 3 covers the study's methodology in full. The study's research strategy and data collection techniques are described with a description of the variables and the methods used to analyse the data.

A comprehensive review of the data analysis is provided in Chapter 4. The univariate and bivariate analyses are described together with the test statistic used in the analysis, and a summary of the multivariate analysis follows. Chapter 5 gives a critical discussion of the findings from Chapter 4. The analysis is concluded in Chapter 6, which also offers suggestions for future legislation and academic inquiry.

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CHAPTER 2: LITERATURE REVIEW

This chapter reviews the literature regarding women's access to and utilisation of antenatal healthcare and aims to understand the determining factors. Moreover, it covers the theoretical framework of access and utilisation to antenatal healthcare and a detailed analysis of the empirical evidence. Finally, a review of healthcare policies in South Africa is given in detail to link its relevance to the study.

2.1 Theoretical framework

Available literature has been reviewed and analysed to address the factors influencing access to and utilisation of antenatal healthcare. In this study, the Health Belief Model (Rosenstock, 1974) and the health-seeking behaviour model (Andersen, 1995) are the frameworks analysed.

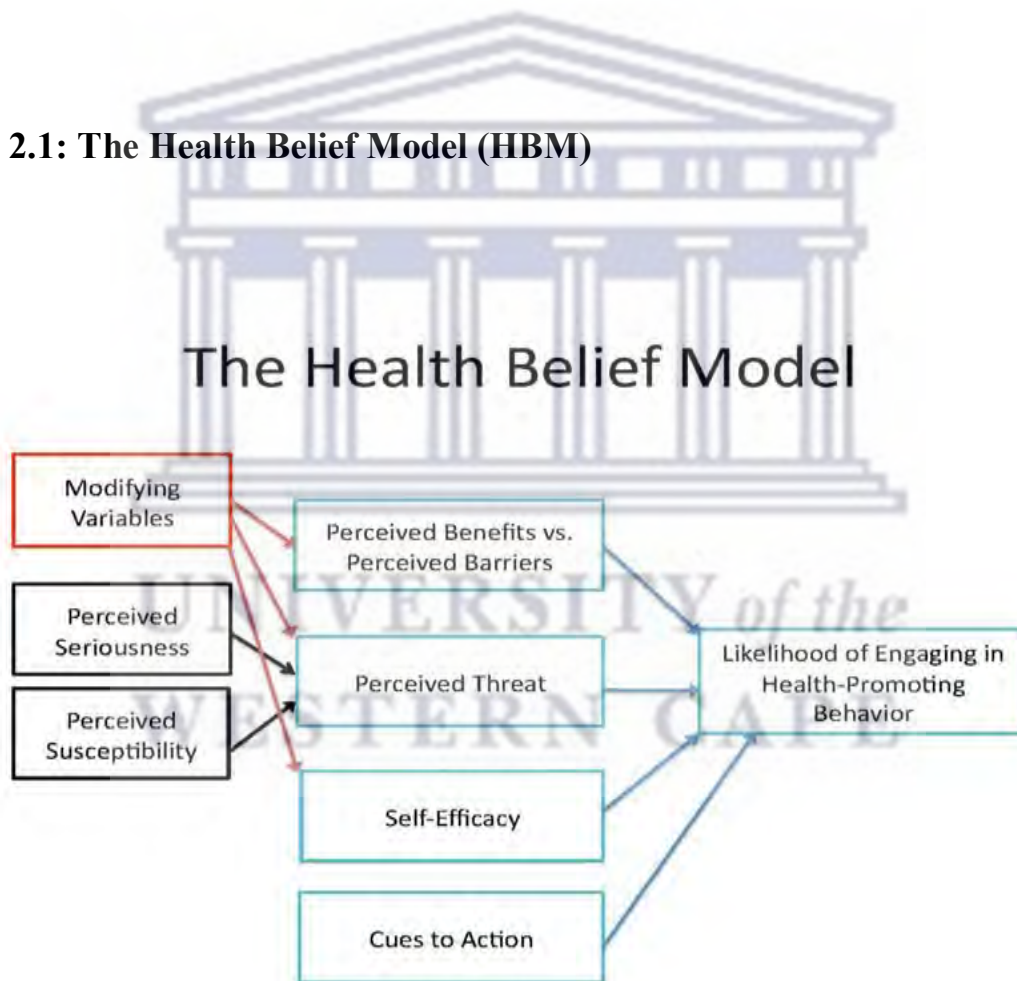
2.1.1 The health belief model

A psychological health behaviour model theory called the Health Belief Model (HBM) was created to explain and forecast health-related behaviours, especially regarding the use of health services like antenatal healthcare treatment (Siddiqui et al., 2016). Perceived susceptibility, perceived severity, perceived rewards, perceived barriers, self-efficacy, and cues to action are all vital to this approach (Jones et al., 2015). Becker created the model in the 1970s (Rosenstock, 1974) and revised it in the 1990s (Rosenstock et al., 1994). It is the most prevalent theory in the healthcare industry and is primarily utilized to support research that evaluates the quality of maternal healthcare services (Sanda, 2014).

In this approach, high perceived susceptibility indicates a person's capacity to engage in the desired behaviour, such as making prompt and adequate use of antenatal healthcare services (Muchenje et al., 2016). Perceived severity highlights the person's sense of threats related to inadequate adherence to intended behaviour. According to Hardcastle et al., (2015), high perceived severity may serve as a stimulus for people to engage in healthy behaviours. With perceived benefits, potential advantages towards antenatal care services may enhance effective service utilization. The use of antenatal care services may be hindered by perceived barriers, including unpleasant services, high costs, unplanned pregnancies, poor care, and distance to a health institution (Ali et al., 2018;

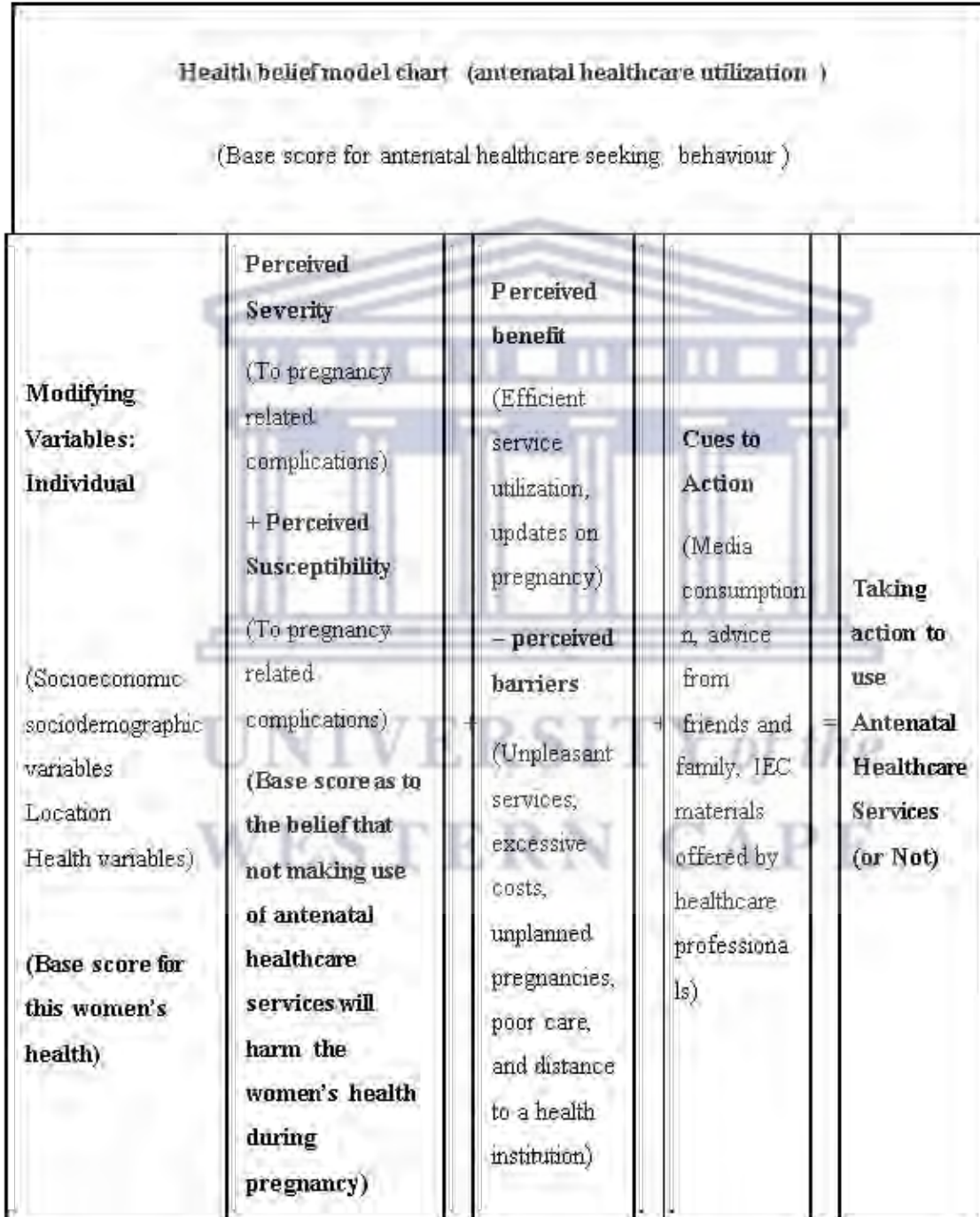
Konje et al., 2018). Cues to action are additional Health Belief Model factors. According to (LaMorte, 2019), they are identified as internal or external need elements or stimuli that cause a person to behave right away per the desired behaviour. The intrapersonal need factors known as challenging pregnancies or any adverse maternal outcomes from a previous pregnancy, labour, or delivery are examples of internal cues. These could encourage women to use antenatal healthcare services appropriately and on time in future pregnancies. According to Geta and Yallew (2017), media exposure to information, IEC materials offered by healthcare professionals, and receiving advice from friends and family are examples of external cues (Muchenje et al., 2016; Pell et al., 2013).

Figure 2.1: The Health Belief Model (HBM)



Source: Attribution-ShareAlike 3.0 Unported (CC BY-SA 3.0)

Figure 1.2: Health belief model on antenatal healthcare utilization



Source: <https://psu.pb.unizin.org/kines082/chapter/the-health-belief-model/> and literature review

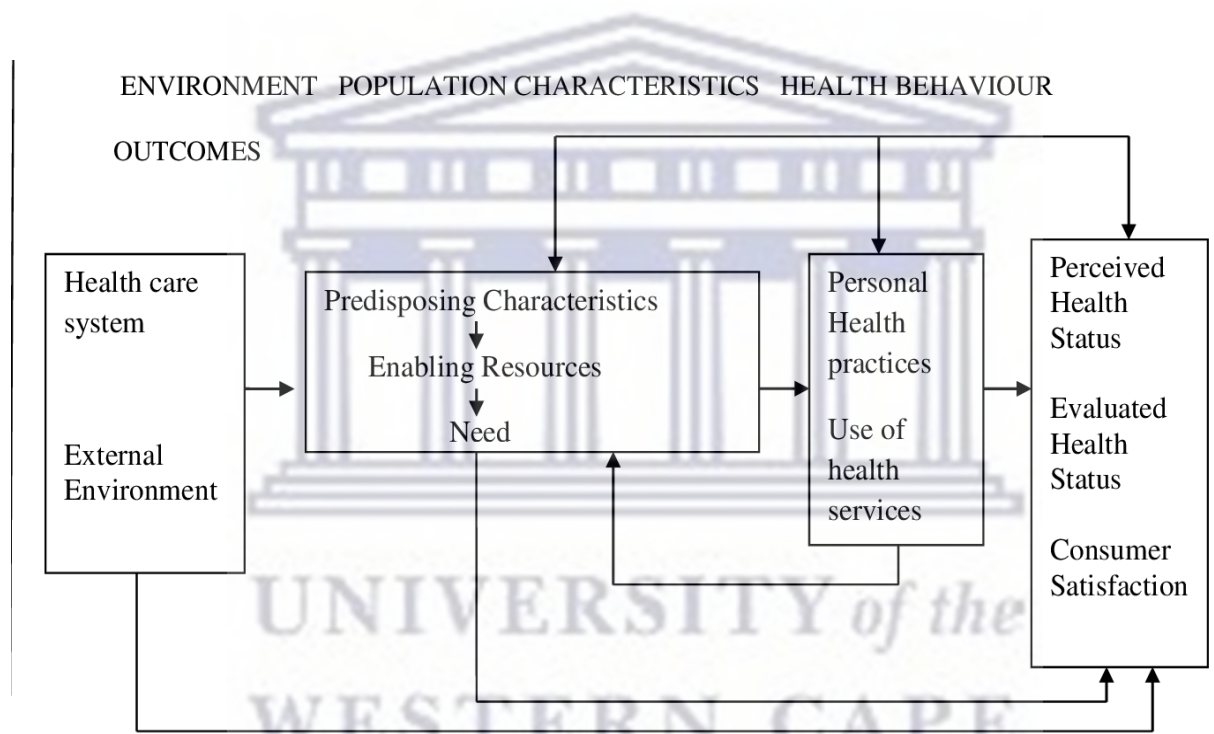
2.1.2 Health-seeking behaviour model (HSBM)

The Andersen's health-seeking behaviour model contends that the usage of healthcare services results from three crucial component functions. The HSBM describes the rationale (why and how) for using healthcare services, the ensuing perceived needs for using healthcare, the enablers that help with or barriers to use, and the predisposing factors that affect acute healthcare service usage. The model makes it possible to evaluate indicators of healthcare accessibility, equity, efficacy, and efficiency and comprehend the environmental impact (Andersen, 1995). The model makes the case that external environmental and personal traits (predisposition, enabling, and need element) may influence the disposition of health behaviour to use health services, affecting health outcomes (Andersen, 1995). Ideally, the predisposing factors that affect acute healthcare service usage, location and sociodemographic variables of a person affect their inclination to seek professional medical attention (Andersen and Newman, 2005; Abor and Abekah-Nkrumah, 2016). According to Abor and Abekah-Nkrumah (2016), the premise is that an individual will exercise sound judgment when making important healthcare decisions and that everyone with the same characteristics will behave similarly while looking for healthcare services.

The enablers that help with or barriers to using healthcare suggest that one of the factors influencing the use of antenatal healthcare is the ability to access medical facilities (Ayanda, 2014). In other words, medical facility use relies on accessibility and availability (Abekah-Nkrumah and Abor, 2016). A person having qualities that make them more likely to use health services would not be enough to predict actual utilization. The theory highlights that families must be able to use the facilities for some reason, and these elements can be identified by looking at resources like facility accessibility, such as a women's socioeconomic and health variables (Andersen and Newman, 2005; Abekah-Nkrumah and Abor, 2016). The ensuing perceived need for using healthcare by Okutu (2011) and Chitimbe (2006) suggest that using antenatal healthcare services is based on how mothers view the value of medical care. Cultural perspectives on the condition also influence antenatal healthcare use and physical problems. According to research by (Abekah-Nkrumah and Abor (2016) and Chakraborty et al., (2003), cultural variables significantly impact how people seek out health care, particularly pregnant women, and people with children.

According to their customs and cultural knowledge, people in this situation might not notice a particular symptom or condition or even think it is normal (Abekah-Nkrumah and Abor, 2016). Okutu (2011) notes that for a woman to seek antenatal healthcare treatments, she must regard the problems as dangerous and think that treatment is the sole option, as the presence of predisposing and enabling conditions is insufficient to induce a woman to seek antenatal healthcare treatments.

Figure 2.3: Health-seeking behaviour model



Source: Ononokpono (2013) <https://www.semanticscholar.org/paper>

2.2 Empirical literature

The empirical literature discussed is based on the accessible literature on the determinants that contribute to women's engagement with access to antenatal care. The section focuses on the main determinants: age, marital status, education, wealth index, type of residence, insurance cover, frequency of media (TV and radio), population group, and working status.

2.2.1 Global overview of the antenatal healthcare

Sub-Saharan Africa was discovered to have a high rate of maternal fatalities even though maternal mortality decreased worldwide by over 38% between 2000 and 2017 (Samuel, Zewotir and North, 2021). As of 2017, Sub-Saharan Africa was responsible for around two-thirds of all maternal deaths globally (Samuel, Zewotir and North, 2021), with a maternal death rate of 351 per 100,000 live births the following year reported by the Alliance for Maternal and Newborn Health Improvement (AMANHI, 2018). The World Health Organisation highlighted similar reports, noting that Nigeria, Mali, Guinea, and Zambia had maternal death rates of 917, 562, 576, and 213 per 100,000 live births (World Health Organization, 2019). According to the research conducted by Samuel, Zewotir and North (2021), eight out of fifteen nations that were deemed to be high-risk areas for maternal mortality were in sub-Saharan Africa: Somalia, the Democratic Republic of the Congo, Central African Republic, Chad, Guinea, Zimbabwe, Nigeria, and Ethiopia were among these nations.

According to UNICEF (2019), 86% of pregnant women worldwide access skilled prenatal care at least once, and 65% have at least four visits. In sub-Saharan Africa, just 52% of expecting mothers get at least four visits. However, unplanned pregnancies, problems from previous pregnancies, lack of husband support, long distance to the hospital, lack of health insurance, and high service fees are just a few of the variables that have been connected to low antenatal care utilization (Okedo-Alex et al., 2019).

2.2.2 Challenges of antenatal healthcare within Sub-Saharan Africa

The use of antenatal healthcare during pregnancy is of utmost importance. However, when attempting to access and utilize antenatal healthcare in Sub Sahara Africa, a number of challenges are faced by women.

2.2.2.1 Distance

One of the most significant challenges women face when accessing maternal healthcare is the long distances, they must travel to reach maternal healthcare facilities (Kyei-Nimakoh et al., 2017; Okedo-Alex et al., 2019; Wong et al., 2020).

The women are often incapable or hesitant to utilize maternal care as they must travel long distances, which are exacerbated by poor roads and the rough landscape (Atuoye et al., 2020; Kyei-Nimakoh et al., 2017). Notably, this is also seen in Nigeria, as the second main reason for not receiving postnatal care is the distance to the hospital (Joseph et al., 2013). Similarly, in Zambia, a woman's chances of accessing certain antenatal healthcare services were reduced by 25% for every 10 kilometres she lived away from a healthcare institution (Kyei et al., 2012). Additionally, Tshivhase et al., (2022) note that within Zimbabwe, due to the lengthy distances, most pregnant women who walk 5 kilometres or more to the clinics do not consistently attend antenatal appointments. This is supported by

Gupta et al., (2015), who observed that women were less likely to attend four or more antenatal healthcare visits when the health facility is far from where they reside.

2.2.2.2 Poverty

Poverty is a proven barrier to healthcare utilization as research conducted by Houweling et al., (2007); Peters et al., (2008) identified that women in Sub-Saharan Africa with low socioeconomic status may not be able to afford the medical and non-medical expenditures associated with utilizing antenatal healthcare services. As a result, due to a lack of financial resources, these women may decide not to attend antenatal healthcare, reduce the number of sessions, or even start antenatal healthcare later in their pregnancy. Admittedly, women need to use antenatal healthcare services as it is uniquely for women during pregnancy and childbirth. However, women are often less likely and unable to pay for insurance due to their lower income position and financial dependence compared to their male counterparts (Ataguba et al., 2008; Adebayo et al., 2015).

In Nigeria, for instance, Fagbamigbe, Olaseinde and Setlhare (2021) discovered that women with low socioeconomic status have prevailing low required antenatal healthcare visits. Similarly, the inability to obtain the necessary funds in Mali prevented the utilization of antenatal healthcare services from starting earlier than planned (Ahinkorah et al., 2021). In the same vein, earlier research in Mali discovered that lack of funding was the primary obstacle to antenatal healthcare visits' frequency and timing (Okedo-Alex et al., 2019). Low-income mothers schedule less time to attend antenatal care appointments than high-income mothers (Gross et al., 2015).

In contrast, women from high-income families are more likely than women from low-income families to access and use maternal healthcare services (Tuncalp et al., 2017). In addition, women from wealthy families can afford healthcare services, particularly when faced with out-of-pocket medical charges (Ekholuenetale et al., 2021). Research conducted in Burkina Faso has indicated that when there are lower levels of poverty, there is a tendency to have four or even more antenatal care contacts among women of childbearing age (Badolo et al., 2022). Studies have shown that within Uganda, when women are from a higher socioeconomic status, they are more likely to meet the standard number of eight antenatal care visits than women of another socioeconomic status (Atuhaire et al., 2020).

2.2.2.3 Healthcare providers

Healthcare workers who display negative attitudes towards women when using antenatal healthcare services have been identified as a barrier (Amungulu et al., 2023). Research conducted by Bohren et al., (2015) on the mistreatment of women in labour in health facilities globally found documented examples of women being physically, sexually, or verbally mistreated while giving birth in Ghana, South Africa, Nigeria, and other countries in Sub-Saharan Africa. For example, in Zimbabwe, it has been highlighted in a study done by Bwalya et al., (2018) that expectant mothers accused midwives of being rude and abusive. Additionally, unprofessional behaviour on the part of healthcare professionals, including a lack of respect, privacy, confidentiality, and traditional beliefs of patients, was found to be 27.5% of the reason why pregnant women were not utilizing antenatal healthcare services in Nigeria (Fagbamigbe and Idemudia, 2015).

2.2.3 Historical background of antenatal healthcare in South Africa

2.2.3.1 Access to antenatal healthcare during apartheid

The National Party's objective during the apartheid era was to ensure White supremacy and to enforce racial segregation by categorizing all South Africans into White, Black, Coloured (including mixed race), or Asian ethnic categories; prohibiting interracial marriage; establishing a system of segregation in employment based on race and enabling legal discrimination and numerous other inequities (Cameron, 2003).

Under the apartheid regime, numerous laws and policies that promoted racial discrimination were implemented, which prevented black Africans from accessing health care, such as antenatal healthcare services. Furthermore, the deregulation of public healthcare in South Africa resulted in the growth of the private sector (Maillacheruvu and McDuff, 2014). As a result, the privatisation of health care further increased the disparities between the white and black South African populations, making health care unaffordable for non-whites.

The forced relocation of Black South Africans from the largest towns and cities into what were known as Bantustans, in addition to discriminatory health practices, played a crucial role in maintaining the economic and political dominance of the white population (Coovadia et al., 2009). In turn, this led to the health of non-white people being negatively impacted by an unfair allocation of health resources in favour of the white population outside of the Bantustans. The system necessitated the creation of distinct departments for each racial group (Kon and Lackan, 2008). This disparity was sustained by an inefficient healthcare system divided into 14 departments, 10 of which were 'homelands' departments, three of which were 'own affairs' departments, and a single department of 'general affairs' (Chetty, 2007). As a result of this separation, white doctors were not assigned to rural areas and black townships, which were the area's most in need of medical care (Kale, 1995). This led to significant cost efficiencies and provided unequal access and care for white and non-white patients (Rensburg and Benatar, 1993). Additionally, because 'white' hospitals received a disproportionate share of the health resources, 'black' hospitals were frequently overcrowded and understaffed due to the racial segregation of healthcare facilities (Maillacheruvu and McDuff, 2014).

The health inequalities experienced by Black and White communities during the apartheid period are well-documented. As a result, access to and the utilization of antenatal healthcare by Non-white women in South Africa was deplorable and limited, as evidenced by the fact that in 1981, Black infants had a 20% rate of infant mortality, while the White population had a 2.7% rate. Furthermore, while there was an average of one doctor per 330 White citizens in South Africa, there was only one doctor per 91,000 black citizens (Kale, 1995).

2.2.3.2 Access to antenatal healthcare during post-apartheid South Africa

In South Africa, women face many barriers closely related to socioeconomic inequality when accessing antenatal healthcare. The diverse environments, geographic divisions, populations, and levels of development are reflected in all nine provinces. Geographic location is particularly problematic to underprivileged women as they are faced with expensive transportation costs. Seemingly, South Africa's apartheid-era legacy impedes the provision of essential public health services (Coovadia et al., 2009). Since the end of Apartheid, socioeconomic disparities have persisted, with poor and black women continuing to bear the brunt of healthcare costs (Solomon et al., 2020). Poverty's racial and geographic characteristics are one of apartheid's persisting effects (Solomon et al., 2020).

Despite free maternity healthcare available, accessing the nearest hospital or clinic frequently can become a considerable expense (Sikal et al., 2012). Even after the end of apartheid, the most disadvantaged households are still predominantly black and typically located on the outskirts of urban centres or rural areas (Burger et al., 2015). For instance, according to research conducted by Sikal et al., (2012), in which it was discovered that transportation costs are a substantial obstacle for women, particularly in rural locations with limited public transportation and challenging logistics for ambulance service. In South Africa, 14 % of black South Africans live more than 5 kilometres away from the nearest clinic, while for white South Africans it is only 4%. In addition, the results indicated that many pregnant women who started prenatal treatment only during the third trimester or never obtained any prenatal care did so because they resided at least five kilometres from a medical institution (McLaren et al., 2014). Black South Africans experience more difficulty accessing healthcare facilities, services and goods within safe geographical reach than white South Africans (Sikal et al., 2012). Women are forced to frequently purchase essentials such as sanitary towels, meals, and diapers within smaller clinics, even though healthcare services are free at the point of use (Sikal et al., 2012). This results in some disadvantaged women borrowing money to obtain essential items.

The same study discovered that women had to spend over 51.4% of their family expenditures on such delivery fees in two rural and impoverished regions, and more than 14% of households had to borrow money or sell assets to pay for delivery costs (Sikal et al., 2014).

Obuaku-Igwe (2015) explains that the effects of apartheid on the black population include several disadvantages that increase their likelihood of living in poverty, rural areas, and the poorest provinces, which affects infants, children and maternal mortality using healthcare facilities, health system variables, and infrastructure. In order to establish a segregated South Africa, the apartheid state implemented regulations that limited the geographic movement of black South Africans (Solomon et al., 2020). One of the main arguments is that the legacy of apartheid makes the insufficiency of health services more obvious in non-white neighbourhoods. This is evident as the province in which a woman resides can be a barrier when trying to access and utilize antenatal healthcare (McLaren et al., 2014).

Antenatal healthcare can be interpreted by the province where the women reside since different provinces may have different numbers of antenatal healthcare visits due to differences in their socioeconomic development, traditional and demographic composition, as claimed by Palamuleni (2011). Immediate obstetrical treatment is one service that is essential to the continued existence of women and children. Only hospitals, not all local clinics, have the necessary immediate obstetric services and medications (Thwala et al., 2018). The shortage of skilled medical labour is a significant problem with the accessibility of maternal health services. Additionally, there is proof that the availability of doctors directly impacts women's health (Thwala et al., 2018). Provinces like Limpopo and Mpumalanga struggle with inadequate infrastructure development (including health facilities education, income, and roads) compared to the Western Cape and Gauteng, which are richer (Chirwe 2016). The Department of Health (2018) reported in "Saving Mothers Report" for the years 2014 to 2016, that there are 51% of women who died from ectopic pregnancies, 33% from miscarriages, 46% from pregnancy-related sepsis, 48% from obstetric haemorrhage, and 34% from hypertension and 71% due to anaesthetic related cases had no access to competent medical care. From the aforementioned it is clear that the legacy of apartheid has produced grave injustices for women when trying to access antenatal healthcare in South Africa.

Figure 2.4: Map of South Africa



Source: Map of South Africa (SADHS, 2016)

2.2.3.3 COVID-19 effect on antenatal healthcare services in South Africa

When the COVID-19 pandemic spread, it sent South Africa into an immediate lockdown on 26 March 2020 to prevent the spread of the virus. For the remainder of 2020 and into 2021, these lockdowns imposed several travel limitations that substantially impacted health services (Pillay et al., 2021). According to an examination of data for the first half of 2020 in South Africa, there had been a 30% rise in institutional maternal mortality during the first wave of COVID-19, which generally overlapped with the strictest limitations during lockdown levels 5 and 4 (Pattinson et al., 2020).

In South Africa, Nigeria and Bangladesh, an investigation revealed that maternal and child health services had decreased in the use of fundamental services like antenatal care, family planning, and immunization because of the implementation of lockdown, which led to people's fear of contracting COVID-19 and this, in turn, prevented them from accessing primary care. In addition, the focus had shifted away from other health services in favour of the pandemic, which had a negative impact on resources.

The availability of basic healthcare was impaired because of these issues when they were considered together (Ahmed et al., 2021). Fear of getting COVID-19 when utilizing public transportation and in medical institutions was observed in South Africa, which may have contributed to the drop in utilization (Rwafa-Ponela et al., 2022).

The maternal mortality in institutions compared from March to December 2020, to the same time in 2019 had 967 maternal fatalities reported nationally, up from 788. This represents a rise in deaths of 179 (22.7%). Maternal mortality increased in every province apart from the Northern Cape, which had low numbers and a 38.5% drop. The three provinces with the most significant proportional increases were Mpumalanga (36.7%), KwaZulu-Natal (44.2%), and Western Cape (82.1%). From March to December of 2019 to March to December of 2020, the institutional maternal mortality ratio increased from 90.5/100,000 live births to 106.8/100,000 (Pillay et al., 2021). Facility-related neonatal fatalities within the first 28 days of life are called the neonatal period. Throughout March and December 2019 and 2020, institutional newborn mortality increased by 487 (4.8%) nationwide. Neonatal mortality in institutions increased from 12.0 per 1,000 live births in 2019 to 12.2 per 1,000 in 2020. The majority of provinces experienced growth, with the largest proportional changes occurring in the North West (25.1%), Mpumalanga (10.2%), Gauteng (9.5%), and Western Cape (8.3%) (Pillay et al., 2021).

During 2020/21, there were more births per month in healthcare facilities than in 2019/20; on average, the birth rates rose by 3.6%. There had been a significant spike in pregnant women moving to more rural provinces and districts for delivery during the period. Women who were pregnant went to clinics later than usual. The use of prenatal care, as determined by the number of women beginning antenatal care, showed wide variance, with Mpumalanga seeing 16% more initial visits and Gauteng and the Western Cape seeing 8% fewer. Overall, the number of pregnancies that were terminated decreased by an average of 17%, most likely because of both fewer women making termination-of-pregnancy service requests and restricted access to services (Pattinson et al., 2020).

2.2.4 Description of Eastern Cape Province

A total of 168 966 km², or 13.8% of South Africa's total surface area, is covered by the Eastern Cape. The region is situated between the provinces of KwaZulu-Natal and the Western Cape on the country's east coast. Large portions of South Africa's former homelands (Transkei and Ciskei) are included in the Eastern Cape. Bisho serves as the Eastern Cape's capital (GHS, 2020; DOH, 2020). With a population of 6 677 million, the Eastern Cape makes up 11.1% of South Africa's total population. The age range from 10 to 14 makes up most of the province's population, or 11.5%. Males represent 47.8% of the population, with females constituting the majority at 52.8% (NOCP, 2022). The province comprises predominantly Black Africans, comprising 86.3% of the population (Statistics South Africa, 2014). Buffalo City and Nelson Mandela Bay are two of the 40 municipalities that collectively make up the Eastern Cape province. There are also six district municipalities, including Amathole, Chris Hani, Alfred Nzo, Joe Gqabi, OR Tambo, and Sarah Baartman, with 31 local municipalities (GHS, 2020; NOCP, 2022).

The Eastern Cape province boosts South Africa's gross domestic product (GDP) by 7.6%. Tertiary industries make up the majority of the region's GDP (70%), followed by secondary industries (17.4%) and primary industries (1.5%). The unemployment rate in the Eastern Cape was 47.4% as of the third quarter of the 2020/2021 fiscal year, but the longer-term unemployment rate was 54.5%. The Eastern Cape holds the highest official and expanded unemployment rate in the nation. It has been described as the most impoverished region in the nation (QLFS, 2021; NOCP, 2022). Within the province, over three-quarters of households (79.7%) go to public clinics, hospitals, or other public institutions first when a member of the household gets sick or has an accident, compared to less than a quarter (19.2%) who would go to a private doctor, clinic, or hospital. Less than 1% of households go to a traditional healer first (GHS, 2020; NOCP, 2022). The public sector services about 88% of households within the province, as it is estimated that medical aid schemes only cover 10% of the population (GHS, 2018).

2.2.4.1 Description of maternal healthcare facilities according to municipalities in Eastern Cape

2.2.4.1.1 Buffalo City Metropolitan Municipality

The Buffalo City's land area is approximately 2 750km², with a population of 893 157 of which 51.9% are females and 48.1% are males. The population consisted of 86.68% Blacks, 6.68% White, 5.80% Coloured and 0.84% Asian people. In relation to maternal conditions, the top three leading causes of mortality were indirect maternal disorders, followed by pregnancy-related hypertension at 31.5% and other maternal conditions at 18.6%. According to estimates, Buffalo City's life expectancy is growing. In 2017, the infant mortality rate was 43 per 1000 live births and the under-five mortality rate was 104 per 1000 infants. In total the Buffalo City Metro has 113 Health care facilities. (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.2 Alfred Nzo District Municipality

The Alfred Nzo's land area went from 6 858 to 10 731 km² with four local municipalities: Ntabankulu, Umzimvubu, Matatiele and Mbizana. The total population is 878 635, with 54% females and 46% males. There are 99.14% Blacks, 0.24% White, 0.42% Coloured and 0.19% Asian people. The district holds 34.6% of fatalities due to maternal conditions, followed by indirect maternal diseases, which caused 24.2% of deaths, and maternal sepsis, with 17.1%. The Alfred Nzo District Municipality has 72 clinics, 8 hospitals and 2 community health centres (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.3 Amathole District Municipality

Amathole District has a land area size of 21 117 km². A total population of 885,102, with 52.7% females and 47.3% males. There are 97.16% Blacks, 1.04% Whites, 1.62% Coloured and 0.18% Asian. Regarding maternal conditions, the leading three causes were indirect maternal diseases 32.7% of deaths, pregnancy-related hypertension 27.0%, and abortion 16.4%. Within the Amathole District there are a total of 162 Health Facilities (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.4 Chris Hani District Municipality

The Chris Hani District land area is approximately 36 407 km², with six local municipalities: Enoch Mgijima, Intsika Yethu, Engcobo, Sakhisizwe, Inxuba Yethemba, and Emalahleni. With the addition of Engcobo, Cala, Cofimvaba, Lady Frere, Tsomo, Elliot, Dordrecht, Queenstown, Tarkastad, Whittlesea, Indwe, Cradock and Middleburg which are the main towns. The Chris Hani District holds a population of 873 362 inhabitants of which 52.1% are female and 47.9% are males. The population consisted of 93.74% Blacks, 1.9% white, 4.07% coloured and 0.3% Indian/Asian people. In terms of maternal conditions, the most prevalent causes of death consisted of indirect maternal, which was responsible for 37.1% of fatalities, maternal hemorrhage, accounted for 22.5% of deaths, and pregnancy-related hypertension, was responsible for 18% of deaths. The district has a total of 177 Health Facilities available (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.5 Joe Gqabi District Municipality

The Joe Gqabi District has a land area size 25 617 km² and holds a population of 387 149, of which 52.3% are females and 47.3% males. The population consist of 94.12% Blacks, 2.20% White, 3.43% Coloured and 0.26% Asian people. Within the Joe Gqabi District the leading causes of death, are indirect fatalities at 27.1%, followed by maternal diseases with 24.0% deaths and pregnancy-related hypertension with 19.4% of deaths. Additionally, the district does not meet the World Health Organisation (WHO) guidelines as it has only 52 clinics that render services to over 352 957 people, as there are 6 787 people per one clinic compared to the recommend 10 00 per clinic (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.6 OR Tambo District Municipality (ORTDM)

The OR Tambo District area is approximately 12 141 km², with 1 514 306 inhabitants of which 53.3% are female and 46.7% are male. There are 99% Blacks, 0.2% White, 0.5% Coloured and 0.3% Asian people. Within the district the maternal conditions indicate that indirect maternal diseases account for 29.9% of deaths followed hypertension in pregnancy at 20.3% and other maternal diseases at 18.4%. There is a total of 163 Health Facilities within the district (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.7 Nelson Mandela Bay Metropolitan Municipality

The Nelson Mandela Bay District as a land size of 1 950 km², with 2 tertiary hospitals, 1 regional hospital, 4 specialized hospitals, 1 district hospital, 5 community health centres and 39 fixed clinics which services 1 260 00 inhabitants (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.1.8 The Sarah Baartman District

The Sarah Baartman District holds an area size of 58 245 km², with a total of 61 primary healthcare clinics, 28 mobile clinics, 10 hospitals, 4 TB hospitals and 1 psychiatric district hospital to services a population of 520 480, of which females account for 50.2% and males 49.8% (Cooperative Governance and Traditional Affairs, 2022).

2.2.4.2 Maternal services in Eastern Cape

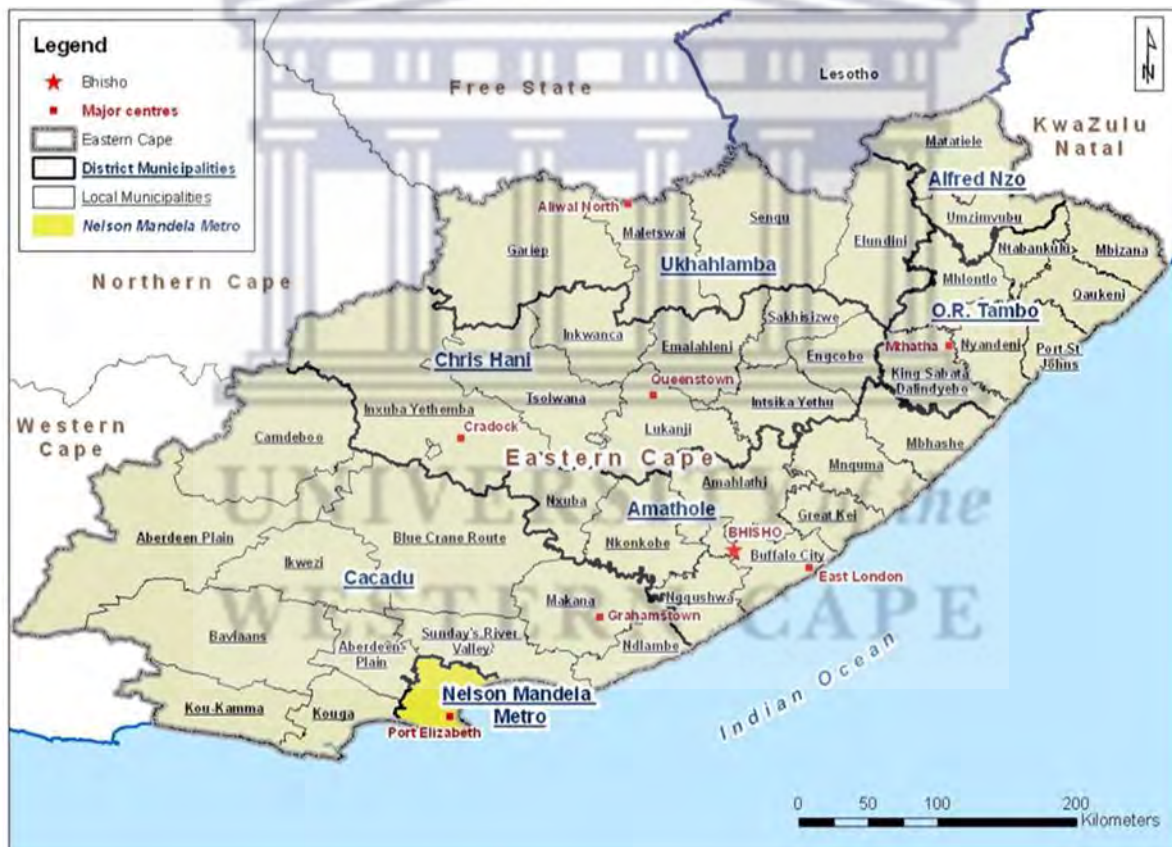
StatsSA (2022) reported that South Africa is enjoying a decrease in maternal mortality as it has dropped nationally. The MMFR (Maternal Mortality in Facilities Ratio) from 105,9 deaths per 100,000 live births in 2019 to 88,0 in 2020. The national pattern is similarly observed in all other provinces' declining patterns (StatsSA, 2020). However, during 2019 and 2020, the MMFR increased in the provinces of the Northern Cape and Eastern Cape (StatsSA, 2020). Treacy et al., (2018) highlights that driving great distances to receive care is common in rural areas, as is giving birth in ambulances or skipping prenatal and postpartum care. The study conducted in the Eastern Cape by Mayekiso et al., (2020) found that as a result of the distances, lack of clinics, paucity of nurses and doctors, women do not attend prenatal care and in some cases the women give birth at home.

2.2.4.3 Ambulance availability

Access to health care services, especially reproductive health and emergency medical care, is stated in The Constitution of the Republic of South Africa (Act of 1996, sections 27(1)(a) and (2)). Due to historical factors and resource limitations, emergency medical services quality varies in South Africa, and delays negatively influence patient outcomes in rural areas (MacFarlane et al., 2005).

In the Eastern Cape, there are 0.4 ambulances per 10,000 people compared to the national standard of 1 ambulance per 10,000 people. The lack of ambulances for patient transfers and trauma occurrences is a severe issue (Mtsolongo, 2015; Louise et al., 2020). Research conducted by Willie and Maqbool (2023) on access to public health services within the rural Eastern Cape province, showed that the Eastern Cape has a 32% shortage of important emergency services in the public sector.

Figure 2.5: Map of district and metropolitan municipalities within the Eastern Cape, South Africa



Source: Acheampong and Africa (2015) [https://www.semanticscholar.org/paper/South-Africa%27s-Eastern-Cape-Province-tourism-space-Acheampong Africa](https://www.semanticscholar.org/paper/South-Africa%27s-Eastern-Cape-Province-tourism-space-Acheampong%20Africa).

2.2.5 Women's characteristics and access and utilization to antenatal health care

2.2.5.1 Age

The age of women when they need to access important antenatal healthcare services may become a barrier, as discussed in the body of literature. An investigation in Namibia found that older women were more likely to utilise antenatal healthcare services than younger women as they were aware of the complications that come with pregnancy at older age (Amungulu et al., 2023). Research conducted by Nxiweni et al., (2022) on the factors that influence the utilisation of antenatal services among women in South Africa found a statistically significant relationship between a woman's age and sufficient antenatal care use.

Women aged 35 and older were more prone to use antenatal healthcare than younger women. These results are similar to those of Jacobs, et al., (2017), in which, within rural Zambia, it was discovered that women over 35 were more likely to use prenatal care, demonstrating a favourable correlation between the age of women and the use of antenatal healthcare services.

Tsawe and Susuman, (2014) discovered a strong correlation between age and the usage of antenatal services within South Africa. Women over 40 and those between the ages of 35 and 39 were found to be five times more likely than those between the ages of 15 and 19 to use four or more antenatal care services.

Additionally, within West Africa, a study concluded that women aged 30-34 were more likely to utilise the minimum number of antenatal healthcare visits (Dadjo et al., 2022). Similarly, Madhi and Nunes (2018) observed that women in their 30s attended antenatal healthcare services more frequently than younger or older women. This is further supported by Adedokun et al., (2020)'s research on antenatal healthcare utilisation among women of reproductive age within sub-Saharan Africa. The multinomial analysis found that utilisation of antenatal care was highest among women aged 25–34.

Furthermore, Laksono et al. (2020) discovered that women's likelihood of attending four or more antenatal healthcare visits was 70% lower for those in the age groups of 15 and 19 than for those in the 45 to 49 age range and 33% lower for those in the 20 to 24 age range than for those in the 45 to 49 age range. Saad-Haddad et al., (2016); Assefa et al., (2017) have found that older age was a predictor of antenatal healthcare utilisation. In contrast, according to research done in Ethiopia, women who were younger at the time of their first pregnancy were more likely to use antenatal healthcare services than those who were older at the time of their first pregnancy, nearly three times as likely as older women (Tekelab et al., 2019; Yeneneh et al., 2018). Additionally, one study found that Nigerian women under 20 were more likely than their older counterparts to use antenatal healthcare (Oyewale et al., 2014). It is argued that the younger generation is more knowledgeable about antenatal healthcare because of their education and exposure to social resources and are educated on contemporary health trends, whereas older generations are bound to traditional and cultural values that limit discussion on delivery experiences (Mathe, 2017).

However, evidence from the Rwanda demographic health survey 2019-2020 found that the age of a woman did not delay the utilisation of antenatal healthcare visits (Mulungi et al., 2023). These results are further supported by a study conducted in Ethiopia in which no significant association was found between the utilisation of antenatal healthcare and the age of women (Tekelab et al., 2019). Similarly, in sub-Saharan Africa, age was found to have no significant association with the amount of prescribed antenatal healthcare visits within Malawi, Zambia and Guinea (Ahinkorah et al., 2021).

2.2.5.2 Marital status

The marital status of women when they need to access important antenatal healthcare services may become a barrier, as discussed in the body of literature. Men are traditionally viewed as decision-makers on family matters, including reproduction, as noted by (Tessama and Animut, 2020). A study conducted in South Africa identified that there was a significant association between the marital status of women and antenatal healthcare utilisation. Mainly, married women initiated the use of antenatal healthcare services later than unmarried women more frequently (Ebonwu et al., 2018).

Furthermore, most women in Ethiopia are economically dependent on their male partners, who decide on important matters and have a say in providing maternal health care (Tessama and Animut, 2020). A study conducted in Nigeria found that out of a total of 2199 surveyed participants, married women were less likely to seek antenatal healthcare services compared to women who were single (Fagbamigbe and Idemudia, 2015). One of the arguments for this behaviour is that married or cohabiting women are financially dependent and may need to ask their partners and husbands for approval before visiting antenatal healthcare services (Fagbamigbe and Idemudia, 2015). As a result, women may have difficulty securing their spouses' consent to attend prenatal care.

Whereas research conducted by Pell et al., (2013) on factors affecting antenatal care attendance in Kenya discovered that when compared to unmarried women, married women were more inclined to attend antenatal healthcare and less likely to postpone starting antenatal healthcare visits. According to Pell et al. (2013), this may be because their husbands provided them with psychosocial and financial support as they planned to become pregnant, and society supported them more during their pregnancy. These findings are contrary to research conducted in Ethiopia on the inequalities in maternal health services utilisation, which found that single women had a higher probability of antenatal healthcare service utilisation by qualified attendants (Gebre et al., 2018). A multivariate analysis of Tsawe and Susuman (2014) on the determinants of access to and use of maternal healthcare services in the Eastern Cape found that single women had a 1.5 times higher chance of using antenatal healthcare services than married women. Okedo-Alex et al., (2019) argue that they are the only decision-makers, which results in them seeking and using antenatal healthcare services.

However, the literature does highlight the importance of support, with Alenoghena et al., (2015) reporting that when a woman is without any support from family or friends, if she is single, widowed or even divorced there is a high chance that this will lead to low levels of antenatal healthcare utilisation. Similarly, results from research conducted in rural Indonesia found that pregnant women, outside of marriage, are afraid to go out and interact with the public. This, in turn, produces low antenatal healthcare utilisation (Wulandari et al., 2020).

2.2.5.3 Education

The educational level of women when they need to access important antenatal healthcare services may become a barrier, as discussed in the body of literature. Maternal behaviour in accessing healthcare is strongly influenced by educational attainment, with more educated mothers using health services more than less educated mothers (Mohammad, 2018). Studies reveal that women with secondary and tertiary education utilize antenatal healthcare services compared to women with primary education in Pakistan (Asim et al., 2017).

Furthermore, women who have completed secondary or higher education are at an advantage over their less educated women because education fosters a greater understanding of issues, particularly those relating to health (Adedokun and Yaya, 2020). Habtom (2017) conducted a study on maternal and child health services in Eritrea and found that when maternal education increases, it results in a surge in critical maternal healthcare service utilization (skilled midwives, postnatal services, and prenatal services). In contrast, traditional medicine for maternal and child health services is mostly utilized by women with less education and belong to the lowest wealth quintile. Additionally, research on antenatal care utilization among women of reproductive age in sub-Saharan Africa found that uneducated women were less likely to use antenatal healthcare services when compared to women who had secondary and higher education (Adedokun and Yaya, 2020).

Women's educational level is a significant variable as it enables them to take full advantage of antenatal healthcare services, as they understand its importance and are knowledgeable and literate, which allows for understanding pregnancy information (Amungulu et al., 2023). Women who have completed secondary or higher education are at an advantage over their less educated women because education fosters a greater understanding of issues, particularly those relating to health (Adedokun and Yaya, 2020). Furthermore, regarding information and health-seeking behaviour, education is crucial. Compared to women with lower education levels or no education, women with higher education are more likely to be aware of the long-term advantages of utilizing services (Shrivastava et al., 2023). Simply put, women's attainment of higher levels of education results in them using antenatal healthcare services (Atuhaire et al., 2020).

2.2.5.4 Wealth index

The wealth index of women, when they need to access important antenatal healthcare services, may become a barrier, as depicted in the reviewed literature. In Sub-Saharan Africa, a low wealth index is a barrier, as the women are sometimes unable to afford the medical and non-medical costs related to the utilisation of antenatal healthcare services (Peters et al., 2008; Houweling et al., 2007). Likewise, an investigation in Gambia found a significant association between women's wealth index and healthcare problems. Poor wealth index women have more health access problems when compared to women from the middle and affluent wealth index quantiles (Tsegaw et al., 2023). Additionally, the study revealed that women working with a more affluent wealth index use antenatal care more frequently than women with a lower wealth index. Women with more affluent wealth indexes and those with richer/richest wealth indices had higher probabilities of using prenatal care services. Women from low-income families may need more financial resources to register at clinics or pay for their services when it comes to prenatal care (Nxiweni et al., 2022).

According to Fagbamigbe and Idemudia (2017), in Nigeria, wealth is the best indicator of both antenatal healthcare and the appropriateness of that use. Using maternity and childcare services involves hidden costs like transportation and opportunity, which may limit access to healthcare services. Long wait times at health facilities and the time it takes to get there may deter women from using the services for maternal care (Fagbamigbe and Idemudia, 2017). When there is a financial need, women are often unable to attend antenatal healthcare. As a result, the number of visits becomes few, or they sometimes initiate antenatal healthcare late into pregnancy. Although some African countries have free/subsidised maternal healthcare, such as (antenatal and postnatal healthcare services) available, some direct medical costs, such as non-medical costs for transport and laboratory investigation, women end up paying for (Okedo-Alex et al., 2019).

Given that maternal healthcare (antenatal and prenatal healthcare) is expensive, especially in regions without a free maternal healthcare policy, it is thought that women with a richer wealth index will use these treatments more frequently than women with a lower wealth index. Given that they have the means to pay for services, a household with higher levels of wealth is more likely to employ evidence-based maternal health services (Feng et al., 2021).

2.2.5.5 Type of residence

Studies have shown that the type of residence where women live may become a barrier when accessing important antenatal healthcare services. Within sub-Saharan Africa, research by Okedo-Alex et al., (2019) found that the attendance and timing of the initial antenatal healthcare visits were adversely affected by the rural residence where the women live. Other research by Singh, et al., (2014) has confirmed this adverse impact of distance on the use of antenatal healthcare and all levels of maternal healthcare services. Compared to women living in cities, those who lived in rural regions had a drop of eight or more antenatal healthcare interactions (Adewuyi et al., 2018). One of the main obstacles to using healthcare is distance (or travel time), particularly in rural South Africa, where healthcare facilities are often further from the majority of the population (Gage et al., 2007). Nxiweni et al., (2022) argue that women in South Africa's rural areas were less likely to use antenatal healthcare services than women in the nation's urban areas. This can result from differences between urban and rural women's awareness of antenatal healthcare services and the accessibility and availability of healthcare facilities. It might be accounted for by the fact that rural and urban areas frequently receive unequal access to healthcare services (Dagne, 2010).

Basha (2019) argues that due to unfair distribution of accessible health resources across rural and urban areas, there are noticeable differences in how often rural and urban areas use maternal health treatments, including antenatal healthcare. Mekonnen et al., (2019) further add that even if facilities exist, they may be difficult to access because of poor road infrastructure, weak transportation system, or extremely long distances. Tsawe and Susuman's (2014) research on access and utilisation of maternal healthcare services in the Eastern Cape found that the South African government faces its biggest struggle in the nation's rural areas because most homes and sites are dispersed widely apart from one another. Women in rural areas typically use maternal health services (antenatal and prenatal healthcare) far less frequently than those in urban areas. Most women from isolated rural areas continue to live in poverty and cannot afford transportation to a primary healthcare centre (DoH, 2015). Abegaz et al., (2019) argue that this results from metropolitan regions having higher concentrations of social infrastructures than rural ones, particularly those related to information, education, transportation, and health. The availability of these facilities in urban regions may support women's ability to adopt healthy healthcare-seeking behaviours.

2.2.5.6 Medical insurance

Regarding insurance coverage and women's access to antenatal healthcare, a study by Wang et al., (2014) on medical insurance coverage and its impact on maternal healthcare utilisation in low-and middle-income countries found that in low- and middle-income nations women who had insurance coverage accessed at least one more follow up antenatal healthcare visit when compared to women who did not have insurance cover. Another study conducted by Tsawe and Susuman (2014) found that, compared to women who reported having medical aid, those who said they did not have access to it were less likely to use maternal health care (antenatal and prenatal healthcare).

According to a study by Aboagye et al., (2022), having health insurance increased the likelihood that pregnant women would report attending antenatal healthcare appointments on time. Similarly, Browne et al., (2016) reported that healthcare insurance cover had a significant association with women's chances of timely antenatal healthcare utilisation. Furthermore, research by Abdulai and Adams, (2019) on the access to maternal healthcare services by the national health insurance policy in Ghana identified that when women have healthcare insurance coverage, it increases their access and utilisation of maternal healthcare services (antenatal and prenatal healthcare).

It is evident in the reviewed literature that insurance benefits the access and utilisation of antenatal healthcare services. However, the reality for many women in sub-Saharan Africa is the financial impact of healthcare insurance, which prevents them from using maternal healthcare, such as antenatal and prenatal healthcare (Aboagye et al., 2022). This is especially evident in South Africa, where public maternal healthcare is what most of the women in South Africa can afford to use.

2.2.5.7 Media (TV and radio)

The literature has shown media's influence on utilising and accessing antenatal healthcare services. A study conducted in Ethiopia found that exposure to media may increase women's health literacy, increase antenatal healthcare utilisation, and have an advantageous effect on maternal healthcare-seeking behaviour (Basha et al., 2019).

These results are further seen in an investigation into the association between health insurance enrolment and maternal healthcare service utilisation among women in Ethiopia, which concluded that mothers who accessed the media were more likely to suggest antenatal healthcare and prenatal healthcare use when they were compared to those women who did not have access to media (Seid and Ahmed, 2021).

Dadjo et al., (2022) research revealed that women were more likely to have the recommended number of antenatal healthcare visits if they regularly watched TV, listened to the radio, or read newspapers. Additionally, researchers discovered that women who listen to the radio once a week are more likely to receive high-quality antenatal healthcare than those who do not (Dickson et al., 2023). It is argued that digital media, according to Lupton et al., (2016), helps women get the information they need when they need it. This demonstrates that radio is one of the digital media that contributes to the spread of knowledge.

2.2.5.8 Population group

Ethnicities are diverse in their culture and beliefs, which often translates into how they access and utilise healthcare. This is highlighted in the literature as, according to Whitely et al., (2006), people who live in 'ethnically dense' neighbourhoods with other members of their same race or ethnicity are likely to be in better physical and mental health than people who reside in less diverse neighbourhoods. A study conducted by Banke-Thomas et al., (2014) on maternal health services utilisation in Kenya discovered that the mother's ethnicity was a significant predictor for the utilisation of antenatal healthcare and prenatal healthcare.

Some ethnic groups of women have a distinct understanding of how to utilise antenatal healthcare services. Some ethnic groups may use antenatal healthcare more frequently than other ethnic groups (Amungulu et al. 2023). This is also seen within Ethiopia, as research by Tiruaynet and Muchie (2019) found that Amhara women were 3.5 times more likely than Oromo women to receive antenatal healthcare services from trained healthcare professionals. Contrarily, the findings showed that Oromo women were more likely than Gumuz women to receive care from skilled medical experts.

Further support is in the findings of Ziblim et al., (2018) on the determinants of antenatal care utilisation among adolescent mothers in the Yendi municipality of the northern region of Ghana. Certain ethnic communities practice rituals before pregnancy disclosure, and if this is postponed, the women will not be able to access antenatal healthcare services.

2.2.5.9 Working status

Women often must deal with significant barriers to accessing and utilising antenatal healthcare services depending on their working status. Subsequently, there is an increase in financial and personal responsibilities. Tsegaw et al., (2023) note that the issue of access to healthcare was strongly correlated with the women's present employment situation. Compared to women who did not work, those who did had better access to healthcare. Furthermore, Adedokun and Yaya (2020) discovered in a study conducted in sub-Saharan Africa that women who work had an increase in the number of pregnant women who utilise antenatal care compared to non-working women.

It is argued that women's participation in employment increases economic opportunities to take advantage of quality antenatal healthcare and enables women to participate in decision-making. It allows for adapted behaviours and improved awareness, increasing women's access to antenatal healthcare. The results from research conducted by Ebonwu et al. (2018) discovered that in South Africa, women who live in rural communities and are employed tend to attend their first antenatal healthcare late. A study in Johannesburg on antenatal healthcare booking found similar results (Solarin and Black, 2013).

2.2.6 Conceptual framework

Using available theoretical literature on the Health Belief Model (Rosenstock, 1974) and the Health-Seeking Behaviour Model (Andersen, 1995) as a basis, this conceptual framework integrates the sociodemographic, socioeconomic, location, and health variables of women and its influence on their access and utilisation of antenatal healthcare services. Through this method, several hypotheses have emerged.

2.2.6.1 Sociodemographic indicators and access and utilisation of antenatal healthcare services

2.2.6.1.1 Population group and access and utilisation of antenatal healthcare services

It is assumed that the women's ethnicity influences the utilisation of antenatal healthcare. According to the authors' argument, Dansou, Adekunle and Arowojolu (2017), the survival of underlying cultural attitudes and value systems among different ethnic groups continues to influence how many pregnant women utilise antenatal healthcare services. Within South Africa, Abrahams, Jewkes and Mvo, (2001) furthermore add that Black and Coloured women may not seek antenatal care until relatively late in their pregnancies because they may not perceive its benefits beyond facilitating access to care during delivery.

2.2.6.1.2 Age and access and utilisation of antenatal healthcare services

Older women are assumed to access and utilise antenatal healthcare more willingly than younger women. Compared to younger women, older women utilise antenatal care services more frequently. The explanation could be that older women have a wealth of knowledge about the importance of antenatal services, which may have a beneficial impact on how often they utilise antenatal healthcare services (Cheng et al., 2016; Adedokun and Yaya, 2020; Denny et al., 2022). The reason for this is that older women value antenatal healthcare services more than younger women, which indicates that younger women lack awareness of the importance of antenatal healthcare (Nxiweni et al., 2022).

2.2.6.1.3 Marital status and access and utilisation of antenatal healthcare services

It is assumed that marital status negatively influences women's access to antenatal healthcare. An argument put forward by Fagbamigbe and Idemudia (2015) is that married or cohabiting women are not necessarily financially independent and may need to ask their partners or spouses for permission before accessing antenatal healthcare facilities. Kawaguchi et al., (2014)

note that women with limited support are less likely to use antenatal care than women with appropriate support. Chimatiro et al., (2018) hold that men's participation is crucial in promoting women to begin antenatal healthcare early, given that some women put off starting antenatal healthcare since their husbands won't go with them. Additionally, if it is their first pregnancy, women may delay starting antenatal healthcare while they wait for their mothers-in-law or marriage counsellors to visit and offer guidance. As a result, the pregnancy is concealed until it is 3 to 4 months old (Chimatiro et al., 2018).

2.2.6.2 Socio-economic indicators and access and utilisation of antenatal healthcare services

2.2.6.2.1 Education and access and utilisation of antenatal healthcare services

It is hypothesised that a high education level increases access to healthcare facilities among women. Education fosters a greater understanding of issues, particularly health-related issues, and thus offers educated women an advantage over those less educated (Sulaimon et al., 2020). It is further argued that most educated women are likely familiar with antenatal healthcare services and know how important it is to schedule appointments early and keep the suggested four visits. Additionally, women with higher levels of education are better able to spot danger indications and comprehend the adverse effects of forgoing the advised antenatal healthcare service (Raru, 2022). According to Ononokpono et al., (2014), one indicator of economic resource that empowers women to manage their health and make access to healthcare simple is their level of education. Furthermore, Raru et al., (2022) claim that women with higher education often place significant importance on antenatal healthcare services, resulting in them utilising it compared to women with lower education. Education is crucial for information and health-seeking behaviour (Shrivastava et al., 2023). Compared to women with lower or no education, women with higher education are more likely to be aware of the long-term advantages of utilising services (Shrivastava et al., 2023).

2.2.6.2.2 Wealth index and access and utilisation of antenatal healthcare services

It is hypothesised that the wealth index woman finds themselves in will determine the type of access received. Access to maternal health services may be severely hampered by household poverty. Women from low-income families may lack the funds necessary to register at clinics or pay for the services provided during pregnancy. As a result, these women may only partially or not attend the clinics (Sulaimon et al., 2020). Finlayson et al., (2013) hold that even if antenatal healthcare services and transportation were free, impoverished women cannot afford to attend as they must care for their families and households.

2.2.6.2.3 Working status and access and utilisation of antenatal healthcare services

It is assumed that women working during their pregnancy are more likely to access and utilise antenatal healthcare. According to Salihi et al., (2012), employed women are more likely than unemployed or non-working women to attend at least one and at least four antenatal healthcare appointments. The likelihood of enrolling in early antenatal healthcare initiation is also higher for working women. Badolo et al., 2022 claim that pregnant women who work have a broader social milieu than those who are housewives. As a result, pregnant women have access to more pregnancy-related information, including antenatal healthcare. The impact of co-workers' and other work-related information on pregnant women's awareness of pregnancy can lead to an increase in the number of recommended antenatal healthcare visits (Rahman et al., 2017).

2.2.6.3 Location variables which influence the access and utilisation of antenatal healthcare services

2.2.6.3.1 Type of residence and access and utilisation of antenatal healthcare services

It is hypothesised that women who reside in urban areas are more likely to utilise antenatal healthcare. Mekonnen et al., (2019) claimed that in addition to the lack of facilities, low financial

resources, distance and poor transportation were key barriers to accessing health facilities. Furthermore, compared to rural areas, urban areas have a greater rate of acceptable antenatal care utilisation. Infrastructure is better distributed in metropolitan regions, including health facilities, which are underdeveloped in rural areas. This makes it possible for women to access healthcare in cities. In contrast to women in rural regions, urban women have greater access to information on health-related topics (Sulaimon et al., 2020). Babalola et al., (2009) highlight that when compared to women living in metropolitan regions, rural women have less access to education and a lower likelihood of receiving health information. Consequently, compared to women in urban areas, women from rural areas might be less motivated to seek medical attention (Saxena et al., 2013).

2.2.6.4 Health variables which influence the access and utilisation of antenatal healthcare services

2.2.6.4.1 Health insurance and access and utilisation of antenatal healthcare services

It is hypothesised that women with healthcare insurance tend to consult the private sector, while women without healthcare insurance consult the public sector. Healthcare insurance may vary by occupation and the capacity of people to afford them. It is estimated that there are around 120 medical plans in South Africa, according to (Ataguba and Akazali, 2010). However, they mainly serve the more affluent population and fail to reduce financial risk due to inadequate subsidisation. The authors argue that people with access to medical assistance typically use private medical facilities rather than public ones. One explanation might be that women choose medical aids that give them access to private health facilities because of the treatment they typically receive in public hospitals (Tsawem and Susuman, 2014).

2.2.6.4.2 Media consumption and access and utilisation of antenatal healthcare services

There is an assumption that frequent media consumption influences the utilisation of antenatal healthcare. Maternal health includes access to information about health-related concerns significantly.

Women's utilisation of maternal health services tends to rise when they are given sufficient information about them (Sulaimon et al., 2020). Women's exposure to the media influences the use of antenatal care since these women utilise their antenatal care at a higher rate than women who are not exposed to the media (Mezmur et al., 2017; Chouhan et al., 2020). It is highlighted by Fatema et al., (2020) that by routinely airing programs and public service announcements supported and backed by the government or non-state actors that highlight the advantages of timely commencement, utilisation, and access to antenatal healthcare and other maternal healthcare treatments, media like TV and radio can encourage beneficial behavioural changes.

2.2.7 Maternal healthcare policy in South Africa

Women's and children's health must be prioritised for a healthy world. In this context, the South African Government has developed important maternal health policies for women in the country.

2.2.7.1 National Health Act, 2003 (Act 61 of 2003)

The Act establishes a structure for a unified health system to safeguard, promote, and sustain the population's health, following the principles outlined in the Constitution. Chapter 5 of the Act outlines the District Health System, which is based on the principle of primary health care and seeks to ensure universal access to high-quality, equitable, responsive, and efficient health services that are responsive to the populations they serve. Additionally, Section 2(b) outlines the rights and obligations of healthcare providers, health workers, and health establishments and users. The Ministry of Health is mandated to issue regulations under Section 52(c) to "create new categories of healthcare personnel to be educated or trained" (South African National Department of Health, 2021).

2.2.7.2 The basic antenatal care approach introduced in 2007

In the past, South Africa adhered to the traditional antenatal healthcare strategy up until 2007. This traditional antenatal healthcare service model was created at the beginning of the 20th century. The concept presupposed that the best method to care for the mother and the foetus was through frequent antenatal healthcare visits and categorising pregnant women into low- and high-risk groups by anticipating future obstetric difficulties (HEAT, 2003).

The South African Nursing Council (SANC) established the scope of practice for midwives, including the traditional antenatal healthcare approach (South African Nursing Council, 1991). The SANC mandated that the midwives ensure expectant mothers visit antenatal healthcare clinics every month up until 28 weeks of pregnancy and every fortnight until 36 weeks.

Afterwards, a pregnant woman should keep going to the PHC level clinic once a week until her baby is born or she reaches 42 weeks gestation. The woman had to be transferred for hospital management if she did not give birth by 42 weeks of gestation (South African Nursing Council, 1991). According to Pell et al., (2013), in the traditional approach, a pregnant woman could receive up to 12 antenatal healthcare visits at the PHC clinic level throughout one pregnancy. This is one of the elements that the WHO has contested. The FANC technique, a goal-oriented antenatal healthcare strategy suggested by academics in 2001 and endorsed by the WHO in 2002, superseded the traditional traditional antenatal healthcare approach (WHO, 2007).

The NDoH determined that the basic antenatal care approach (BANC) is the best strategy to guarantee that effective and high-quality antenatal care is supplied (South African Nursing Council, 2012). In this regard, South Africa embraced the Focused Antenatal Care (FANC) programme concept, adapted to fit local needs, and then referred to as the BANC approach (Pattinson, 2005; Beksinska et al., 2006).

Furthermore, Pattinson (2007) describes that this came after the NDoH realised that the old antenatal healthcare strategy was unsuccessful for South Africa. The primary antenatal healthcare providers (midwives) requested a program with flow diagrams and guidelines based on the Integrated Management of Childhood Illnesses (IMCI) model. Pattinson (2005) adds that the NDoH instructed all medical establishments offering antenatal healthcare services in 2007 to switch to the BANC method by the end of 2008. One of the top strategies for lowering maternal and infant mortality in South Africa is the BANC method, which is implemented in public health facilities to deliver healthcare services to expectant mothers (National Department of Health, 2012). Pattinson (2005) explains that all health facilities offering prenatal care and antenatal healthcare services in South Africa were urged to implement the BANC strategy by the end of 2008 by the NDoH, first proposed in 2007.

The NDoH made a variety of publications, including guidelines, a manual, and guidance for facility managers, available, as well as training for the lead trainers from all the provinces (Pattinson, 2005; Pattinson, 2007; Beksinska et al., 2006).

According to Pattinson (2008), the BANC method is the bare minimum of antenatal healthcare that every expectant woman needs to receive. The only elements of antenatal healthcare that have been proven effective are incorporated in the BANC strategy, and every component has been constructed using the most excellent available research evidence (Pattinson, 2008). Furthermore, Pattinson (2008) adds that the BANC method tries to consolidate all resources and make their use easier rather than replacing current programs. The (National Department of Health, 2008) proposed that to attain MDGs 4 and 5, the BANC approach was proposed as a quality improvement strategy based on the idea that high-quality antenatal healthcare may lower maternal and neonatal mortalities and improve maternal health.

The BANC strategy, hence, places more attention on the quality of visits than the quantity, focusing on the idea that every visit should have a specific aim (National Department of Health, 2008). The strategy is listed among the NDoH's recommended tactics for achieving Millennium Development Goals MDGs 4 and 5, which call for reducing perinatal mortality and improving maternal health by 2015 (NDoH, 2007).

2.2.7.3 National Health Insurance Reform 2017

The National Health Insurance Reform is widely regarded as the most significant overhaul of South Africa's health system and was outlined in the National Health Insurance White Paper in 2017 (South African National Department of Health, 2017). This reform is a form of universal healthcare in South Africa which involves the pooling of resources to provide comprehensive health services to all individuals. This includes community outreach, services provided at the Provincial Health Centre (PHC) level per the Ideal Clinic Model, and health promotion and prevention services. The NHI Bill provides prenatal, postpartum, and neonatal services to pregnant individuals, women, and newborns per the respective service packages (South African National Department of Health, 2021).

The Government is endeavouring to implement this reform by implementing a purchaser and provider split and establishing the National Health Insurance Fund (NHI Fund) as a unified public purchaser. This fund will provide health services to the entire population through a mixed provision platform involving public and private providers (Mark et al., 2019). The Green Paper on the National Health Insurance (NHI) and the subsequent White Paper envisage a gradual introduction of the system over fifteen years (South African National Department of Health, 2011).

The initial phase from 2012 to 2016 mainly focused on piloting and strengthening health-systems initiatives. The second and current phase, from 2017 to 2022, will provide the legal and institutional basis for National Health Insurance (NHI), including establishing the National Health Insurance Fund, Contracting Units for Primary Care (CUPs) and several Ministerial Advisory Committees. The National Health Insurance Bill was released in July 2019 as a significant step towards establishing the legal framework for NHI (Minister of Health, 2019).

Despite some progress, the reform progresses slowly after nearly ten years of policy development and over six years of experimentation. Only a few of the activities outlined in the second phase of the White Paper have been significantly implemented (Mark et al., 2019).

2.2.7.4 Maternal, Perinatal and Neonatal Health Policy 2021

This MPNH policy covers all activities and programming decisions related to enhancing the health of individuals during the reproductive life cycle. It is intended to inform academic curricula, research objectives, advocacy messages, civil society declarations, community initiatives and service provision. It is a comprehensive framework for all industries and levels of businesses, social services, and health care delivery systems. The policy focuses on the reproductive life cycle, from pre-pregnancy to the antenatal, foetal, and neonatal periods, as well as post-natal contraception. It is designed to be effective for frontline workers, clinical managers, facility planners, human resource personnel, and financial and infrastructure managers (South African National Department of Health, 2021).

2.2.8 Chapter summary

In the second chapter of the study, the literature was examined in two main categories: theoretical and empirical. The theoretical framework was based on existing theories relevant to the study, while the empirical framework was based on empirical considerations of antenatal healthcare access and utilization. Finally, the final section examined the policy framework relevant to maternal healthcare in South Africa.



CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter aims to investigate and explain the methodology that guided the study on women's access to antenatal care within the Eastern Cape province in South Africa. The research perspective is also outlined, highlighting the research design, the methods, the participants, and the techniques used to show how the data collection done by Statistics South Africa was explored. The data is from the South African Demographic and Health Survey (SADHS) 2016. This data was analysed using SPSS version 29.

3.2 Research perspective

The study used a quantitative approach, as the variables are expressed in numbers. According to Aliaga and Gunderson (2002), quantitative research approaches involve acquiring data in numerical form and analysing it using mathematical techniques, particularly statistics, to understand a problem or phenomenon. Slevitch (2011) states that the positivism paradigm, which advocates for approaches embedded in the statistical breakdown and includes other techniques like inferential statistics, hypothesis testing, experimental, blinding structured protocols, mathematical explanation, and quasi-experimental design randomisation, with a limited range of prearranged answers, is the foundation of quantitative research. The research design used in this study is a cross-sectional, descriptive, non-experimental, quantitative research design because the data used in the study is from the South African Demographic and Health Survey (SADHS) 2016. In this research study, the whole population or a section of the population is singled out, and from these, data is collected to help respond to research questions. It is termed cross-sectional because the information on X and Y gathered depicts what is going on at only one point (Olsen and George, 2004). "a cross-sectional, descriptive, non-experimental, quantitative research design

Furthermore, this study utilises the correlational research approach design. Wood (2006) claims that a study design known as a correlational design is used to examine the relationships at various levels between or among two or more variables in a single group. It is a non-experimental design

examining how two or more variables relate. It is important to remember that the researcher is not attempting to determine if there is a cause-and-effect link.

To this end, the study uses all the approaches mentioned above to determine whether there are correlations between the independent variables (age, marital status, education, work status, type of residence (urban or rural), medical insurance, frequency of media consumption (radio and TV), and population group and wealth index), with the dependent variables (timing of first antenatal check, number of antenatal visits and whether blood pressure taken during pregnancy).

3.3 The context of the study

Statistics South Africa (2015) reported that within the Eastern Cape, nearly 70% of households live in poverty and are located in rural areas. This is approximately twice as many as the national average of 37% in South Africa. Rural residents in the Eastern Cape, face difficulties in accessing healthcare due to a variety of socio-economic factors, including high levels of unemployment, a lack of financial resources to pay for treatment and supplies, and a lack of transportation to out-of-town facilities (Morris-Paxton, Reid and Ewing, 2020; Willie, 2011).

Willie (2011) argues that obtaining access to underfunded public healthcare facilities is just one of several contributing problems that the Eastern Cape's impoverished population must deal with. As a result, with high levels of poverty and poor access to public healthcare, the burden can be seen in the province's maternal mortality in facility ratio (MMFR), which increased between 2019 and 2020, while nationally, the ratio decreased from 105.9 deaths per 100 000 live births in 2019 to 88.0 in 2020 (StatsSA, 2020). This study is driven by the fact that there is minimal literature on the factors influencing accessing antenatal healthcare within the Eastern Cape Province in South Africa.

3.4 The participants in the study

The participants in this research study were women who had children and those who were pregnant when the survey was being conducted. DHS2016 designed a women's questionnaire to collect information from all eligible women aged 15-49. In all households in South Africa, eligible women aged 15-49 were asked questions on their use of antenatal healthcare (prenatal and postnatal

healthcare utilization). The questionnaire was distributed to all nine provinces in South Africa in order to determine how various factors affect access to antenatal healthcare among women.

3.5 The methods and instrument used to collect data

Statistics South Africa, together with the South African Medical Research Council (SAMRC), did the South Africa Demographic and Health Survey 2016 (SADHS 2016) upon the request of the National Department of Health (NDoH). The DHS program provided the technical assistance needed. It is vital to note that timely information on the nation's health is crucial for monitoring and evaluation. Hence, survey data used in this study took place from May to November 2016 (SADHS, 2016).

The objective of the survey is to better understand the population's health status in South Africa. The Department of Health utilises the information gathered to help prioritise and plan health projects and service delivery. It also gives household members a chance to learn about their health situation. The South African Demographic and Health Survey collects information to aid policymakers and programme managers in assessing and designing programmes and strategies for improving the health of the country's population. Ideally, South Africa is divided into nine provinces; hence, each province was separately examined to ensure that the survey precision is comparable across all provinces. A stratified two-stage sample design was applied to conduct the survey. Regarding the instrument used to collect the data, DHS utilised women's questionnaires to collect information on antenatal healthcare.

3.6 Data analysis

The Statistical Package for Social Sciences (SPSS), version 29, was used for statistical analysis. Independent variables are (age, marital status, education, work status, type of residence (urban or rural), medical insurance, frequency of media consumption (radio and TV), population group, and wealth index). The Dependent variables are (the timing of the first antenatal check, the number of antenatal visits and whether blood pressure was taken during pregnancy). The research used

Univariate, Bivariate, and Multivariate analysis with the addition of Crosstabs and Chi-square to assess patterns of percentages and to test the hypotheses.

3.6.1 Univariate analysis

Valveny and Gilliver (2016) claim that analysis with a single variable is, by definition, descriptive. For instance, it enables researchers to characterise the distribution of a variable in a sample of n people or n tumour samples. In univariate analyses, researchers commonly use frequencies and percentages to represent categorical variables and parameters like the standard deviation, mean, and median to describe quantitative (or continuous) variables.

3.6.2 Bivariate analysis

Valveny and Gilliver, (2016) define bivariate analysis as examining one independent variable and one dependent variable to determine their relationship. In the study, each independent variables will be examined, which are (age, marital status, education, work status, type of residence (urban or rural), medical insurance, frequency of media consumption (radio and TV), population group, and wealth index), as well as each dependent variables which are (timing of first antenatal check, number of antenatal visits, whether blood pressure taken during pregnancy) in order to find a correlation between them. This is then displayed as cross-tabulation, a two-way table showing the patterns of percentages in the data. In addition, Chi-Square tests were performed to determine the difference between observed and expected results. In the contingency table, the Chi-Square tests help determine whether a difference between two categorical variables is due to chance or a relationship between them. This is determined by the p -value, between 0 and 1, indicating the degree of significance. If the test is statistically significant, indicating a relationship between the two variables, the p -value must be less than 0.078. The p -value is not statistically significant, which means that there is no association between the two variables if the p -value is higher than 0.078.

3.6.3 Multivariate

Park (2013) explains that the multivariable approaches look at the relationship between one result (dependent) variable and two or more predictor (independent) variables. The anticipated value of the outcome variable is expressed as a sum of products in the multivariable model representing the

connection, where each product is created by multiplying the value and coefficient of the independent variable. Put, multivariate analysis is concerned with the relationships between two or more variables.

It is for this reason that the multivariate analysis was used on the (DHS, 2016) dataset in the form of logistic regression to identify the factors associated with access to antenatal care among women living in the Eastern Cape province of South Africa.

3.6.3.1 Logistic regression

Park (2013) describes that by fitting data to a logistic curve, logistic regression, also known as the logistic model or logit model it examines the relationship between a number of independent factors and a categorical dependent variable and calculates the likelihood that an event will occur. Within the study its dependent variables are timing of first antenatal as they are of a two categorical assort nature. As a result, the chosen binary logistic regression modelling is the ideal method to measure the relationships between the dependent variables and the independent variables. Hence, the dependent variables will be dichotomised, where 0=Other methods, while 1= one method.

3.7 Description of variables.

3.7.1 Dependent variables used in the study

The dependant variables used in the study include the timing of the first antenatal check, number of antenatal visits and whether blood pressure was taken during pregnancy.

3.7.1.1 Timing of first antenatal health check

The question, "How far were you in your pregnancy when you first received antenatal care for this?", was asked to try and determine at what stage of the pregnancy was the first antenatal health check done in the DHS 2016 questionnaire. The question was categorised into eleven categories, (0) = Less than one month; (1) = One Month; (2) = Two months; (3) = Three Months; (4) = Four Months; (5) = Five months; (6) = Six months (7) = Seven months; (8) = Eight months; (9) = Nine months; (10) = Ten months; (11) = Don't know. However, in this study, four categories were

recoded to represent the timing of the first antenatal health check: (1) = First trimester (0-3 months); (2) = Second trimester (3-7 months); (3) = Third trimester (7-10 months).

3.7.1.2 Number of antenatal healthcare visits during the pregnancy

Antenatal healthcare is crucial for the well-being of the mother and baby as it fosters positive pregnancy outcomes. In the DHS 2016 questionnaire, the respondents were asked, “How many times did you receive antenatal care during this pregnancy?” To determine the number of antenatal healthcare visits. This question was categorised into twenty-one categories, (0) = No antenatal healthcare visits; (1) = One visits; (2) = Two visits; (3) = Three visits; (4) = Four visits; (5) = Five visits ; (6) = Six visits; (7) = Seven visits; (8) = Eight visits; (9) = Nine visits ; (10) = Ten visits; (11) = Eleven visits; (12) = Twelve visits; (13) = Thirteen visits; (14) = Fourteen visits; (15) = Fifteenth visits; (16) = Sixteen visits; (17) = Seventeen visits; (18) = Eighteen visits; (19) = Twenty visits; (20) = Don’t know. However, in this study, four categories were recoded to represent the number of antenatal healthcare visits: (1) =No visits; (2) =1-4 visits; (3) = 5-8 visits; (4) = 9 & + visits.

3.7.1.3 Blood pressure taken

Blood pressure is the force of blood being pushed against the arteries to carry blood away from the heart to other body parts, including the foetus, during pregnancy. Therefore, monitoring a woman’s blood pressure is important for a healthy pregnancy and baby. In the DHS 2016 questionnaire, the respondents were asked, “As part of your antenatal care, were any of the following done at least once: Was your blood pressure measured?” The two categories recorded in this study are: (1) = No or not sure; (2) = Yes.

3.7.2 Independent variables used in the study

The independent variables used in the study include age, marital status, education, work status, type of residence (urban or rural), medical insurance, frequency of media consumption (radio and TV), population group, and wealth index.

3.7.2.1 Age

Age is an important variable as it allows for demographic data to be collected, such as fertility preferences, child mortality rates, fertility rates and family planning knowledge. This is because most of the data is relevant to women of reproductive ages 15-49. Hence, women aged 15- 49 were used for this study. In the DHS 2016 questionnaire to determine the ages of women in the sample, the respondents were asked, “How old were you at your last birthday?”. This of which had to be written out in completed years. However, for this study, six categories were recoded to represent women of reproductive ages. The categories were as follows: (1) =15-19 years; (2) =20-24 years; (3) =25-29 years; (4) =30-34 years (5) = 35-39 years (6) =40-44 years (7) =45-49 years old.

3.7.2.2 Marital status

For the question “what is (name) current marital status?” there were four categories the respondents could choose: (1) = Married or Living together, (2) = Divorced or Separated, (3) = Widowed, and (4) = Never married or lived together, was asked in the DHS 2016 questionnaire. This is because government agencies can use it to estimate future spousal benefit programme needs, analyse marriage trends, and analyse the impact of family-focused policies and programmes, such as tax laws and financial aid schemes, by using information on marital status and marital history. In this study, it has been recoded into the following three categories: (1) = Never in union; (2) = In union; (3) No longer in union.

3.7.2.3 Education

In the study, it is hypothesised that high education level increases antenatal visits amongst women in the Eastern Cape. With this in mind, the DHS 2016 questionnaire was asked to determine the respondent’s level of education with this question,” What is the highest level you attended: primary, secondary, or higher than secondary?”. For this study, it has been recoded into four categories, (1) = No Education; (2) = Primary Education; (3) Secondary Education; (4) = Higher Education.

3.7.2.4 Wealth index

Wealth of households is calculated through household assets collected from DHS survey: type of flooring; source of water; availability of electricity; possession of durable consumer goods. These are combined into a single wealth index. They are then divided into five groups of equal size, or quintiles, based on their relative standing on the household wealth index. It is hypothesised in the study that the wealth index influences the number of antenatal visits. The variable wealth index was recoded into five categories: (1) = Poorest; (2) = Poorer; (3) = Middle; (4) = Richer; (5) = Richest.

3.7.2.5 Type of residence (urban or rural)

In the DHS 2016 questionnaire, the questions were asked to determine the geographical type of the place of residence of each respondent. This is because where one resides can majorly impact one's ability to access essential resources and services. The two categories recorded in this study to represent the differentials in antenatal healthcare access between different geographical places of residence are as follows: (1) = Urban area and (2) = Rural area.

3.7.2.6 Medical insurance

It is hypothesised in this study that women with healthcare insurance cover tend to consult the private sector. In contrast, women who do not have access to healthcare insurance cover tend to consult the public sector within the Eastern Cape. As there is no free healthcare insurance in South Africa, examining differentials in access to antenatal healthcare facilities through medical insurance is imperative. The final coding for this question in this study was :(1) = Yes; (2) = No.

3.7.2.7 Frequency of media consumption (tv and radio)

It is assumed in the study that frequent media consumption, watching TV and listening to the radio, influences the utilization of antenatal healthcare within the Eastern Cape. The final coding for this question in this study was:

Tv consumption (1) = Not at all; (2) = less than once a week; (3) = at least once a week

Radio consumption (1) = Not at all; (2) = less than once a week; (3) = at least once a week.

3.7.2.8 Population group

According to Brink (2010), a population is any collection of people who share one or more traits that the researcher finds interesting. This study focuses on women's access to antenatal care at healthcare institutions within the Eastern Cape. With the addition of the exploration into the differentials in access to antenatal healthcare among women of different ethnicities. This has been recorded in the study into four categories: (1) = African/Black; (2) = White; (3) = Coloured; (4) = Indian/Asian.

3.7.2.9 Working status

The study assumes that the working status of expectant women influences their antenatal healthcare use. The DHS 2016 questionnaire was asked to determine whether the respondents were working with this question: "Have you done any work in the last 12 months?" There were four categories from which the respondents could choose: (1) = No; (2) = In the past year; (3) = Currently working; (4) = Have a job but on leave past seven days. Whereas in this study, working status has been recoded into the following two categories : (1) = Yes; (2) = No.

3.8 Chapter summary

Chapter 3 described the data and the methods used in the study. It showed that the DHS 2016 secondary data was used to analyse women's access to antenatal healthcare in the Eastern Cape Province. The chapter aimed to demonstrate how the data analysis methods were used in order to establish and analyse the determinants of access to antenatal healthcare amongst women in the Eastern Cape Province.

CHAPTER 4: FINDINGS

This chapter examines all the variables influencing women's access to antenatal healthcare utilisation in the Eastern Cape Province. This study aims to ascertain the association between women's personal and socioeconomic characteristics and their access to antenatal healthcare services. The study examines and discusses the determinants of access to and utilisation of antenatal healthcare services in the province. The research opens with a univariate analysis of the variables to determine antenatal healthcare access and utilisation determinants. A bivariate analysis was undertaken using the Chi-square test statistic and Cramer's V to describe the relationship between the independent and dependent variables. The independent variables comprise age, marital status, level of education, working status, type of residence (urban or rural), medical insurance, frequency of media consumption (radio and television), population group and wealth index. The dependent variables include the timing of the first antenatal healthcare visit, the number of antenatal healthcare checks and whether blood pressure taken during pregnancy.

4.1 The characteristics of the women in the study

In total, 370 women had their first antenatal check-ups at various times, as shown in Table 4.1. According to the findings, the majority of women (51.6%) received their first antenatal check during the second trimester (3–7 months), while the remainder (46.8%) had theirs during the first trimester (0–3 months). During the third trimester (7–10 months), just (1.6%) of women underwent their first antenatal examination. Data from the 2016 DHS data collection showed that 369 women responded to the question on the number of antenatal healthcare visits during pregnancy, which is important since it allows for the tracking of the baby's growth.

The study found that most women (60.7%) had 5-8 antenatal visits during pregnancy, followed by (28.5%) who had 1-4 visits during pregnancy. The women who had 9 or more visits were (9.2%), and the least were women with no visits (1.6%). Similarly, monitoring blood pressure is essential for the well-being of the expectant mother. The data indicates that most (99.2%) of women had their blood pressure taken, and only (0.8%) of the women's blood pressure was not.

In this study, the age of the women is a significant variable used to describe the characteristics of pregnant women. The majority of the women (19.4%) were between the ages of 15-19, followed by those between the ages of 20-24 (17.3%) and 30 to 34 (14.4%).

Women in the 25-29 age group had a rate of (14.1%), closely followed by those in the 40-44 age group with (12%), while those in the 35-39 age group had a rate of (11.4%) and lastly women aged 45-49 years old were (11.3%). When examining the marital status of women who were pregnant, the majority (63.3%) of them were never in union, followed by those who were in union with someone (27.7%) and those who were no longer in union (7%). Additionally, the pregnant women's educational level indicated (76.3%) of women had secondary education, followed by women with primary education (14.5%). Women with higher education were (7.7%), and the least were women without education (1.5%).

During the survey, a large proportion of the pregnant women were not working (67.6%), while (32.4%) were working. Looking at the residential type of pregnant women, it revealed that (50.4%) of the women lived within an urban residential type, and (49.6%) of women lived within a rural residential type. Out of 1041 women of reproductive age 15 to 49 who were surveyed in the Eastern Cape, the data showed that 588 of those women were covered by medical insurance in 2016 DHS data collection. The results show that most women were not insured by medical insurance (88.8%) and that only (11.2%) of women were covered by medical insurance.

Furthermore, the women who watched television at least once a week were (62.2%), followed by (28.4%) of women who did not at all and (9.4%) of women who watched less than once a week. Whereas with the frequency of radio consumption, (45.7%) of women listened to the radio at least once a week, followed by (39.5%) of women who did not at all listen to the radio and (14.8%) of the women who listened at least once a week. Regarding the population group of women, (89.5%) were Black/African, followed by (8.5%) of the women being Coloured, and the least were White women with 1.9%. The wealth index is an essential indicator used to describe the characteristics of pregnant women. According to the findings, most women were from the poorest wealth index (38.3%), followed by women from the higher wealth index (19.7%) and women from the middle portion of the wealth index with 16.8%. Women from the poorer wealth index made up (18%) of the total, while women from the wealthiest wealth index were (7.2%).

Table 4.1: The characteristics of women participants

Variables	N	%
Timing of first antenatal health check		
First trimester (0-3 months)	173	46.8
Second trimester (3-7 months)	191	51.6
Third trimester (7-10 months)	6	1.6
Total	370	100
Number of antenatal healthcare visits during the pregnancy		
No visits	6	1.6
1-4 visits	105	28.5
5-8 visits	224	60.7
9 & + visits	34	9.2
Total	369	100
Blood pressure taken		
No or not sure	3	0.8
Yes	368	99.2
Total	371	100
Age		
15-19 years	202	19
20-24 years	180	17.3
25-29 years	147	14.1
30-34 years	150	14.4
35-39 years	119	11.4
40-44 years	125	12
45-49 years	118	11.3
Total	1041	100
Marital status		
Never in union	659	63.3
In union	309	29.7
No longer in union	73	7
Total	1041	100
Education		
No Education	16	1.5
Primary Education	151	14.5
Secondary Education	794	76.5
Higher Education	80	7.7
Total	1041	100

Working status		
Yes	337	32.4
No	703	67.6
Total	1041	100
Type of residence (urban or rural)		
Urban area	525	50.4
Rural area	516	49.6
Total	1041	100
Medical insurance		
Yes	57	11.2
No	451	88.8
Total	508	100
Frequency of media consumption (tv and radio)		
Tv consumption		
Not at all	296	28.4
Less than once a week	98	9.4
At than once a week	647	62.2
Total	1041	100
Radio consumption		
Not at all	411	39.5
Less than once a week	154	14.8
At than once a week	476	45.7
Total	1041	100
Population group		
African/Black	932	89.5
White	20	1.9
Coloured	89	8.5
Total	1041	100
Wealth index combined		
Poorest	399	38.3
Poorer	187	18
Middle	175	16.8
Richer	205	19.7
Richest	75	7.2
Total	1041	100

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2 The relationship between the women’s characteristics and timing of their first antenatal healthcare check

Following a brief overview of women residing in the Eastern Cape, the study used cross tabulation to examine the variation of percentages, followed by the Chi-square test statistic and Cramer’s V to measure the relationship between the variables.

4.2.1 The age of women and the timing of first antenatal healthcare visit

The cross-tabulation results between the age of women and the first antenatal health check are shown in Table 4.2. The findings indicate that women between the ages of 25-29 were the majority (29.5%) to get their first antenatal check-ups during the first trimester (0–3 months), followed by women between the ages of 20-24 (24.9%), and women between the ages of 15-19 (6.4%). Women aged 20 to 24 were a significant proportion (24.6%) of those who had their first antenatal visit during the second trimester (3 to 7 months), while those aged 45 to 49 were (1.0%). Women aged 35–39 comprised the majority (33.3%) of those who received their first antenatal check-up during the third trimester (7–10 months). Pearson Chi-square test statistic was used to assess the relationship between the timing of the first antenatal health check and the age of women. The results from Chi-square test revealed that there is no statistical relationship between the timing of the first antenatal health check and the age of the women ($P=0.573>0.05$).

Table 4.2: Timing of first antenatal healthcare visit and age

Timing of first antenatal check	Women’s Age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
First trimester (0-3 months)	11 6.4%	43 24.9%	51 29.5%	32 18.5%	20 11.6%	16 9.2%	0 0.0%	173 100.0%
Second trimester (3-7 months)	18 9.4%	47 24.6%	41 21.5%	44 23.0%	26 13.6%	13 6.8%	2 1.0%	191 100.0%
Third trimester (7-10 months)	1 16.7%	1 16.7%	1 16.7%	1 16.7%	2 33.3%	0 0.0%	0 0.0%	6 100.0%
Total	30 8.1%	91 24.6%	93 25.1%	77 20.8%	48 13.0%	29 7.8%	2 0.5%	370 100.0%

Source: Author’s own calculations from 2016 Demographic and Health Survey

4.2.2 The marital status of the women and the timing of the first antenatal health care visit

Table 4.3 indicates that never in union women were (59%), followed by in union women (37%) who had their first antenatal healthcare check during the first trimester (0-3 months). Women never in a union (62.8%) had their first antenatal healthcare check during the second trimester, followed by women in a union (33%). Similarly, never-in-union women (66.7%) were the majority to have their first antenatal healthcare check during the third trimester (7-10 months), followed by women in union (33.3%).

Furthermore, Chi-square test was used to measure the association between the timing of antenatal health visits and marital status. Hence, the findings indicated that there is no relationship between the timing of the first antenatal health check and the marital status of the women ($P=0.921>0.05$).

Table 4.3: Timing of first antenatal healthcare visit and marital status

Timing of first antenatal check	Marital status			Total
	Never in union	In union	No longer in union	
First trimester (0-3 months)	102 59.0%	64 37.0%	7 4.0%	173 100.0%
Second trimester (3-7 months)	120 62.8%	63 33.0%	8 4.2%	191 100.0%
Third trimester (7-10 months)	4 66.7%	2 33.3%	0 0.0%	6 100.0%
Total	226 61.1%	129 34.9%	15 4.1%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.3 The educational level of women and the timing of first antenatal visit

Table 4.4 displays that women with secondary education were the majority (76.3%) to have their first antenatal healthcare check during their first trimester (0-3 months), followed by women who had primary education (12.7%) and women with no education were the minority with 1.7%.

Similar to this, women with secondary education were more likely (80.6%) than women with primary education (14.7%) to have their first antenatal healthcare check during their second trimester (3-7 months). Additionally, most women with secondary education (86.3%) had their first antenatal check-up in the third trimester (7-10 months).

The Chi-square test was utilised since cross-tabulation does not measure the relationship between variables. This signified that there is no relationship between the timing of the first antenatal health check and the educational level of the women ($P=0.327>0.05$).

Table 3.4: Timing of first antenatal healthcare visit and educational level

Timing of first antenatal check	Highest educational level				
	No education	Primary	Secondary	Higher	Total
First trimester (0-3 months)	3 1.7%	22 12.7%	132 76.3%	16 9.2%	173 100.0%
Second trimester (3-7 months)	1 0.5%	28 14.7%	154 80.6%	8 4.2%	191 100.0%
Third trimester (7-10 months)	0 0.0%	0 0.0%	5 83.3%	1 16.7%	6 100.0%
Total	4 1.1%	50 13.5%	291 78.6%	25 6.8%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.4 The wealth index of women and the timing of first antenatal visit

Table 4.5 results indicate that women in the poorest wealth index (39.3%) were the majority to their first antenatal healthcare check during their first trimester (0-3 months), followed by women from the richer wealth index with 20.8% and women from the richest wealth index were the least (6.9%). Similarly, a large proportion of women who their first antenatal healthcare check during their second trimester (3-7 months) were from the poorest wealth index with 48.7%. Regarding the women who their first antenatal healthcare check during their third trimester (7-10 months) women from the middle and richer wealth index women were the majority with 33.3% respectively.

Hence, the timing of the first antenatal health check and the wealth index of the women was examined using the Chi-square test statistic and Cramer's V. The results from Chi-square test revealed that there is a relationship between the timing of the first antenatal health check and the wealth index of the women ($P=0.074 < 0.078$). Hence, the Cramer's V result indicated a weak association between the dependent and independent variables (Cramer's V = 0.139)

Table 4.4: Timing of first antenatal healthcare visit and wealth index

Timing of first antenatal check	Wealth index combined					
	Poorest	Poorer	Middle	Richer	Richest	Total
First trimester (0-3 months)	68 39.3%	30 17.3%	27 15.6%	36 20.8%	12 6.9%	173 100.0%
Second trimester (3-7 months)	93 48.7%	39 20.4%	27 14.1%	27 14.1%	5 2.6%	191 100.0%
Third trimester (7-10 months)	1 16.7%	0 0.0%	2 33.3%	2 33.3%	1 16.7%	6 100.0%
Total	162 43.8%	69 18.6%	56 15.1%	65 17.6%	18 4.9%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.5 The type of residence of the women and the timing of first antenatal visit

According to Table 4.6, more than half (50.9%) of women who lived within rural residential areas had their first antenatal healthcare check during their first trimester (0-3 months), followed by women who resided within urban residential areas with 49.1%. Similarly, women who lived within rural residential areas (63.9%) were the majority to have their first antenatal healthcare check during their second trimester (3-7 months). However, the most significant proportion of women (88.3%) who lived in urban residential areas had their first antenatal checkup in the third trimester (7-10 months) of their pregnancy.

Moreover, the Chi-square test statistic revealed an association between the timing of the first antenatal health check and the type of residence of the women ($P=0.006 < 0.05$). Additionally, the Cramer's V result indicated a strong association between the dependent and independent variables (Cramer's V = 0.167).

Table 4.5: Timing of first antenatal healthcare visit and type of residence

Timing of first antenatal check	Type of place of residence		
	Urban	Rural	Total
First trimester (0-3 months)	85 49.1%	88 50.9%	173 100.0%
Second trimester (3-7 months)	69 36.1%	122 63.9%	191 100.0%
Third trimester (7-10 months)	5 83.3%	1 16.7%	6 100.0%
Total	159 43.0%	211 57.0%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.6 Women covered by medical insurance and the timing of first antenatal visit

Table 4.7, indicates that women not insured by medical insurance (90.2%) were the majority to have their first antenatal healthcare check during the first trimester (0-3 months), and women covered by medical insurance were the least with 9.8%. Furthermore, of the women who had their first antenatal healthcare check during the second trimester (3-7 months), the majority were not covered by medical insurance, 92.9%.

In addition to cross-tabulation, a Chi-square test statistic was performed to test the hypothesis. Furthermore, the Chi-square test statistic revealed that there is no relationship between the timing of the first antenatal health check and the women covered by medical insurance ($P=0.772>0.05$).

Table 4.6: Timing of first antenatal healthcare visit and medical insurance

Timing of first antenatal check	Covered by medical insurance		
	No	Yes	Total
First trimester (0-3 months)	74 90.2%	8 9.8%	82 100.0%
Second trimester (3-7 months)	92 92.9%	7 7.1%	99 100.0%
Third trimester (7-10 months)	1 100.0%	0 0.0%	1 100.0%
Total	167 91.8%	15 8.2%	182 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.7 The frequency of listening to radio by women and the timing of first antenatal visit

As shown in Table 4.8, (43.9%) of women who listened to the radio at least once a week had their first antenatal checkup during the first trimester (0–3 months), followed by women who did not listen at all, with 41.6%, and women who listened less than once a week were (14.5%). Most women who had their first antenatal checkup during the second trimester (3–7 months) did not listen to the radio, at 47.6%, while women who listened at least once a week were lower (41.1%). Regarding women who had their first antenatal healthcare check during their third trimester (7-10 months), the majority did not listen to the radio at all, with 50%.

Regarding the results from the Chi-square test statistic, the findings of the study indicated that there is no relationship between the timing of the first antenatal health check and the frequency of listening to radio by the women ($P=0.327>0.05$).

Table 4.7: Timing of first antenatal healthcare visit and frequency of listening to radio

Timing of first antenatal check	Frequency of listening to radio			
	Not at all	Less than once a week	At least once a week	Total
First trimester (0-3 months)	72 41.6%	25 14.5%	76 43.9%	173 100.0%
Second trimester (3-7 months)	91 47.6%	21 11.0%	79 41.4%	191 100.0%
Third trimester (7-10 months)	3 50.0%	2 33.3%	1 16.7%	6 100.0%
Total	166 44.9%	48 13.0%	156 42.2%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.8 The frequency of watching television by women and the timing of first antenatal visit

Table 4.9, indicates that more than half of the women who had their first antenatal health check during their first trimester (0-3months) watch television at least once a week (59%), followed by women who did not at all watch television (31.2%) and women who watched less than once a week were the least with 9.8%. For women who had their first antenatal health check during the second trimester (3-7 months), the majority were women who watched television at least once a week (55.5%), and similarly, among women who had their first antenatal health check during in the third trimester (7-10 months), majority watched at least once a week (83.3%).

The relationship between the timing of the first antenatal health check and women's television frequency was examined using the Chi-square test statistic. The results from the Chi-square test revealed that there is no relationship between the timing of the first antenatal health check and the frequency of watching television by women ($P=0.135>0.05$).

Table 4.8: Timing of first antenatal healthcare visit and frequency of watching television

Timing of first antenatal check	Frequency of watching television			
	Not at all	Less than once a week	At least once a week	Total
First trimester (0-3 months)	54 31.2%	17 9.8%	102 59.0%	173 100.0%
Second trimester (3-7 months)	74 38.7%	11 5.8%	106 55.5%	191 100.0%
Third trimester (7-10 months)	0 0.0%	1 16.7%	5 83.3%	6 100.0%
Total	128 34.6%	29 7.8%	213 57.6%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.9 The population group of the women and the timing of first antenatal visit

Table 4.10, illustrates that majority of Black/African women (90.2%) had their first antenatal healthcare check during the first trimester (0-3 months), followed by Coloured women (8.1%) and the least were White women with 1.7%. Looking at the second trimester the largest proportion were the Black/African women (94.8%) to have their first antenatal healthcare check, and Coloured women with 4.7%. Similarly Black/African women (88.3%) were the majority to have their first antenatal healthcare check during the third trimester (7-10 months).

When Chi-square test statistic was performed, the results from Chi-square test revealed that there is no relationship between the timing of the first antenatal health check and the population group of the women ($P=0.388>0.05$).

Table 4.9: Timing of first antenatal healthcare visit and population group

Timing of first antenatal check	Population group			
	Black/African	White	Coloured	Total
First trimester (0-3 months)	156 90.2%	3 1.7%	14 8.1%	173 100.0%
Second trimester (3-7 months)	181 94.8%	1 0.5%	9 4.7%	191 100.0%
Third trimester (7-10 months)	5 83.3%	0 0.0%	1 16.7%	6 100.0%
Total	342 92.4%	4 1.1%	24 6.5%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.2.10 The working status of the women and the timing of first antenatal visit

Table 4.11 depicts that the majority of the women who had their first antenatal healthcare check during the first trimester (0-3 months) were not working (65.3%), followed by (34.7%) of women who were working. In addition (74.9%) of the non-working women had their first antenatal healthcare check during the second trimester (3-7 months). However, regarding women who had their first antenatal healthcare check during the third trimester (50%) of the women were not working, and (50%) were working.

Hence, the relationship between the timing of the first antenatal health check and the working status of the women was examined using the Chi-square test statistic and Cramer's V. The results from the Chi-square test showed that there exists a relationship between the timing of the first antenatal health check and the working status of the women ($P=0.078 < 0.078$). Additionally, the Cramer's V result indicated that a weak association exists between the dependent and independent variables (Cramer's V = 0.117).

Table 4.10: Timing of first antenatal healthcare visit and working status

Timing of first antenatal check	Working status		
	No	Yes	Total
First trimester (0-3 months)	113 65.3%	60 34.7%	173 100.0%
Second trimester (3-7 months)	143 74.9%	48 25.1%	191 100.0%
Third trimester (7-10 months)	3 50.0%	3 50.0%	6 100.0%
Total	259 70.0%	111 30.0%	370 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3 The differentials between women's characteristics and number of antenatal visits during pregnancy

Crosstabulation was used to compare the time required to go to healthcare facilities and women's characteristics, followed by Chi-square to determine the strength of the correlation.

4.3.1 Age of women and number of antenatal visits during pregnancy

According to the findings in Table 4.12, (16.7%) of 25–29 years women and (33.3%) of 30-34 years women had no antenatal visits. Women aged 20-24 years old (23.8%) had the majority of antenatal visits, followed by women aged 30-34 years old (21.9%) and women aged 25-29 years old (21%). Looking at women who had 5-8 prenatal visits, the majority were between the ages of 25-29, with 27.2%, and the youngest being between the ages of 15-19 (8%). Furthermore, most women who had 9 or more antenatal visits were women aged 20-24, followed by women aged 25-29 (26.5%).

Looking at the Chi-square test statistic, the findings showed that there is no relationship between the number of antenatal visits during pregnancy and the age of women ($P=0.843>0.05$).

Table 4.11: Number of antenatal visits during pregnancy and age

Number of antenatal visits during pregnancy	Women's Age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	44-49	
No visits	0 0.0%	2 33.3%	1 16.7%	2 33.3%	1 16.7%	0 0.0%	0 0.0%	6 100.0%
1-4 visits	9 8.6%	25 23.8%	22 21.0%	23 21.9%	18 17.1%	8 7.6%	0 0%	105 100.0%
5-8 visits	18 8.0%	56 25.0%	61 27.2%	48 21.4%	20 8.9%	20 8.5%	2 0.9%	224 100.0%
9 &+ visits	3 8.8%	9 26.5%	9 26.5%	4 11.8%	7 20.6%	2 5.9%	0 0.0%	34 100.0%
Total	30 8.1%	92 24.9%	93 25.2%	77 20.9%	46 12.5%	29 7.9%	2 0.5%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.2 The marital status of the women and number of antenatal visits during pregnancy

The findings in Table 4.13 demonstrate that women who had no antenatal visits were never in union and in union at 50% each. The majority of women having 1-4 antenatal visits were never in union (62.9%), followed by women in union (34.3%), and women no longer in union (2.9%). Women who had 5-8 antenatal visits and had never been in union were (60.3%), followed by women who had been in union (34.8%). Similarly, (64.7%) of women who had more than 9 antenatal visits were never in union.

Regarding the Chi-square test, the study indicates that the test statistic was not statistically significant. This signified that there is no relationship between the number of antenatal visits during pregnancy and the marital status of women ($P=0.933>0.05$).

Table 4.12: Number of antenatal visits during pregnancy and

Number of antenatal visits during pregnancy	Marital status			
	Never in union	In-union	No longer in union	Total
No visits	3 50.0%	3 50.0%	0 0.0%	6 100.0%
1-4 visits	66 62.9%	36 34.3%	3 2.9%	105 100.0%
5-8 visits	135 60.3%	78 34.8%	11 4.9%	224 100.0%
9 &+ visits	22 64.7%	11 32.4%	1 2.9%	34 100.0%
Total	226 61.2%	128 34.7%	15 4.1%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.3 The educational level of women and the number of antenatal visits during pregnancy

Table 4.14 illustrates that women with secondary education had the highest proportion (83.3%) to have no antenatal visits. Women who had 1-4 visits were those with secondary education (82.9%), followed by women with primary education (12.4%) and women with higher education (4.8%). Similarly, for women who had 5-8 visits, the majority were women with secondary education (76.3%), followed by women with primary education (13.8%). Furthermore, most women with secondary education (79.4%) had 9 or more antenatal visits. Moreover, The Chi-square test indicated that there is no relationship between the number of antenatal visits during pregnancy and the educational level of women ($P=0.626>0.05$).

Table 4.13: Number of antenatal visits during pregnancy and educational level

Number of antenatal visits during pregnancy	Highest educational level				
	No education	Primary	Secondary	Higher	Total
No visits	0 0.0%	0 0.0%	5 83.3%	1 16.7%	6 100.0%
1-4 visits	0 0.0%	13 12.4%	87 82.9%	5 4.8%	105 100.0%
5-8 visits	4 1.8%	31 13.8%	171 76.3%	18 8.0%	224 100.0%
9 &+ visits	0 0.0%	6 17.6%	27 79.4%	1 2.9%	34 100.0%
Total	4 1.1%	50 13.6%	290 78.6%	25 6.8%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.4 The wealth index of women and number of antenatal visits during pregnancy

Table 4.15 indicates that women from the more affluent wealth index (50%) were the majority to have no antenatal visits. Women who had 1-4 visits were from the poorest wealth index with 45.7%, followed by women from the richer wealth index (17.1%), women from the poorer wealth index (16.2%) and women from the middle wealth index (15.2%). For women who had 5-8 antenatal visits, the majority were from the poorest wealth index (41.5%) and women from the poorer wealth index with 20.1%. Similarly, many women from the poorest wealth index had 9 or more antenatal visits (58.8%). Furthermore, The Chi-square test was performed and revealed that there is no relationship between the number of antenatal visits during pregnancy and the wealth index of the women ($P=0.385>0.05$).

Table 4.14: Number of antenatal visits during pregnancy and wealth index

Number of antenatal visits during pregnancy	Wealth index combined					Total
	Poorest	Poorer	Middle	Richer	Richest	
No visits	0 0.0%	1 16.7%	2 33.3%	3 50.0%	0 0.0%	6 100.0%
1-4 visits	48 45.7%	17 16.2%	16 15.2%	18 17.1%	6 5.7%	105 100.0%
5-8 visits	93 41.5%	45 20.1%	37 16.5%	41 18.3%	8 3.6%	224 100.0%
9 &+ visits	20 58.8%	5 14.7%	3 8.8%	5 14.7%	1 2.9%	34 100.0%
Total	161 43.6%	68 18.4%	58 15.7%	67 18.2%	15 4.1%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.5 The type of residence of the women and number of antenatal visits during pregnancy

Table 4.16 results indicate that most women who resided in urban residential areas had no antenatal visits (66.7%). More than half of the women who had 1-4 antenatal visits resided in rural residential areas (55.2%), followed by (44.8%) who resided in urban residential areas. Looking at women who had 5-8 antenatal visits, the majority were those who resided in rural residential areas (57.1%). Additionally, most women who resided in rural residential areas (67.6%) had 9 or more antenatal visits. The Chi-square test revealed that there is no association between the timing of the number of antenatal visits during pregnancy and the type of residence of the women ($P=0.380>0.05$).

Table 4.15: Number of antenatal visits during pregnancy and type of residence

Number of antenatal visits during pregnancy	Type of place of residence		
	Urban	Rural	Total
No visits	4 66.7%	2 33.3%	6 100.0%
1-4 visits	47 44.8%	58 55.2%	105 100.0%
5-8 visits	96 42.9%	128 57.1%	224 100.0%
9 &+ visits	11 32.4%	23 67.6%	34 100.0%
Total	158 42.8%	211 57.2%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.6 Women covered by medical insurance and number of antenatal visits during pregnancy

Table 4.17 reveals that women without antenatal visits were not insured by medical insurance (33.3%). The majority of women who had 1-4 antenatal visits were not covered by medical insurance (94.9%), with only 5.1% of women being insured by medical insurance. The largest proportion of women (90.6%) who had 5-8 antenatal visits were not insured by medical insurance. Furthermore, all the women who had 9 or more antenatal visits were not covered by medical insurance.

The relationship between the number of antenatal visits during pregnancy and women covered by medical insurance was examined using the Chi-square test statistic and Cramer's V. The results from the Chi-square test, revealed that there is an association between the number of antenatal visits during pregnancy and women covered by medical insurance. ($P=0.01 < 0.05$). Furthermore, the Cramer's V result indicated a moderate association between the dependent and independent variables (Cramer's V = 0.294).

Table 4.16: Number of antenatal visits during pregnancy and medical insurance

Number of antenatal visits during pregnancy	Covered by medical insurance		
	No	Yes	Total
No visits	1 33.3%	2 66.7%	3 100.0%
1-4 visits	56 94.9%	3 5.1%	59 100.0%
5-8 visits	96 90.6%	10 9.4%	106 100.0%
9 &+ visits	14 100.0%	0 0.0%	14 100.0%
Total	167 91.8%	15 8.2%	182 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.7 The frequency of listening to radio and number of antenatal visits during pregnancy

Table 4.18 shows that half the women (50%) experienced no antenatal visits. Similarly, most women who had 1-4 antenatal visits also did not listen to the radio (49.5%), followed by (37.1%) of the women who listened at least once a week. For the women who had 5-8 antenatal visits, (44.6%) of them listened to the radio at least once a week, and (12.9%) of women listened less than once a week. Regarding the women who had 9 antenatal visits or more, the majority paid little attention to the radio with 52.9%. Additionally, the Chi-square test revealed that there is no relationship between the timing of the number of antenatal visits during pregnancy and the frequency of listening to the radio by women ($P=0.713>0.05$).

Table 4.17: Number of antenatal visits during pregnancy and frequency of listening to radio

Number of antenatal visits during pregnancy	Frequency of listening to radio			
	Not at all	Less than once a week	At least once a week	Total
No visits	3 50.0%	1 16.7%	2 33.3%	6 100.0%
1-4 visits	52 49.5%	14 13.3%	39 37.1%	105 100.0%
5-8 visits	95 42.4%	29 12.9%	100 44.6%	224 100.0%
9 &+ visits	18 52.9%	2 5.9%	14 41.2%	34 100.0%
Total	168 45.5%	46 12.5%	155 42.0%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.8 The frequency of watching television and number of antenatal visits during pregnancy

Table 4.19 shows that the majority of the women who had no antenatal visits watch television at least once a week (83.3%). Women who had 1-4 antenatal visits were more than half (55.2%) of those who watch television at least once a week, and the women who did not watch television at all were (37.1%). Similarly, women who had 5-8 antenatal visits were the majority of the women who watched at least once a week (57.6%). Regarding women who had 9 or more antenatal visits, the majority (58.8%) watched television at least once a week.

The Chi-square test showed no relationship between the number of antenatal visits during pregnancy and the frequency of watching television by women. ($P=0.523>0.05$).

Table 4.18: Number of antenatal visits during pregnancy and frequency of watching television

Number of antenatal visits during pregnancy	Frequency of watching television			
	Not at all	Less than once a week	At least once a week	Total
No visits	0 0.0%	1 16.7%	5 83.3%	6 100.0%
1-4 visits	39 37.1%	8 7.6%	58 55.2%	105 100.0%
5-8 visits	75 33.5%	20 8.9%	129 57.6%	224 100.0%
9 &+ visits	13 38.2%	1 2.9%	20 58.8%	34 100.0%
Total	127 34.4%	30 8.1%	212 57.5%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.9 The population group and number of antenatal visits during pregnancy

Table 4.20 demonstrates that more than half of women without antenatal visits were Black/African women (66.7%) and Coloured women 33.3%. Women with 1-4 antenatal visits were majority Black/African (98.1%). Similarly, women who had 5-8 visits were majorly Black/African women (90.6%), followed by Coloured women with 8% and the least being White women (1.3%). Furthermore, (91.2%) of Black/African women had the largest proportion with 9 or more antenatal visits.

Since crosstabulation was not enough to test the hypothesis, the Chi-square test was used to measure an association between the two variables. The results from the Chi-square test show a relationship between the number of antenatal visits during pregnancy and the population group of the women ($P=0.036 < 0.05$). Furthermore, the Cramer's V result indicated a weak association between the dependent and independent variables (Cramer's $V = 0.135$).

Table 4.19: Number of antenatal visits during pregnancy and population group

Number of antenatal visits during pregnancy	Population group			
	Black/African	White	Coloured	Total
No visits	4 66.7%	0 0.0%	2 33.3%	6 100.0%
1-4 visits	103 98.1%	0 0.0%	2 1.9%	105 100.0%
5-8 visits	203 90.6%	3 1.3%	18 8.0%	224 100.0%
9 &+ visits	31 91.2%	0 0.0%	3 8.8%	34 100.0%
Total	341 92.4%	3 0.8%	25 6.8%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.3.10 Working status of women and number of antenatal visits during pregnancy

Table 4.21 shows that (50%) of employed and unemployed women had no antenatal visits. Women who were not working made up the majority of those who had between 1-4 antenatal visits (75.2%), whereas 24.8% of those working were pregnant. Similarly, (67.9%) of the women with 5-8 visits were not working. The majority (73.5%) of women with 9 antenatal visits or more were not employed respectively.

Furthermore, the results from the Chi-square test revealed that there is no relationship between the number of antenatal visits during pregnancy and the working status of women ($P=0.360>0.05$).

Table 4.20: Number of antenatal visits during pregnancy and working status

Number of antenatal visits during pregnancy	Working status		
	No	Yes	Total
No visits	3 50.0%	3 50.0%	6 100.0%
1-4 visits	79 75.2%	26 24.8%	105 100.0%
5-8 visits	152 67.9%	72 32.1%	224 100.0%
9 &+ visits	25 73.5%	9 26.5%	34 100.0%
Total	259 70.2%	110 29.8%	369 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4 The relationship between women's characteristics and blood pressure taken during pregnancy

A comparison between blood pressure taken during pregnancy and women's characteristics was carried out by crosstabulation, followed by Chi-square to measure the strength of the relationship.

4.4.1 Age of women and blood pressure taken during pregnancy

Table 4.22 in the study found that a large proportion of women (25.3%) aged 25-29 had their blood pressure taken, followed by women (24.7%) aged 20-24 years old. Women aged 30-34 were (20.9%) while women aged 35-39 were (12.8%). Accordingly, women aged 15-19 years old were (8.2%) and 40-44 years old were (7.9%). While only (0.3%) were 45-49 years old

Regarding the results of the Chi-square test, the study showed that there is a relationship between women's blood pressure taken during pregnancy and the age of the women ($P=0.001<0.05$). Furthermore, the Cramer's V result indicated a weak association between the dependent and independent variables (Cramer's V = 0.079).

Table 4.21: Blood pressure taken during pregnancy and age

Blood pressure taken during pregnancy	Women's Age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
No	0 0.0%	0 0.0%	1 33.3%	0 0.0%	1 33.3%	0 0.0%	1 33.3%	3 100.0%
Yes	30 8.2%	91 24.7%	93 25.3%	77 20.9%	47 12.8%	29 7.9%	1 0.3%	368 100.0%
Total	30 8.1%	91 24.5%	94 25.3%	77 20.8%	48 12.9%	29 7.9%	2 0.5%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.2 Marital status and blood pressure taken during pregnancy

According to Table 4.23, more than half of women who had their blood pressure taken during pregnancy were never in union (61.1%), followed by women who were in union (34.8%), and the least were women who were no longer in union at 4.1%. Women who were never in union were the majority, with 66.7%, followed by women in union (33.3%) who did not have their blood pressure taken during pregnancy.

Looking at the findings from the Chi-square test, it revealed that there is no relationship between women's blood pressure taken during pregnancy and marital status of women ($P=0.933>0.05$).

Table 4.22: Blood pressure taken during pregnancy and marital status

Blood pressure taken during pregnancy	Marital status			
	Never in union	In union	No longer in union	Total
No	2 66.7%	1 33.3%	0 0.0%	3 100.0%
Yes	225 61.1%	128 34.8%	15 4.1%	368 100.0%
Total	227 61.2%	129 34.8%	15 4.0%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.3 The educational level of the women and blood pressure taken during pregnancy

Table 4.24 shows the crosstabulation between women who had their blood pressure taken during pregnancy and the educational level of women. Women with secondary education had a large proportion of their blood pressure taken during pregnancy, at 78.5%, followed by women with primary education (13.6%) and women with higher education (6.8%). The minority were women with no education (1.1%).

Additionally, results from the Chi-square test indicated that there is no relationship between women who had their blood pressure taken during pregnancy and the educational level of the women ($P=0.845>0.05$).

Table 4.23: Blood pressure taken during pregnancy and educational level

Blood pressure taken during pregnancy	Highest educational level				
	No education	Primary	Secondary	Higher	Total
No	0 0.0%	0 0.0%	3 100.0%	0 0.0%	3 100.0%
Yes	4 1.1%	50 13.6%	289 78.5%	25 6.8%	368 100.0%
Total	4 1.1%	50 13.5%	292 78.7%	25 6.7%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.4 The wealth index of the women and blood pressure taken during pregnancy

According to the findings in Table 4.25, the women in the middle wealth index were the largest proportion (66.7%) who did not have their blood pressure taken during pregnancy. For the women whose blood pressure was taken during pregnancy, the majority were from the poorest wealth index (44%), followed by women from the poorer wealth index with 18.5%.

While women from the richer wealth index were (17.7%) and women in the middle index (14.9%). The least were women from the richest wealth index (4.9%).

Looking at the results from the Chi-square test, the finding of the study indicated that there was no relationship between women who had their blood pressure taken during pregnancy and the wealth index of women ($P=0.110>.05$)

Table 4.24: blood pressure taken during pregnancy and wealth index

Blood pressure taken during pregnancy	Wealth index combined					
	Poorest	Poorer	Middle	Richer	Richest	Total
No	0 0.0%	1 33.3%	2 66.7%	0 0.0%	0 0.0%	3 100.0%
Yes	162 44.0%	68 18.5%	55 14.9%	65 17.7%	18 4.9%	368 100.0%
Total	162 43.7%	69 18.6%	57 15.4%	65 17.5%	18 4.9%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.5 The type of residence of the women and blood pressure taken during pregnancy

Table 4.26 results indicate that women who resided in the urban residential areas had the largest proportion (66.7%) not to have their blood pressure taken during pregnancy. The majority of women whose blood pressure was taken during pregnancy were from rural residential areas (57.1%), and (42.9%) of the women resided in the urban areas. In addition to crosstabulation, a Chi-square test statistic was performed to test the hypothesis.

Hence, the results from the Chi-square test showed that there is no relationship between women who had their blood pressure taken during pregnancy and the type of residence of the women ($P=0.408>0.05$).

Table 4.25: Blood pressure taken during pregnancy and residence type

Blood pressure taken during pregnancy	Type of place of residence		
	Urban	Rural	Total
No	2 66.7%	1 33.3%	3 100.0%
Yes	158 42.9%	210 57.1%	368 100.0%
Total	160 43.1%	211 56.9%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.6 Women covered by medical insurance and blood pressure taken during pregnancy

Table 4.27 shows that women who were not insured by medical insurance were the majority not to have their blood pressure taken during pregnancy. Most (91.7%) of the women whose blood pressure was taken during pregnancy were not insured by medical insurance, while only (8.3%) of the women were covered by medical insurance.

Moreover, the Chi-square test indicated that there was no association between women whose blood pressure was taken during pregnancy and women covered by medical insurance ($P=0.671>0.05$).

Table 4.26: Blood pressure taken during pregnancy and medical insurance

Blood pressure taken during pregnancy	Covered by medical insurance		
	No	Yes	Total
No	2 100.0%	0 0.0%	2 100.0%
Yes	166 91.7%	15 8.3%	181 100.0%
Total	168 91.8%	15 8.2%	183 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.7 The frequency of listening to radio and blood pressure taken during pregnancy

The findings in Table 4.28 demonstrate that women who did not have their blood pressure taken during pregnancy were women who did not listen to the radio, with 66.7% and (33.3%) of the women listening at least once a week to the radio. In a similar vein, among women who had their blood pressure taken during pregnancy, the majority (44.8%) of them did not listen to the radio at all, followed by women who listened at least once a week with 42.1% and least were the women who listened less than once a week to the radio (13%). Regarding the results from the Chi-square test, the study showed that there is no relationship between women whose blood pressure was taken during pregnancy and the frequency of listening to the radio by women ($P=0.684>0.05$).

Table 4.27: Blood pressure taken during pregnancy and frequency of listening to radio

Blood pressure taken during pregnancy	Frequency of listening to radio			Total
	Not at all	Less than once a week	At least once a week	
No	2 66.7%	0 0.0%	1 33.3%	3 100.0%
Yes	165 44.8%	48 13.0%	155 42.1%	368 100.0%
Total	167 45.0%	48 12.9%	156 42.0%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.8 The frequency of watching television and blood pressure taken during pregnancy

Table 4.29 indicates that women who watched television at least once a week were the majority (66.7%) not to have their blood pressure taken during their pregnancy. For those women who had their blood pressure taken during pregnancy, the majority of them watched television at least once a week (57.6%), followed by women who did not at all watch television (34.8%), and the least were women who watched less than once a week (7.6%).

Additionally, the Chi-square test revealed that there is no association between women who had their blood pressure taken during pregnancy and the frequency of watching television by women ($P=0.165>0.05$).

Table 4.28: Blood pressure taken during pregnancy and frequency of watching television

Blood pressure taken during pregnancy	Frequency of watching television			
	Not at all	Less than once a week	At least once a week	Total
No	0 0.0%	1 33.3%	2 66.7%	3 100.0%
Yes	128 34.8%	28 7.6%	212 57.6%	368 100.0%
Total	128 34.5%	29 7.8%	214 57.7%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.9 The population group of women and blood pressure taken during pregnancy

The results from Table 4.30 show that Coloured women were more than half of 66.7% not to have their blood pressure taken during pregnancy. The majority of Black/African women (92.9%) and (6%) Coloured women had their blood pressure taken during pregnancy. While White women were the minority with 1.1%, respectively.

The Chi-square test results showed a relationship between women who had their blood pressure taken during pregnancy and the population group of women ($P=0.01<0.05$). Furthermore, the Cramer's V result indicated a moderate association between the dependent and independent variables (Cramer's V = 0.221).

Table 4.29: Blood pressure taken during pregnancy and population group of women

Blood pressure taken during pregnancy	Population group			
	Black/African	White	Coloured	Total
No	1 33.3%	0 0.0%	2 66.7%	3 100.0%
Yes	342 92.9%	4 1.1%	22 6.0%	368 100.0%
Total	343 92.5%	4 1.1%	24 6.5%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.4.10 The working status of women and blood pressure taken during pregnancy

Table 4.31 indicates that most women who had their blood pressure taken during pregnancy were not working (69.8%), and (30.2%) of the women who were working had theirs taken. Hence, the Chi-square test indicated that there is no relationship between women who had their blood pressure taken during pregnancy and the working status of women ($P=0.256>0.05$).

Table 4.30: Blood pressure taken during pregnancy and working status

Blood pressure taken during pregnancy	Working status		
	No	Yes	Total
No	3 100.0%	0 0.0%	3 100.0%
Yes	257 69.8%	111 30.2%	368 100.0%
Total	260 70.1%	111 29.9%	371 100.0%

Source: Author's own calculations from 2016 Demographic and Health Survey

4.5 Multinomial logistic regression on women's determinants of access to antenatal healthcare

This study used logistic regression to uncover the factors determining the access and utilization of antenatal healthcare amongst women. Logistic regression is used because the chosen three dependent variables were dichotomous. Therefore, the Logistic regression model comprised three dependent variables: the timing of the first antenatal healthcare visit, the number of antenatal healthcare visits and whether blood pressure was taken during healthcare antenatal visits. In this study, the independent variables are the following: age, marital status, educational level, working status, type of place of residence, medical insurance, frequency of media consumption (TV and radio), population group and wealth index.

4.5.1 Timing of first antenatal check

4.5.1.1 The factors contributing to the first antenatal check in the first trimester (0-3 months)

Since this dependent variable has more than two categories, multinomial logistic regression was used to highlight factors playing a role in the timing of the first antenatal healthcare visits women experience during their pregnancy. The model fitting information revealed that $p=0.001 < 0.05$ and the model summary provides -2 Log-likelihood, while the Pseudo R Square test was significant with Cox and Snell, $p=0.052 > 0.05$ and Nagelkerke, $p=0.074 > 0.05$. The results reveal that marital status, educational level, medical insurance, frequency of listening to the radio, and type of residence were not statistically significant. In turn, these variables did not influence the timing of women's first antenatal healthcare visits during their pregnancy.

The position a woman finds herself in, in the wealth index, was found to play a significant role in the timing of her first antenatal healthcare visits. This is proven in the results as women from the poorer wealth index were more likely to have their first antenatal healthcare check during the first trimester (0-3 months) by 5.467 times higher than women from the richest, respectively.

The study findings reveal that being a Black/African woman increases the odds of antenatal healthcare check during the first trimester (0-3 months) by 6.942 compared to that of Indian/Asian women. Furthermore, being a coloured woman increases the odds of the antenatal healthcare visit in the first trimester (0-3 months) by 1.261 times more than Indian/Asian women.

4.5.1.2 Determinants of the timing of first antenatal check, second trimester (3-7 months)

When the factors determining the timing of antenatal healthcare check in the second trimester, the wealth index was identified as an essential, statistically significant variable, as depicted in Table 4.32. The results reveal that women from the poorer wealth index were 7.858 times more likely to have their first antenatal healthcare check during the second trimester (3-7 months), respectively.

Furthermore, it was observed that the population group a woman belongs to influences the time she experiences her first antenatal healthcare check. This is seen clearly with the Black/African women as they experience an increase in the odds of having their first antenatal healthcare check during the second trimester (3-7 months) by 5.865 times higher than that of Indian/Asian woman.

Table 4.31: Multinomial logistic regression on the timing of the first antenatal healthcare visit

Timing of first antenatal check	First trimester (0-3 months)					Second trimester (3-7 months)				
	B	Std. Error	Wald	Sig.	Exp(B)	B	Std. Error	Wald	Sig.	Exp(B)
Covered by health insurance										
No	-.205	.702	.086	.770	.814	.171	.709	.058	.810	1.186
Yes@	0b	.	.	.	.	0b	.	.	.	.
Frequency of listening to radio										
Not at all	.014	.566	.001	.980	1.014	.173	.565	.093	.760	1.189
Less than once a week	-.504	.535	.888	.346	.604	-.499	.537	.864	.353	.607

At least once a week@	0b	.	.	.	.	0b	.	.	.	.
Frequency of watching television										
Not at all	-.567	.672	.714	.398	.567	-.454	.670	.460	.498	.635
Less than once a week	-.631	.645	.956	.328	.532	-.642	.647	.985	.321	.526
At least once a week@	0b	.	.	.	.	0b	.	.	.	.
Highest education										
No education	14.226	1558.796	.000	.993	1507597.891	14.464	1558.796	.000	.993	1912436.514
Primary	.297	.917	.105	.746	1.346	.436	.921	.224	.636	1.547
Secondary	.533	.611	.761	.383	1.704	.853	.619	1.902	.168	2.347
Higher @	0b	.	.	.	.	0b	.	.	.	.
Wealth index										
Poorest	.671	.850	.624	.430	1.957	1.145	.854	1.798	.180	3.142
Poorer	1.699	.850	3.996	.046	5.467	2.062	.855	5.817	.016	7.858
Middle	.801	.683	1.373	.241	2.227	1.160	.690	2.829	.093	3.190
Richer	.969	.694	1.949	.163	2.635	1.173	.702	2.791	.095	3.230
Richest@	0b	.	.	.	.	0b	.	.	.	.
Type of place of residence										
Urban	-.096	.513	.035	.852	.909	-.163	.513	.101	.751	.850
Rural@	0b	.	.	.	.	0b	.	.	.	.
Age										
15-19	1.084	1350.464	.000	.999	2.955	.897	1350.464	.000	.999	2.452
20-24	-12.18	12695	.000	.992	5.101	-12.50	1269.695	.000	.992	3.698E-6
25-29	-10.37	12695	.000	.993	3.125	-11.06	1269.695	.000	.993	1.567E-6
30-34	-12.45	12695	.000	.992	3.916	-12.99	1269.695	.000	.992	2.283E-6
35-39	-11.29	12695	.000	.993	1.242	-11.70	1269.695	.000	.993	8.257E-6
40-44	-12.11	12695	.000	.992	5.490	-12.18	1269.695	.000	.992	5.087E-6
45-49@	0b	.	.	.	.	0b	.	.	.	.
Marital Status										
Never in union	-.729	1.079	.456	.499	.482	-.412	1.083	.145	.704	.663
In union	-.083	1.104	.006	.940	.920	.068	1.108	.004	.951	1.070

No longer in union@	0b	.	.	.	.	0b	.	.	.	.
Working status										
No	-.276	.497	.309	.578	.759	-.165	.498	.110	.740	.848
Yes@	0b	.	.	.	.	0b	.	.	.	.
Population group										
Black/African	-14.180	1.228	133.314	<,001	6.942E-7	-14.349	1.062	182.450	<,001	5.865E-7
White	.455	1656.204	.000	1.000	1.576	.305	1656.203	.000	1.000	1.357
Coloured	-13.584	.645	444.071	<,001	1.261E-6	-13.380	.000	.	.	1.545E-6
Indian/Asian@	0b	.	.	.	.	0b	.	.	.	.
@ Reference group Second trimester (7-10 months)										

Source: Author's own calculations from 2016 Demographic and Health Survey

4.5.2 Number of antenatal healthcare visits

4.5.2.1 The factors contributing to no antenatal healthcare visits

The multinomial logistic regression analysis provided the study's findings concerning the determinants of women's access to antenatal healthcare, as indicated in Table 4.33 in the Appendices. The model fits the data as $p=0.003 > 0.05$, and, the model summary provides -2 Log likelihood, while the Pseudo R Square test was significant with Cox and Snell, $p=0.072 > 0.05$ and Nagelkerke, $p=0.052 > 0.05$. The results reveal that marital status, educational level, medical insurance, frequency of listening to the radio, and type of residence were not statistically significant. This indicates that these variables did not influence the number of antenatal healthcare visits a woman has during pregnancy.

In Table 4.33, the findings indicate that frequently watching television was seen as a significant variable in this study, which could influence the potential for women not to have any antenatal healthcare visits during their pregnancy. The study found that women who do not engage in watching television were at higher odds of not attending any antenatal healthcare visits during their pregnancy, by 3.727 times higher than that of women who watch television at least once a week.

This means that having no exposure to television negatively affects whether women engage in antenatal healthcare visits.

Furthermore, age was identified to be a significant variable as women aged 20-24 have a decreased chance of not attending antenatal healthcare visits by 0.255 times lower than those aged between 40-49 years old. In other words, older women are more likely to attend no antenatal healthcare visits during their pregnancy than women aged 20-24.

Interestingly, the study discovered that women's working status was seen as a significant variable, which could influence the potential for women not to have antenatal healthcare visits during their pregnancy. The results show that women who were not working during their pregnancy were more likely not to attend antenatal healthcare visits by 2.120 times compared to women who were working during their pregnancy. This is surprising as women who aren't working have more time to go to their antenatal healthcare appointments than women who work.

With regards to the population group, the study revealed that being Black/African and being White women reduce the chances of attending antenatal healthcare compared to Indian/Asian women.

4.5.2.2 Determinants of 1-4 antenatal healthcare visits

Looking at the variables which are significant in Table 4.33, it shows that the frequency of watching television is an important variable which was statistically significant. The results indicated that women who did not watch television during their pregnancy increased the likelihood of attending 1-4 antenatal healthcare visits by 2.052 times more than women who watched television at least once a week. From the study results, it is clear that a woman's spot on the wealth index affects her when attending antenatal healthcare visits during pregnancy. It was observed that the poorest women are more likely by 2.487 times to attend 1-4 antenatal healthcare visits during their pregnancy.

4.5.3 Blood pressure taken during pregnancy

4.5.3.1 The factors determining blood pressure taken during pregnancy

Since the variable "Blood pressure was taken during antenatal healthcare visit" was dichotomous, binary logistic regression was used to identify the factors contributing to blood pressure being

taken during the antenatal visit. Hence, the logistic regression was run to discern the factors influencing the likelihood of women's blood pressure being taken during their pregnancy. An omnibus test of model coefficients was performed, which revealed that $p=0.0440 < 0.05$ and the model summary provides -2 Log-likelihood, while the Hosmer and Lemeshow test was significant with $p=0.159 > 0.05$.

Table 4.34 highlights the variables influencing the likelihood of women's blood pressure being taken during pregnancy. The results indicate that age, marital status, wealth index, medical insurance, educational level, frequency of watching television and radio, type of residence and working status were not statistically significant. This demonstrates that these variables do not influence women from having their blood pressure taken during pregnancy. However, the study has found that the population group a woman belongs to was statistically significant. It was observed a decrease in the odds of Black/African women having their blood pressure taken during their pregnancy by 0.088 times less, respectively.

Table 4.324: Logistic regression on whether blood pressure was taken during pregnancy

Blood pressure was taken: During pregnancy	B	S.E.	Wald	Sig.	Exp(B)
Not covered by health insurance	.868	1.173	.547	.459	2.382
Frequency of listening to radio			.036	.982	
Less than once a week	.063	.781	.007	.936	1.065
At least once a week	-.068	.583	.014	.907	.934
Frequency of watching television			1.477	.478	
Less than once a week	.505	.717	.497	.481	1.658
At least once a week	-.605	.717	.713	.398	.546
Highest educational level			1.693	.638	
Primary	-18.038	7943.176	.000	.998	.000
Secondary	-17.239	7943.176	.000	.998	.000
Higher	-17.036	7943.176	.000	.998	.000

Type of place of residence (Urban)	-.847	.554	2.338	.126	.429
Age			6.843	.233	
15-19	.586	.889	.434	.510	1.797
20-24	1.615	1.049	2.370	.124	5.028
25-29	1.724	1.112	2.403	.121	5.605
30-34	.081	.933	.008	.930	1.085
35-39	.072	1.025	.005	.944	1.074
Marital status			3.054	.217	
Never in union	-.286	.601	.227	.633	.751
In union	-1.323	.764	2.995	.084	.266
Working status (no)	-.232	.566	.168	.682	.793
Population group			4.079	.253	
Black/African	-2.428	1.263	3.697	.055	.088
White	-.814	.845	.927	.336	.443
Coloured	16.480	11053.408	.000	.999	14360316.538
Constant	21.806	7943.176	.000	.998	2953195411.750

Source: Author's own calculations from 2016 Demographic and Health Survey

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CHAPTER 5: DISCUSSION OF RESULTS

This study is aimed to analyse the access to antenatal healthcare among women within the Eastern Cape Province. It was accomplished by identifying the timing of women's first antenatal healthcare check-up, the number of antenatal healthcare visits and whether their blood pressure was monitored during pregnancy. The primary objective of this study was to identify factors influencing access to antenatal healthcare in the Eastern Cape. The study used the demographic and socio-economic characteristics of women aged 15 to 49 to analyse the timing of the first antenatal healthcare check-up, the number of antenatal healthcare visits, and whether their blood pressure was monitored during pregnancy. This chapter discusses key findings derived from the analysis conducted in Chapter 4.

5.1 Summary of the methodology used

The study, which determines the access to antenatal healthcare amongst women residing in the Eastern Cape Province, is quantitative, and it therefore utilised data from the 2016 Demographic and Health Survey. Hypotheses were formulated, and relationships between the identified independent and dependent variables were determined.

To fit the parameters and goals of the study, relevant variables of interest were recoded. The relationships realised between the dependent and independent variables were then determined using some test statistics. Age, marital status, educational level, working status, type of place of residence, medical insurance, frequency of media consumption (TV and radio), population group and wealth index were among the independent variables. Dependent variables analysed were the timing of the first antenatal healthcare check-up, the number of antenatal healthcare visits and whether blood pressure was taken during antenatal healthcare examinations.

The analysis was carried out first using univariate analysis, which described the distribution of each variable individually. Following this, cross-tabulation was used using the Chi-square test to analyse the relationship between the independent and dependent variables. Cramer's V and Phi were used to determine the relationship strength between these variables. Furthermore, multivariate analysis was conducted through logistic regression analysis to identify the variables

that have the most influence on the access and utilisation of antenatal healthcare amongst women in the Eastern Cape Province.

The goal of the study was to determine the relationship between women's socio-economic and socio-demographic characteristics and the factors which influence their access to antenatal healthcare in the Eastern Cape.

5.2 Overview of the conceptual framework utilized

This study used the health belief model and health-seeking behaviour model to explore access to antenatal healthcare among women in the Eastern Cape Province. According to Andersen and Newman's health-seeking behaviour model, three crucial component functions influence the access and utilization of antenatal healthcare (Andersen and Newman, 1973). These three functions are the ensuing perceived needs for antenatal healthcare, the enablers that help with or barriers to use, and the predisposing factors that affect acute antenatal healthcare service usage. The model makes it possible to evaluate indicators of antenatal healthcare accessibility, equity, efficacy, and efficiency, as well as comprehend the impact of the environment (Andersen, 1995). It is essential to investigate health-seeking behaviour as it provides ways that aid in reducing health disparities and has the potential to inform policymakers in implementing effective interventions (Shaikh, 2008).

A group of social psychologists created the Health Belief Model (HBM) in the 1950s in the U.S. Becker created the model in the 1970s (Rosenstock, 1974), and Rosenstock revised it in the 1990s (Rosenstock, 1990). It was created to explain and forecast health-related behaviours, especially regarding health services like antenatal healthcare treatment (Siddiqui et al., 2016). Perceived susceptibility, perceived severity, perceived rewards, perceived barriers, self-efficacy, and cues to action are all critical to this approach (Jones et al., 2015).

5.3 Confirmation of hypotheses formulated

5.3.1 Timing of the first antenatal healthcare check and women's characteristics

This section will discuss how women's characteristics influence the timing of their first antenatal healthcare visit among women in the Eastern Cape. In this study, women who attended their first antenatal healthcare visits during the first trimester (0-3 months) were considered on time, whereas those who experienced their first antenatal healthcare check-up during the second trimester were considered late.

5.3.1.1 The age of women and timing of first antenatal healthcare check

According to the World Health Organisation Focus Antenatal Care Model, The recommended time a woman should start booking her first antenatal healthcare check-up is during the first 12 weeks (0-3 months) of pregnancy (de Masiet al., 2017). The study found that most women aged 25-29 are more likely to undergo their first antenatal healthcare examination during the first (0-3 months).

Women aged 15-19 were the least likely to have their first antenatal healthcare visit during the first three months of pregnancy. Studies indicate that these women may be less informed, unmarried, have an unwanted pregnancy, or have never been pregnant. Furthermore, young women were more likely to arrive late for their first antenatal healthcare visit (McIntyre, 2006; Pell et al., 2013; Ebonwu et al., 2018). This study's results correspond with similar studies conducted in Southeast Nigeria and Zambia (Emelumadu et al., 2014; Sinyange et al., 2016).

As Abram (2022) noted, this may be because many healthcare facilities in the Eastern Cape are not youth-friendly and offer general healthcare services. Additionally, she adds that because the women are so young, they might not require extensive medical care as a result of them having reached puberty.

5.3.1.2 Marital status and timing of their first antenatal healthcare check

During the study, it was observed that women who had never been in union were the majority, with 59% having their first antenatal healthcare check during the first trimester (0-3 months). This could

result from the women having greater autonomy and independence to make their own decisions over their bodies. In line with this study's findings, research conducted by Tsawe and Susuman (2014) in the Eastern Cape found that unmarried women were more likely to use antenatal services than married women. In further support, research on maternal health service utilization in Ethiopia identified that unmarried women were likelier to use experienced antenatal healthcare attendants if single (Tarekegn et al., 2014). Okedo-Alex et al., (2019) claim that this is because unmarried women are the ones who make all the decisions, so they have the power to access and utilize antenatal healthcare. In conjunction with these findings, Kaswa et al., (2018) investigation into the antenatal care services at Mbekweni Health Centre in the Eastern Cape found that only once the partner and family have accepted the pregnancy would the women be allowed to attend to any antenatal healthcare early. If she does not receive permission, she will be forced to delay her first antenatal healthcare visit.

The South African government recommends that pregnant women attend their first antenatal healthcare visit before the 20-week gestation period (Pattinson, 2007). Nevertheless, 62.8% of unmarried women presented themselves late for their first antenatal healthcare visit during the second trimester compared to only 33% of married women in the province. In support of these findings, Okedo-Alex et al., (2019) found that married women were more prone to use antenatal healthcare and less likely to delay their first visit. In addition, Pell et al., (2013), advocate that this may be attributed to the psychological and financial assistance provided by their partners, the capacity to plan and desire the pregnancy, and the social acceptance, as well as support for their pregnancy in comparison to their unmarried peers.

5.3.1.3 Educational level and timing of first antenatal healthcare check

In the Eastern Cape Province, women with secondary education were more likely to attend their initial antenatal healthcare visit during the first trimester of pregnancy than those without primary education or higher education. Hagey (2014) notes that informed and educated mothers are more likely to commence their first antenatal healthcare visit on time.

The findings in this study are per similar studies conducted in South Nigeria, Tanzania, Gondar Ethiopia, Addis Ababa Ethiopia and Kenya, which found that women who had secondary and even higher education were more likely to book their antenatal healthcare check-ups early during

pregnancy (Adekanle and Isawumi, 2008; Belayneh et al., 2014; Yilal, 2015; Ochako and Girchuhi, 2016). The argument put forward by Tesfu et al., (2022) is that women with secondary education or higher may have a greater likelihood of being employed, financially independent, and aware of the need for antenatal care follow-up during pregnancy. As a result, they may be more likely to understand the significance of promptly scheduling their first antenatal healthcare appointment.

5.3.1.4 Wealth index of women and timing of their first antenatal healthcare check

The most disadvantaged group of women, 39.3%, were most likely to have their initial antenatal health check during the first trimester (0–3 months). Furthermore, 48.7% of the poorest women in the Eastern Cape were more likely to present themselves late to their first antenatal healthcare visit during the second trimester when compared to women from the middle and richer wealth brackets.

These results are not unexpected considering that the North West and Eastern Cape are plagued with service delivery deficiencies due to rampant corrupt practices (Business Day Live, 2015; Corruption Watch, 2016).

Nevertheless, there are conflicting results in the literature, as a study conducted within Ethiopia revealed that women from the wealthiest, richest, middle-class, and lowest households began antenatal healthcare earlier than women from the poorest households (Teklu et al., 2023). Moreover, wealthier women are likely to be more autonomous, educated, skilled and confident when interacting with service providers than poor women (Cleland and Van Ginneken, 1988; Teklu et al., 2023). Furthermore, comparably poorer women may have hesitated to commence antenatal healthcare early because of their previous contacts with healthcare personnel (Cleland and Van Ginneken, 1988; Moyer et al., 2014). One explanation for this could be that women in low-income countries focus more on daily tasks that ensure their families' survival than waiting for symptoms to appear before scheduling a checkup. (Debelo and Danusa, 2022).

5.3.1.5 Type of residence and timing of first antenatal healthcare check

This study found that the geographical location of women and the timing of their initial antenatal healthcare check were statistically significant in the Eastern Cape Province.

Surprisingly, 50.9% of the women residing in rural areas and 49.1% of women residing in urban areas successfully had their first initial antenatal health check-up during the first trimester of their pregnancy. Despite this, 63.9% of rural women presented late for their first antenatal healthcare visit during the second trimester (3-7 months) compared to only 36.1% of urban women. Type of residence is a barrier to women's health-seeking behaviour within the rural residential areas. Antenatal healthcare facilities within the rural areas are often very far from where the women reside, further made inaccessible due to the lack of infrastructure and high poverty levels, resulting in late antenatal healthcare intention.

These outcomes are expected as South African metropolitan regions are given more important grants to help with public transportation, allowing more people to use public transport, as there are more transportation systems and cars on the roads (National Department of Transportation, 2021). In this manner, women in metropolitan regions have better admittance to transportation methods and are less disposed to walk to antenatal healthcare facilities.

The literature supports these results, as seen within Southern Ethiopia, where women who resided in rural areas were found to book late for their first antenatal healthcare visit compared to women from urban areas (Girum, 2016). In further support, research conducted on the antenatal care presentation in rural and peri-urban communities in South Africa observed that pregnant women living in rural regions were far more likely than women living in peri-urban communities to arrive late for their first antenatal healthcare appointment (Ebonwu et al., 2018). This result corresponds with earlier research in Ethiopia (Gudayu et al., 2014; Gebremeskel et al., 2015).

5.3.1.6 Covered by medical insurance and timing of first antenatal healthcare check

Medical insurance is primarily dependent on employment and income. However, women who were not insured were more likely to have their first antenatal healthcare visit during the first trimester. These women access timely antenatal healthcare check-ups during the recommended time. This may be attributed to the fact that, in the Eastern Cape, public antenatal healthcare provided by the state is generally more cost-effective than private antenatal healthcare. Another reason could be that most participants in the study were unemployed at the time of the survey, making it difficult to afford medical insurance, as shown in the univariate and bivariate analyses.

Contrary to these findings, Aboagye et al., (2022) concluded that insured women were more likely to receive timely antenatal healthcare during pregnancy. This result supports earlier research by Luginaah et al., (2016) that revealed health insurance coverage to be significantly correlated with the likelihood of timely reporting antenatal healthcare participation. Health insurance coverage is crucial in lowering out-of-pocket expenses and significantly removing the financial barriers that frequently prevent women from being able to attend antenatal healthcare on time, according to other studies in Rwanda, Ghana, and Kenya (Manzi et al., 2010; Sakeah et al., 2017; Wairoto et al., 2020).

5.3.1.7 Frequency of media consumption and timing of first antenatal healthcare check

In the Eastern Cape Province, women who listened to the radio at least once a week were more inclined to access timely antenatal healthcare check-ups during the recommended time set by WHO. Moreover, the findings indicated that frequent television consumption positively affects the timing of women's first antenatal health check-ups. The study found that women who watched television at least once a week were more consistent in antenatal healthcare checks during the first and second trimesters in the province.

Similarly, within countries like Malawi and Ethiopia, research has shown a positive correlation between early participation in antenatal healthcare and the consumption of television and radio (Zamawe et al., 2016; Geta and Yallew, 2017; Dewau et al., 2021; Wang et al., 2021).

Particularly in rural parts of Africa, most people rely on listening to the radio as their primary information source (Fombad and Jiyane, 2019). Besides being widely used and well-liked, it's also easier to access, more practical, less expensive, and quick at disseminating information to a big audience. Additionally, it's interactive, allowing viewers to ask questions and provide input (Fombad and Jiyane, 2019).

5.3.1.8 Population group and timing of first antenatal healthcare check

The right to access health care is a fundamental human right guaranteed by the Constitution. Section 27 of the Constitution provides everyone the right to access health care services, like reproductive health care, and the right to emergency treatment services (South African Human

Rights Commission, 2003). In light of this, the study's findings indicate that Black/African women in the Eastern Cape Province were the majority to have their initial antenatal health check-ups during the first and second trimesters of pregnancy.

These results are positive, considering that the apartheid government's philosophy of dominance and division resulted in an unequal distribution of health care among the different demographic groups (Ngwena, 2000; Stuckler et al., 2011). Say and Raine (2007) argue that during the advent of democracy, the South African government had made progress towards encouraging equitable access to healthcare for all demographic groups. However, more work must be done to ensure that persons with different socioeconomic levels receive the same level of care.

The findings, therefore, answered the research question, *“Is there a relationship between women's sociodemographic characteristics such as age, marital status, level of education population group and the timing of the first antenatal healthcare visit among women in Eastern Cape?”* This research question generated the hypothesis, *“Women's individual characteristic such as age, marital status, population group, level of education, influences the timing of first antenatal healthcare visit among pregnant women in Eastern Cape Province”*. This means that the sociodemographic characteristics such as age, marital status, level of education, population group does not influence and the timing of the first antenatal healthcare visit among women in Eastern Cape.

5.3.1.9 Working status and timing of first antenatal healthcare check

The study revealed a statistically significant relationship between a woman's employment status and the timing of her first antenatal healthcare visit in the Eastern Cape province. Women who had been out of work during pregnancy were more likely to have their first antenatal health check during the initial (0–3 months). One potential explanation for this behaviour may be that they have more leisure time to attend antenatal healthcare visits. However, they were also found to be the majority, with 74.9% attending their first antenatal healthcare visit late during the second trimester (3–7 months).

However, the prevalence of unemployment in the Eastern Cape may contribute to the lack of employment opportunities for women and a reliable source of income (Shabangu, 2015). In other

words, these results are unsurprising as they are unemployed and face financial difficulties, which may hinder them from practising timely antenatal healthcare visitations during their pregnancy.

Nevertheless, Tarekegn, Lieberman and Giedraitis (2014) found that women employed while pregnant were more prone to use antenatal healthcare services. Furthermore, Mulat, Kassaw and Aychiluhim (2015) claim that women who are employed and earning a living may be more aware of the importance of antenatal healthcare and, therefore, have the financial means to pay for the programme. Moreover, Debelo and Danusa (2022) found in their study that as opposed to the women who were employed and worked for the government, women who were homemakers presented late to their first antenatal healthcare appointment.

5.3.2 The number of antenatal healthcare visits during pregnancy and women's characteristics

This section will discuss the extent to which women in the Eastern Cape characteristics influence the number of antenatal healthcare visits.

5.3.2.1 The age of women and number of antenatal healthcare visits during pregnancy

The study's results suggest that women aged between 20 and 39 have arguably better antenatal healthcare practices in the Eastern Cape. Women aged 20-39 adhere to the new recommendation of 8 antenatal visits during pregnancy, as outlined in the World Health Organization's WHO guidelines (2018). On that note, women aged 15 to 19 in the province underutilize antenatal healthcare visits during their pregnancy. One of the reasons for the low utilization of antenatal healthcare visits could be because they are so young and have to deal with the shame and stigma of being pregnant at such a young age, as well as being bullied and embarrassed.

According to Porta and Samovar (2000), culture is the accumulation of information, experiences, ideas, values, attitudes, meanings, religion, objects, and possessions that a group of people has amassed via individuals for generations.

It is considered improper in African culture for a female to get pregnant before getting married. Young women in such situations would be scared to disclose their condition since their parents

would be astonished and disappointed hence, they would postpone initiating any antenatal healthcare as a result (Akella et al., 2011).

5.3.2.2 Marital status of women and number of antenatal healthcare visits during pregnancy

In this study, women who had never been in union were more likely to access and use antenatal healthcare services. Many of these women attended between 5 and 8 antenatal healthcare visits during their pregnancy. This suggests that single women in the Eastern Cape are more likely to adhere to the recommended number of antenatal healthcare visits when compared to married women. A woman's marital status has been identified as a predisposing factor for her health-seeking behaviour. The results show unmarried women accessing and utilizing antenatal healthcare more frequently when compared to married women. Being unmarried is associated with a sense of self-determination, autonomy and the motivation to abstain from risky behaviours, resulting in improved health outcomes and better antenatal healthcare practices.

In the literature, however, Denny et al., (2022) found that women who were married or had a partner were a predictive factor for four or more antenatal healthcare visits. These findings are supported by research conducted in Kenya and the whole of East Africa, which concluded that marital status was associated with the recommended antenatal healthcare visits during pregnancy (Owili et al., 2016; Zemenu and Minyihun, 2021).

5.3.2.3 Educational level and number of antenatal healthcare visits during pregnancy

Women with secondary education were reasonably prone to attend their antenatal healthcare examinations. This is seen as they were more likely to access 5 to 8 visits during their pregnancy; some even had 9 or more visits in the province. There is a clear educational divide, with the early start of antenatal healthcare being limited to pregnant women with secondary and primary education compared to women with higher education.

Through the health-seeking behaviour model, education has been identified as a predisposing factor as it is a structural determinant of the access and utilisation of antenatal healthcare. It is an

intermediary determinant for occupation, behaviour, and mental state (WHO, 2010), as the women with secondary education displayed greater access to and utilisation of antenatal healthcare.

One reason for this is that women with better schooling could have more opportunities to decide on what is helpful for their well-being during pregnancy. Women with better education can identify dangerous signs and effortlessly recognise the adverse impact of avoiding recommended antenatal healthcare services. Education can empower women, raise their health knowledge, and be a major determinant of socioeconomic status (Raru et al., 2022).

In South Africa, women with secondary and higher education received four or more antenatal visits (StatsSA, 2020). Research by Negash et al., (2022) found that women who were pregnant with higher levels of education were more likely to receive better quality antenatal healthcare when compared to women without formal education. These results are furthermore supported by studies conducted in Tanzania, Southern Ethiopia, and East Africa (Rwabilimbo et al., 2020; Shudura et al., 2020; Raru et al., 2022). One argument put forward by Kare, Gujo and Yote (2021) is that the consistent interactions between pregnant women and antenatal healthcare services likewise advance a feeling of trust and trust in the administrations as well as upgrade the commonality of the pregnant woman with the health system.

5.3.2.4 Wealth index and number of antenatal healthcare visits during pregnancy

In the Eastern Cape, a woman's financial circumstance directly impacts the number of antenatal healthcare check-ups she has during her pregnancy. Women on the lower end of the wealth scale had more antenatal care visits during pregnancy than any other group in the Eastern Cape province. The poorest women had 5-8 antenatal visits, whereas the richest women were least likely to attend 1-4 consultations during pregnancy. These results are surprising as wealth enables better access to antenatal healthcare, yet this is not the case in the province. However, there are some studies in the literature that do not support these findings, such as in Ghana Malaria by Anaba and Afaya (2021), who saw that compared to women with high economic standing, women with low socioeconomic status had a greater risk of underutilization of antenatal healthcare visits.

Additionally, women in Nigeria with high socioeconomic status were prone to have the recommended number of antenatal healthcare visits (Sui et al., 2021). In Myanmar, women in the upper quintile of wealth are three times more likely to achieve the recommended eight or more antenatal healthcare visits than women in the lower quintile (Mugo et al., 2020). Shibre and Mekonnen (2019) advocate that women from high economic status can pay for maternal health services.

5.3.2.5 Type of residence and number of antenatal healthcare visits during pregnancy

The findings of this study revealed that rural women in the Eastern Cape access 5-8 antenatal healthcare visits during their pregnancy. Despite geographic accessibility being a common barrier in South Africa, people have to travel long distances to access antenatal healthcare visits (Abdullah AL-Taiar, 2010:1). As a whole, the percentage of women who attended four or more antenatal healthcare visits in rural regions increased from 71.3% in 1998 to 79.7% in 2016. In contrast, the percentage of women who made four or more trips in urban areas decreased from 77.5% in 1998 to 73.2% in 2016 (StatsSA, 2020).

The above-stated findings answer the research question: *“Does the number of antenatal healthcare visits differ by type of residence where women live, such as rural and, or urban areas of the Eastern Cape?”*. The hypothesis was, *“The number of antenatal healthcare visits differ by type of residence where women live such as rural and, or urban area of Eastern Cape Province”*.

In contrast, a Hadiya study found that antenatal healthcare service usage was twice as high among women in urban residential areas than among women in rural residential areas (Abosse et al., 2010). This is further supported by research conducted in Ethiopia by Basha (2019), which discovered that the use of at least 4 antenatal healthcare services in rural Ethiopia is less common among women who live in towns than in cities.

5.3.2.6 Medical insurance and number of antenatal healthcare visits during pregnancy

The study results revealed a statistically significant relationship between the lack of medical insurance coverage and the frequency of antenatal healthcare appointments in the Eastern Cape province. It was observed that women who were not insured by medical insurance demonstrated a consistent level of attendance at antenatal healthcare examinations during pregnancy. This may be attributed to women with medical insurance not utilising the recommended number of antenatal healthcare visits due to the associated costs. This is especially true in South Africa, where medical insurance is only accessible to a small percentage of the population, in the Eastern Cape (StatsSA, 2020).

The above-stated findings answer the research question: *“Does having access to medical insurance increase the number of antenatal healthcare visit women have in the Eastern Cape?”* The hypothesis in this regard was, *“Women who hold access to medical insurance have a higher number of antenatal healthcare visits during their pregnancy in the Eastern Cape”*. This means that having medical insurance does not increase women's antenatal healthcare visits in the Eastern Cape.

Tsawe and Susuman (2014) note that compared to women who reported having medical aid in the Eastern Cape, women who had no access to it were less likely to use healthcare during pregnancy. The authors further argue that individuals with access to medical assistance typically use private medical facilities rather than public ones. One explanation for this might be that women choose medical aids that give them access to private healthcare facilities because of the treatment they typically receive in public hospitals (Tsawe and Susuman, 2014).

5.3.2.7 Frequency of media consumption and number of antenatal healthcare visits during pregnancy

Listening to the radio at least once a week positively affected women's antenatal healthcare visits in the Eastern Cape. The findings indicated that women would have between 5 and 8 visits during pregnancy. One reason is that radio is generally the most popular media outlet compared to television, newspapers, and magazines.

The more women watched television when pregnant, the increased likelihood of them attending antenatal healthcare check-ups. This is apparent with women who watched television at least once a week, who were more prone to have 5-8 antenatal healthcare visits. Through the health belief model, media consumption has been identified as a cue to action.

This is because regular television and radio consumption positively influenced women's health beliefs, resulting in them practising good antenatal healthcare utilisation during their pregnancy.

Research conducted in sub-Saharan Africa identified that compared to women who never listened to the radio, those who did so at least once weekly had a higher likelihood of having an antenatal healthcare visit (Aboagye et al., 2022). These findings are further supported in India, Uganda, Nepal and Ethiopia (Ghosh, 2006; Edward, 2011; Acharya et al., 2015; Ayele et al., 2019). It is also possible that the adverse effects of skipping antenatal healthcare visits, which are depicted on television by other women, would make women less inclined to do so (Zamawe et al., 2016; Ahinkorah et al., 2021; Ahinkorah et al., 2021). In the Eastern Cape, the above findings emphasise the importance of increasing the frequency with which television-based maternal healthcare programmes are shown and even consider branching out into social media to access more women young and old, regardless of pregnancy status.

5.3.2.8 Population group of women and number of antenatal healthcare visits during pregnancy

It was hypothesised in this study that the number of antenatal healthcare examinations a woman has during her pregnancy is determined by the population group she belongs to. The results of this study indicated that differentials of access and utilisation of antenatal healthcare visits vary among Black, Coloured, Indian/Asian, and White population groups, as the findings show that Black/African women tend to access 5 to 8 antenatal healthcare check-ups and more during their pregnancy, outperforming women from other population groups in the province. One reason for this is that most women residing in the province are of Black/African descent. In contrast to these results, Black/African women in South Africa reported less access to services than women of other races, resulting in fewer antenatal healthcare appointments (Wabiri et al., 2017).

Additionally, Indian/Asian women and women in the White population reported greater rates of attending four or more visits, whilst Black /African women were less likely to do so (StatsSA, 2020).

Racial or ethnic disparities affected attending at least one antenatal healthcare visit in different countries, according to a comprehensive review in Sub-Saharan Africa (Alex et al., 2019). Furthermore, Rossier et al., (2014) found that women belonging to the Kikuyu or Kamba ethnic groups were significantly more likely than women from other ethnic groups to attend all four of the recommended antenatal healthcare services in Nairobi, where there were ethnic disparities in attendance of four or more antenatal healthcare visits.

5.3.2.9 Working status and number of antenatal healthcare visits during pregnancy

The study revealed that unemployed women were more likely to use antenatal healthcare services, with a higher prevalence of 5-8 visits and even attending 9 or more visits during pregnancy in the province. Although these women were unemployed, they were more likely to be single and educated, increasing the likelihood of them attending many antenatal healthcare visits during their pregnancy.

In contrast, research conducted in Malaria Ghana by Anaba and Afaya (2022) identified that compared to women with high economic standing, women with low socioeconomic status had a greater risk of underutilization. Similarly, women in Nigeria with high socioeconomic status were prone to have the recommended number of antenatal healthcare visits (Sui et al., 2021). Moreover, in Myanmar, other studies have shown that women in the upper quintile of wealth are three times more likely to achieve the recommended eight or more antenatal healthcare visits than women in the lower quintile (Mugo et al., 2020). Shibre and Mekonnen (2019) advocate that women from high economic status can pay for maternal health services.

5.3.3 Individual characteristics and whether blood pressure was monitored during pregnancy

This section will be discussing the extent to which women in the Eastern Cape characteristics influences whether blood pressure was monitored during pregnancy.

5.3.3.1 Age of women and whether blood pressure was taken during pregnancy

According to a recent WHO recommendation, pregnant women should have their blood pressure checked at least eight times, with the first examination occurring in the first trimester, two in the second trimester, and five in the third trimester (WHO, 2018). The age of the woman determines the frequency of pregnancy-related blood pressure tests in the Eastern Cape. During the study, it was observed that women between the ages of 20-39 were more inclined to have their blood pressure measured during pregnancy than women over 40 and younger than 20 in the province.

This result is unsurprising as women between 20-39 years old had 8 antenatal healthcare visits during pregnancy, as reported in the bivariate analysis, thus increasing the probability of their blood pressure being taken during their visits. It is possible that young women may not be aware of the significance of monitoring and maintaining their blood pressure during pregnancy, which is beneficial for their health and the health of the unborn child. Nonetheless, it is concerning that in the Eastern Cape, women over 40 were less likely to have their blood pressure taken during pregnancy, as women over 35 are particularly vulnerable to miscarriages and stillbirths.

However, a study in Rwanda revealed that older women had a greater probability of having their blood pressure checked due to their adequate use of antenatal healthcare (Rurangirwa et al., 2017). Furthermore, Moshi and Tungaraza (2021) discovered that in Tanzania, older women were more prone to receive adequate blood pressure checks than younger women.

5.3.3.2 Marital status and whether blood pressure was taken during pregnancy

Few in union women had their blood pressure measured during pregnancy compared to never in union women in the Eastern Cape. Blood pressure check-ups subsequently depend on adequate and timely antenatal healthcare utilization.

The bivariate analysis suggests that married women performed poorly in antenatal healthcare attendance, whereas unmarried women were consistent. One possible explanation is that married women may require consent and funding from their partners and other family members to attend antenatal healthcare consultations. In contrast, unmarried women have more autonomy over their pregnancy. In the context of African society, women and young married women may not have the capacity to take charge of their health-related matters due to the male-dominated social structure that confers autonomy on men concerning their female partners in various spheres of life, including health-related matters (Konje et al., 2018). In consideration of this, it is apparent that a woman's marital status has a detrimental impact on her access and utilization of antenatal healthcare within the Eastern Cape.

5.3.3.3 Educational level and whether blood pressure was taken during pregnancy

Educated women are more likely to be aware of the availability of antenatal healthcare (Efendi et al., 2017). These words ring a bell of truth in the Eastern Cape province, as women with secondary education were the majority to have their blood pressure monitored during pregnancy. One reason for this is that women with secondary education were consistent in their timing and number of antenatal healthcare check-ups during their pregnancy in the bivariate analysis, increasing the likelihood of their blood pressure being monitored. Furthermore, education enables women to gain skills and knowledge in antenatal healthcare, thus increasing their awareness of practising good antenatal healthcare behaviour and allowing them to take preventative measures during their pregnancy.

In support of these findings, Moshi and Tungaraza's (2021) study in Tanzania indicates that women with higher education are nine times more likely to have their blood pressure checked during pregnancy. Conversely, a study conducted in Rwanda found that education had no statistical significance on women's blood pressure being monitored during pregnancy (Rurangirwa et al., 2017). From this, it is evident that a woman's educational level influences her access and utilization of antenatal healthcare within the Eastern Cape.

5.3.3.4 Wealth index and whether blood pressure was taken during pregnancy

In the Eastern Cape, the most impoverished women were more likely to have their blood pressure taken during pregnancy when compared to the richest women. This is attributed to women on the lower end of the wealth scale having more antenatal healthcare visits during pregnancy than any other group in the province, increasing their chances of blood pressure examinations. In support of this, Rurangirwa et al., 2017 claim that having money in the family does not mean women are more likely to go to antenatal clinics for blood pressure tests and other services. This is because women have different levels of empowerment, even if they have money in the family. In the Eastern Cape, economically disadvantaged women have better antenatal healthcare practices. However, in Indonesia, richer women were four times more likely to have their blood pressure checked during pregnancy than poorer women (Efendi et al., 2017).

The findings, therefore, answered the research question, *"Does socioeconomic characteristics such as wealth index, and working status of women living in Eastern Cape influence their blood pressure check during antenatal visit?"*. This research question generated the hypothesis, *"The socioeconomic characteristics such as wealth index and working status, of women living in Eastern Cape influence their blood pressure being checked during antenatal visits"*.

5.3.3.5 Type of residence and whether blood pressure was taken during pregnancy

The geographical location of a woman's residence in the Eastern Cape influences the likelihood of her blood pressure being monitored during pregnancy. Most women who had their blood pressure checked during pregnancy were from rural residential areas, with 57.1%, while the remaining (42.9%) resided in urban areas. One possible explanation for this is that in the bivariate analysis, women residing in the urban parts of the province were prone to fewer antenatal healthcare visits, resulting in fewer chances of their blood pressure being monitored. In contrast, women in urban areas in Tanzania experienced an increase in the likelihood of their blood pressure being checked during pregnancy (Moshi and Tungaraza, 2021). One reason for this put forward by Tiruaynet and Muchie (2019) is that rural women are not well-informed about the importance of blood pressure checks, hence the disparity as mentioned earlier.

5.3.3.6 Medical insurance and whether blood pressure was taken during pregnancy

Not being able to pay for medical insurance was not a deterrent factor for women in the Eastern Cape province when accessing and utilizing antenatal healthcare during their pregnancy. Over 91.7% of pregnant women whose blood pressure was measured were not covered by medical insurance, while only 8.3% were covered by medical insurance. The univariate analysis indicated that women who were not covered by medical insurance were the majority. Moreover, women who were not insured exhibited timely antenatal healthcare utilization during the first and second trimesters and significant antenatal healthcare visits during their pregnancy.

One explanation is the exorbitant cost of medical insurance, resulting in the underutilization of antenatal healthcare. Furthermore, the province faces high rates of unemployment, resulting in many women seeking antenatal healthcare from government institutions as it is more affordable.

5.3.3.7 Frequency of media consumption and whether blood pressure was taken during pregnancy

The study's findings indicated that television consumption during pregnancy in the Eastern Cape province increased the likelihood of women's blood pressure being monitored compared to women who did not consume television. Similarly, women who listened to the radio during pregnancy showed a higher prevalence of their blood pressure being monitored than women who did not listen to the radio in the province. A plausible explanation is that radio and television are a prevalent medium for spreading information and being easily accessible. It is clear that women in the Eastern Cape who consume radio and television frequently are more likely to have their blood pressure taken during pregnancy.

5.3.3.8 Population group and whether blood pressure was taken during pregnancy

A woman's ethnicity was found to statistically significantly influence whether her blood pressure would be monitored during pregnancy in the Eastern Cape Province.

The results show that Coloured women in the province were likelier not to have their blood pressure taken during pregnancy. According to estimates, South Africans who identify as Coloured, live in cities, and have less formal education are more likely to have hypertension (Kandala et al., 2021). Moreover, the lack of access to antenatal healthcare available to these women prevents them from uncovering potential medical issues. Consequently, the Coloured women in the Eastern Cape who are unable to access blood pressure testing during their pregnancy are more likely to develop hypertension, which is very concerning for the well-being of the mother and unborn child.

5.3.3.9 Working status and whether blood pressure was taken during pregnancy

In the Eastern Cape, most women whose blood pressure was measured during pregnancy were unemployed, followed by employed women. A possible explanation is that unemployed women were the majority in this study, as discussed in the univariate analysis. Another reason is that unemployed women were more likely to use antenatal healthcare during their pregnancy, with a higher prevalence of 5-8 visits. Presenting them with more opportunities to have their blood pressure monitored.

5.4 Multinomial logistic regression on women's determinants of access to antenatal healthcare

This study used multinomial logistic regression to identify the determinants of access to antenatal healthcare among women in the Eastern Cape. The three categories which will be discussed are the following: The timing of the first antenatal healthcare visit, the number of antenatal healthcare visits and whether blood pressure was taken during pregnancy.

5.4.1 The factors determining the antenatal healthcare check during the first trimester (0-3) months

The wealth index is defined by Rutstein and Johnson (2004) as a household's overall living standard. The ownership of numerous household assets home and farm characteristics make up this indicator.

The multinomial logistic regression analysis reveals that women in the poorer wealth index were more inclined to obtain their first antenatal healthcare check during the first trimester (0-3 months). However, Halle-Ekane et al., (2014) note that financial hardship is the biggest obstacle to early antenatal care initiation. These findings could be attributed to poor women having limited options when it comes to pregnancy testing due to the prohibitive cost of purchasing a home pregnancy testing kit or visiting a doctor for a pregnancy test due to financial constraints.

This then results in them attending government hospitals and clinics to find out their pregnancy status and schedule more appointments. The poorer women in the Eastern Cape attend their first antenatal healthcare visit in the first trimester despite Wabiri et al., (2015) arguing that poorer socio-economic groups are increasingly concentrated within the Eastern Cape, and several services there deteriorate over time.

The study findings suggest that Black/African women are 6,942 times more likely to have their first antenatal healthcare visit during the first trimester when compared to Indian/Asian women. Additionally, the presence of a coloured woman increases the likelihood of an initial antenatal health check during the first trimester by 1,261 times more when compared to Indian/Asian women. One reason is that Black/African and Coloured women are the majority in the Eastern Cape, whereas Indian/Asian women are the minority. A possible explanation is that most Black/African and Coloured women were unmarried and held secondary education, making them more aware of the importance of attending their first antenatal healthcare check. Black/African and Coloured women displayed good antenatal healthcare practices during their pregnancy in the province.

5.4.2 The factors determining the timing of the first antenatal visit during the second trimester (3-7 months)

Maharaj and Mohammadnezhad (2022) affirm that increased maternal and foetal death rates have been associated with delayed antenatal healthcare. On the positive side, South Africa has seen the proportion of women who had antenatal healthcare in the first-trimester increase from 28% in 1998 to 47% in 2016 (Alexander, 2018). Furthermore, it was observed that the population group a woman belongs to influences the time she experiences her first antenatal healthcare visit.

The study found that the population group a woman belongs to is a predisposing factor which affects her access to antenatal healthcare according to the health-seeking behaviour model. This is seen clearly with the Black/African women as they experience an increase in the odds of having their first antenatal healthcare check during the second trimester (3-7 months) by 5.865 times higher than that of Indian/Asian women. Black/African women have been identified as initiating their first antenatal healthcare visit late within the Eastern Cape.

A possible explanation is that many Black/African women are more likely to be concentrated in rural areas, face high unemployment rates, endure limited-service delivery and face severely under-resourced healthcare systems. Thus negatively impacting their health-seeking behaviour, resulting in them presenting late for their first antenatal healthcare checkup.

In South Africa, pregnant women are provided with free healthcare services in public healthcare facilities (Drigo et al., 2020). The study results show that poorer women had a 7.858 times higher likelihood of having their first antenatal checkup in the second trimester (3–7 months). In the Eastern Cape, poorer women face financial hardships as they are often located in rural areas and have to travel long distances to antenatal healthcare facilities, making it hard to access the services they need, presenting themselves late for their first antenatal healthcare visit.

5.4.3 The factors determining no antenatal healthcare visits during pregnancy

When attempting to reach significant groups of people, the use of television as a medium for spreading information and education is a potent instrument. This is seen in the results of the multivariate analysis, as women who did not watch television had fewer chances of attending antenatal healthcare visits during their pregnancy. The findings suggest that not watching television has a detrimental impact on whether women attend antenatal healthcare check-ups in the Eastern Cape. Television exposes women to sponsored health programs and health reporting, which can influence positive antenatal healthcare behaviour. In support of the findings, Aboagye et al., (2022) study found that antenatal healthcare visits were more common among women who watched television at least once a week. In contrast, the consumption of watching TV, listening to radio and reading magazines or newspapers at least once a week was found to have no positive correlation with the utilization of antenatal healthcare amongst women within Indonesia, Ethiopia, and India (Tripathi and Singh, 2017; Tekelab et al., 2019; Ogbo et al., 2019).

Age has been found to be a predisposing factor in this study, as it influences women's health-seeking behaviour when accessing antenatal healthcare during pregnancy. The risk of women aged 20 to 24 not attending antenatal visits during pregnancy was 0.255 times lower than that of women 25 and older. In short, when compared to younger women in the Eastern Cape, women aged 25 years and older are more likely not to have any antenatal visits during pregnancy.

A plausible reason is that younger women are more motivated to engage in antenatal healthcare because they are more informed about the risks and rewards of antenatal healthcare when managing their pregnancy. Another explanation for this is that in the Eastern Cape, unemployment is high, with 43.3% of its population being unable to find employment (StatsSA, 2023). Subsequently, many women leave for better socioeconomic opportunities elsewhere, resulting in late or no antenatal healthcare visits.

It appears that age is a significant factor in influencing the access of antenatal healthcare as an investigation by Abose, Woldie and Ololo (2010) found that women between the ages of 25 and 29 were less likely than women 35 and older to use antenatal healthcare services. Okedo-Alex et al., (2019) claim that among the predisposing factors, older maternal age increased attendance to at least 1-4 antenatal healthcare visits in most studies that assessed its relationship with antenatal healthcare access. Contrary to this, an analysis of factors influencing antenatal healthcare in Ethiopia found no significant correlation between age and the use of antenatal healthcare (Tekelab et al., 2019). A women's working status during her pregnancy is also an important factor in accessing antenatal healthcare. Women can access and utilize antenatal health more effectively when they have a source of income. The results indicate that women who were not working during their pregnancy were less likely to attend antenatal healthcare visits by 2.120 times more when compared to women who were working during their pregnancy.

Not working during pregnancy has been identified as a barrier to a women's health-seeking behaviour. Women who aren't working generally have more time to go to their antenatal healthcare appointments than women who work. However, these women face financial hardships when accessing antenatal healthcare with high unemployment rates in the Eastern Cape. Women working have more resources and, as a result, can afford medical aid, which enables them to access private antenatal healthcare.

The high unemployment does affect the access and utilization of antenatal healthcare in the Eastern Cape, resulting in low antenatal healthcare access and attendance amongst women in the province. In support of this, Amungulu et al., (2023) explain that unemployed women, students, or stay-at-home moms were less likely to access antenatal care mainly because they couldn't afford to pay for transportation to and from the antenatal care institutions.

Similar research was conducted in Malawi by Sealy and Roberts (2017), who discovered that pregnant women were not taking part in antenatal healthcare because they lacked the funds to cover the costs of the treatments and transportation. Nyathi et al., (2017) explain that expecting women in Zimbabwe who are not financially secure find it challenging to pay for services and transportation due to high charges. Furthermore, this is seen in a study conducted by Roy et al., (2013) that found a positive association between socioeconomic status and the use of antenatal healthcare.

The study results showed that Black/African and White women were likelier to have no antenatal healthcare visits during pregnancy. One possible explanation is that women are often unaware of the range of services available to them, the reasons for treatment and the range of options available to them (Puthussery, 2016; Sharma et al., 2021). Another reason could be that women may also be discouraged from using antenatal healthcare services due to negative prior experiences with maternity services or healthcare services in general (Puthussery et al., 2022).

5.4.4 The factors influencing women to have 1 to 4 antenatal healthcare visits during pregnancy

The frequency of watching television was found to be statistically significant. Dhawan et al., (2020) claim that one of the most effective public health communication methods is the media. The public has been effectively informed and convinced to adopt healthy practices by various mass media outlets. The mass media has also significantly raised awareness of health-related initiatives and campaigns encouraging healthy living and enhancing the quality of life (Unite for Sight, 2010). However, the result of the study is different from the aforementioned. Compared to pregnant women who watched television at least once a week, those who did not watch television during their pregnancy were more likely to attend 1-4 antenatal appointments.

One possible reason is that these women had other means of receiving antenatal healthcare information, which influenced their antenatal healthcare practices such as social media, for example, Facebook and X (Twitter), medical websites etc. Another reason might be that these women have received advice from their family, friends, and medical practitioners regarding the number of antenatal healthcare visits they should attend. These results were not supported in the existing literature, as Aboagye et al., (2022) found that women who watched television at least once a week were likelier to have antenatal healthcare visits than women who did not. Similarly, a study in Guinea found that the frequency of television watching impacted antenatal healthcare utilisation, as women who watched television once a week had a higher probability of using antenatal healthcare services (Ahinkorah et al., 2021). Furthermore, in Ethiopia, it was found that when women had no exposure to any form of mass media, they displayed lower antenatal healthcare utilisation (Ousman et al., 2019). Given the literature that is currently available on the relationship between media consumption and antenatal healthcare use, it is clear that more research is needed to determine how media use affects antenatal healthcare practices amongst women in the Eastern Cape.

According to a study in Nigeria on the socioeconomic factors that influence pregnant women's utilisation of antenatal health services, income or wealth index was found to influence pregnant women's use of antenatal health services (Ugbor et al., 2017). Similar to those mentioned earlier, this study observed that the poorest women are more likely to attend 1-4 antenatal healthcare visits during their pregnancy. To put this in plain words, the poorest women in the Eastern Cape access antenatal healthcare, despite the inadequate infrastructure in many parts of the province and having to spend resources for transportation. To support women in accessing antenatal healthcare in the province, one such suggestion put forward by Scorgie et al., (2015) is that the current child support grant in South Africa should be implemented during pregnancy to reduce the indirect costs of accessing services, such as transport and daycare while absent from the family. This grant is primarily recognised for boosting the nation's child health (DSD, SASSA and UNICEF, 2012). The evidence of this is seen with Murray et al., (2012) who claims that grants granted during pregnancy have increased service usage and improved mother and child health outcomes in numerous Latin American and Southeast Asian nations.

5.4.5 The factors determining whether blood pressure taken during pregnancy

In terms of the population, when compared to White women, the probability that Black/African women will have their blood pressure tested during pregnancy was significantly lower. From this, it is clear that maternal ethnicity predicts the type of antenatal care women receive within the Eastern Cape. Contrary to White women, who make up the minority in the Eastern Cape, Black/African women are less likely to have their blood pressure tested while pregnant.

One of the reasons for this is that White women tend to live in urban areas and are more likely to have private health insurance, thus enhancing their access to quality antenatal care during pregnancy.

According to the General Household Survey (GHS 2018), only 17 out of every 100 South Africans have access to healthcare insurance. Furthermore, only 16.4% of South Africans nationwide have access to healthcare insurance, compared to 72.9% of the White population (Mhlanga and Garidzirai, 2020). In South Africa, Black/African women generally have less access to services and poorer health outcomes than women of other races, as seen by some indicators, including early antenatal healthcare attendance, planned pregnancies, skilled birth attendance and HIV prevalence (Wabiri et al., 2016). Correspondingly, a study by Rowe et al., (2008) identified maternal ethnicity as an indicator of late antenatal care initiation. Furthermore, it is argued that the individual ethnicity of the woman, socioeconomic disadvantage, and ethnic density may all be associated with an increased likelihood of late initiation of antenatal healthcare (Hollowell et al., 2012; Puthussery, 2016; Sharma et al., 2021). Thus, decreasing the likelihood of Black/African women having their blood pressure monitored during pregnancy as a result of late antenatal healthcare initiation.

5.5 Conclusion

This chapter discusses the methodology and methods of data analysis used. Furthermore, this study focused on access to antenatal healthcare among women in the context of the Eastern Cape Province. Additionally, some hypotheses were supported by the study's findings and have been shown to correspond with existing literature, while other hypotheses were rejected. The study's main findings indicate that barriers still exist for women when accessing antenatal healthcare. The

study reported that the main constraints women face are their position on the wealth index, the population group they belong to, age, working status and the frequency of media consumption.



CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

This study focused on the accessibility of antenatal healthcare amongst women in the Eastern Cape Province. The aim was to examine the relationship between the socio-demographic and socio-economic factors and women's access to antenatal healthcare.

Women's characteristics in the Eastern Cape were explored through variables such as age, marital status, educational level, working status, type of residence, medical insurance coverage, frequent media consumption, population group and wealth index. The antenatal healthcare variables were the timing of the first antenatal healthcare visit, the number of antenatal healthcare check-ups and whether women's blood pressure was taken during pregnancy. The final section of the thesis emphasises the study's key findings. The Demographic and Health Survey 2016 was utilised in the analysis because it was the most recently conducted survey and included all the variables relevant to this study. Data analysis was completed using univariate analysis, which examines variables individually to identify the characteristics of women in the focus province. Women's socio-demographic and socio-economic characteristics were cross-tabulated with the timing of the first antenatal healthcare visit, the number of antenatal healthcare check-ups and whether women's blood pressure was taken during pregnancy.

Also, through the Chi-square test, the hypotheses were formulated to measure the association between the characteristics of women and their access to antenatal healthcare. Furthermore, the strength of the association was measured through Phi and Cramer's V. Moreover, additional statistical tests, such as binary logistic regression and multinomial logistic regression, were performed to quantify the key determinants of access to antenatal healthcare and its magnitude. The data was analysed using the Demographic and Health Survey 2016, while employing the SPSS version 28 to analyse the data. The determinants of access to antenatal healthcare among women in the Eastern Cape province were examined in this study using the health belief model and the health-seeking behaviour model theories as a guide.

6.1 Determinants of access to antenatal healthcare

This study sought to investigate the association between women's demographic and socioeconomic characteristics and their access to antenatal healthcare within the Eastern Cape Province. The study results demonstrate that women residing in the Eastern Cape have access to antenatal healthcare. The extent to which women in the province access and utilise antenatal healthcare depends on their characteristics.

The age of a woman in the Eastern Cape province is a significant determinant of their ability to access healthcare during pregnancy. A point of concern is young women aged 15 to 19 access to antenatal healthcare. As highlighted in the study, these women experience a lack of antenatal healthcare access as evidenced by their delayed attendance at their initial antenatal healthcare appointment, decreased frequency of antenatal healthcare check-ups, and were less likely to have their blood pressure monitored during their pregnancy. The prevalence of women aged 15-19 in this case is exceptionally high, making them more likely to experience stigma, harassment, apprehension, financial hardship, and lack of familial and peer support during pregnancy. This can have a detrimental impact on future pregnancies if the lack of antenatal care persists. These women may forego all future use of antenatal care, potentially resulting in health complications for both the mother and the unborn child within the Eastern Cape Province.

A woman's autonomy is the capacity to make decisions about her health, her children's health, her freedom of movement, and her financial control without seeking approval from anybody (Kebede et al. 2021). With this in mind, the study revealed that being in a union was a significant obstacle to women's access to antenatal healthcare. Women who found themselves in a union experienced limited access to antenatal healthcare during their pregnancy compared to women who were never in a union. Moreover, this is in line with the gender hierarchy that is highly stratified, with women's roles being subordinate to men's in a range of domestic and health-related decisions in Africa. This indicates that within the Eastern Cape, there is an inherent complexity of intra-familial decision-making and access to healthcare. Thus shedding light on the need to consider the context when assessing the influences of women's autonomy on their access to antenatal healthcare (Ganle et al. 2015; Kebede et al. 2021).

Black/African women are more concentrated in the Eastern Cape in rural areas. However, the availability of healthcare services in rural and urban settings is determined by population density (Robynne, 2022). Antenatal healthcare access varies between residential areas. As revealed in the research, women living in rural areas were more likely to arrive late for their initial antenatal healthcare appointment than those living in urban areas. As a result of living within rural areas, these women are gravely impacted by long distances to and from healthcare facilities and other situations, such as delivering in ambulances or preceding prenatal and postnatal care, are widespread (Treacy Bolkan and Sagbakken, 2018).

In addition, the working status of a woman was found to be a significant factor influencing the access women have to antenatal healthcare. Unemployed women are more prone not to attend antenatal healthcare consultations during pregnancy within the Eastern Cape. These results are, however, not unexpected as the unemployment rate in the province is particularly high, with more than 44% of the local population out of employment. Moreover, the unemployment rate for women is significantly higher than that of men, with an unemployment rate of 35.5%, compared to the unemployment rate for men of 32.6% (StatsSA, 2022). Without any financial support from being employed, these women suffer financial difficulties that prevent them from accessing antenatal care during their pregnancy. Furthermore, women in the Eastern Cape do not seek antenatal care due to the long distances, lack of clinics, and lack of nurses and physicians; consequently, they deliver their infants at home (Mayekiso et al., 2020). This suggests that unemployed Black/African women who reside within the rural areas of the Eastern Cape suffer from financial difficulties and poor infrastructure, which prevents them from accessing antenatal healthcare during their pregnancy.

Over and above, it was realised that women of a lower socioeconomic background who were not insured by medical insurance were more likely to take advantage of public antenatal care during their pregnancy in the Eastern Cape province. The results also show that women in the Eastern Cape who held secondary education and consumed frequent media (TV and radio) during their pregnancy were in proportion to each other regarding the access and utilisation of antenatal healthcare. These women displayed active engagement in accessing antenatal healthcare as they had their first antenatal healthcare visits, had regular antenatal healthcare check-ups and were more likely to have their blood pressure monitored.

This indicates that women in the Eastern Cape from lower socioeconomic backgrounds who are educated and frequently consume media at least once a week are acutely aware of their financial situation and the importance of engaging in antenatal healthcare during their pregnancy. Private antenatal healthcare isn't an option due to affordability. Thus, accessing public antenatal healthcare is more affordable, resulting in them practicing good antenatal healthcare practices during their pregnancies.

6.2 Recommendations

6.2.1 Policy recommendations

The South African Government, specifically the Policy Makers and the Eastern Cape Department of Health, must consider increasing awareness of the importance of proper healthcare utilisation, emphasising reproductive and maternal healthcare for young girls and boys in high school. This can be achieved by integrating it into their current subject of Life Orientation. Furthermore, a great investment must be made into educational health-promoting broadcasting throughout South Africa. It could mean scheduling maternal healthcare programming at a set time twice a month. In this way, it will reach not only pregnant women but also the family and friends of said pregnant women, as well as women who are thinking of becoming pregnant, educating them on the importance of maternal and antenatal healthcare information, similarly branching out into other forms of social media such as Facebook, X (Twitter), Instagram, Tik Tok, etc.

The Eastern Cape's Department of Health needs to raise community awareness of the value of antenatal and maternal healthcare services. This could be achieved by adequately training community health workers and involving community leaders through regular supportive visits. Communities must understand the significance, number, and timing of antenatal care visits, particularly for pregnant women and their partners. Moreover, in order to overcome cultural and traditional obstacles, it is essential to encourage health education on the potential risks of pregnancy, the warning signs of pregnancy, reproductive health, and women's rights, as it can provide women with the knowledge they need to make informed decisions about their own health and antenatal healthcare.

The Eastern Cape Government should allocate more resources to mobile clinics and government clinics to address the geographical disparities women in the province face when seeking antenatal healthcare. Additionally, healthcare funds should be redistributed to provide more access to antenatal services to women in rural and coastal areas. This initiative will result in more women having access to antenatal care, as it will save them from travelling long distances and reduce their financial burden. Furthermore, the Eastern Cape Department of Health should invest in road and infrastructure maintenance, allowing for easier access to public clinics and hospitals to receive antenatal healthcare.

In order to address the lack of access to healthcare in the Eastern Cape, the Health Department must allocate more resources to the public health system. This should not only be achieved through the development of healthcare facilities but also an effective doctor-patient ratio and allocation of resources. Field workers should be employed, and more medical supplies should be available. Additionally, there is a requirement for transportation facilities, such as ambulances and buses, as well as minibus taxis and bicycles, so that medical supplies from healthcare centres can be used to book antenatal health appointments adequately.

The Government and Policy Makers of the Republic of South Africa should explore the possibility of introducing a social support grant to assist pregnant women who are unemployed and seeking antenatal healthcare. It is widely accepted that women with no form of income due to unemployment are at a disadvantage when seeking antenatal healthcare during pregnancy. Implementing such a grant would encourage women to take advantage of antenatal healthcare, thereby reducing their financial burden and stress thus leading to improved health outcomes for the mother and the unborn child.

The policy recommendations outlined in this document will undoubtedly contribute to the Eastern Cape's and South Africa's progress towards attaining the United Nations Sustainable Development Goals by 2030. These recommendations emphasise the importance of providing reproductive and maternal health services, including antenatal care, family planning, awareness, and education, in order to reduce the rate of maternal mortality.

6.2.2 Recommendations for future research

There should be research on the socioeconomic and demographic determinants of women's access and utilization of antenatal healthcare in metropolitan and nonmetropolitan areas, particularly in the Eastern Cape and across South Africa. A comparative study can be conducted between South Africa and other African countries to measure how far SDG is in Africa. It can also be enhanced by factoring in the moderating effects of morbidity. Migrant women's access to antenatal healthcare services in South Africa necessitates the implementation of similar studies, thereby bridging a research gap and providing policymakers with data on migration and antenatal health services in South Africa.



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Appendices

Table 4.33: Multinomial logistic regression on the number of antenatal healthcare visits

Number of antenatal visits during pregnancy	No visits					1-4 visits					5-8 visits				
	B	Std. Error	Wald	Sig.	Exp(B)	B	Std. Error	Wald	Sig.	Exp(B)	B	Std. Error	Wald	Sig.	Exp(B)
Covered by health insurance															
No	-.566	.472	1.437	.231	.568	.154	.368	.174	.676	1.166	-.152	.323	.221	.638	.859
Yes@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Frequency of listening to radio															
Not at all	.237	.368	.414	.520	1.268	.078	.253	.095	.758	1.081	.006	.238	.001	.980	1.006
Less than once a week	.553	.439	1.591	.207	1.739	.070	.336	.043	.836	1.072	.402	.309	1.697	.193	1.495
At least once a week@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Frequency of watching television															
Not at all	1.315	.483	7.408	.006	3.727	.719	.363	3.913	.048	2.052	.466	.351	1.763	.184	1.594
Less than once a week	.628	.523	1.444	.230	1.874	.215	.404	.283	.595	1.240	.043	.379	.013	.909	1.044

At least once a week@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Highest educational level															
No education	-.348	5849.347	.000	1.000	.706	17.027	3654.562	.000	.996	24810553.958	17.134	3654.562	.000	.996	27605690.566
Primary	-.983	.756	1.694	.193	.374	-.401	.491	.665	.415	.670	-.383	.440	.757	.384	.682
Secondary	.113	.505	.050	.823	1.120	.296	.362	.671	.413	1.345	.118	.314	.141	.707	1.125
Higher@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Wealth index combined															
Poorest	.103	.714	.021	.886	.902	.911	.494	3.397	.065	2.487	.196	.448	.192	.661	1.217
Poorer	-.203	.652	.097	.755	.816	.655	.444	2.183	.140	1.926	.241	.392	.378	.539	1.272
Middle	.227	.592	.147	.702	1.254	.708	.410	2.982	.084	2.030	.200	.358	.310	.578	1.221
Richer	.541	.556	.946	.331	1.717	.390	.399	.953	.329	1.477	.022	.343	.004	.948	1.023
Richest@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Type of place of residence															
Urban	-.223	.363	.376	.540	.800	-.076	.254	.089	.765	.927	-.222	.239	.862	.353	.801
Rural@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Age															
15-19	-.475	.869	.298	.585	.622	.011	.678	.000	.986	1.012	.929	.655	2.013	.156	2.533
20-24	-1.368	.637	4.619	.032	.255	-.457	.452	1.023	.312	.633	.215	.436	.243	.622	1.240
25-29	-.601	.576	1.088	.297	.548	-.709	.435	2.649	.104	.492	.161	.418	.148	.700	1.175
30-34	-.532	.583	.834	.361	.587	-.512	.436	1.377	.241	.599	.061	.420	.021	.884	1.063
35-39	-.335	.637	.276	.600	.716	-.228	.473	.231	.631	.796	.228	.456	.249	.618	1.256
40-44	-1.520	.775	1.669	0.196	.219	-1.194	1.075	1.235	.266	.303	-1.050	1.059	.983	.322	.350
45-49@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.

Marital status															
Never in union	.528	.734	.517	.472	1.695	.371	.488	.578	.447	1.449	-.077	.439	.031	.860	.926
In union	.007	.752	.000	.993	1.007	.326	.492	.439	.507	1.386	.076	.443	.029	.865	1.078
No longer in union@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Working status															
No	.751	.353	4.521	.033	2.120	.269	.234	1.323	.250	1.309	.153	.215	.509	.476	1.166
Yes@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
Population group															
Black/African	16.331	.544	900.137	<.001	12376636.702	-.629	1.206	.272	.602	.533	-.423	1.099	.148	.701	.655
White	16.704	.979	291.358	<.001	17973155.617	-1.522	1.384	1.208	.272	.218	-1.537	1.211	1.610	.204	.215
Coloured	16.197	.000	.	.	10823439.601	-.824	1.240	.442	.506	.438	-.451	1.127	.160	.689	.637
Indian/Asian@	0b	.	.	.	.	0b	.	.	.	.	0b	.	.	.	.
@ Reference group 9 and more visits															

Source: Author's own calculations from 2016 Demographic and Health Survey

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