Attitudes and Perceptions of chiropractic care among pregnant women of the eThekwini Municipality: A qualitative study

By

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I, Sumeshni Perumal, declare that this dissertation is representative of my own work in both conception and execution (except where acknowledgements indicate to the contrary).

_ _____ _23/08/2024_____

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DECLARATION

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Durban University of Technology (DUT) or to any other institution for assessment or for any other purpose.

DEDICATION

It is with great honour that I can dedicate my dissertation to you, Rickey and Veena Perumal, my parents. I am grateful to my mother for teaching me how to be a strong woman and for encouraging me to never give up.

My eternal gratitude for my spouse, Reuel Sungharandan, for all your love and support. I am grateful for your encouraging words and support in difficult times.

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ABSTRACT

Background: Pregnancy often brings about musculoskeletal discomfort and chiropractic care has been recognised as a beneficial treatment for addressing these issues. However, little qualitative research is available exploring the attitudes and perceptions of pregnant women towards chiropractic care, particularly in a South African context.

Aim: This qualitative study aimed to explore the attitudes and perceptions of pregnant women receiving chiropractic care in the eThekwini Municipality, South Africa, with a focus on understanding their experiences, communication with chiropractors and common presenting complaints.

Methods: Semi-structured interviews were conducted with 12 pregnant women receiving chiropractic care. Thematic analysis was employed to identify and explore the key themes related to the women's attitudes and perceptions of chiropractic care during pregnancy.

Results: A total of five major themes emerged from the interviews: (1) Positivity towards chiropractic care, (2) Perception of chiropractic care and safety, (3) Readiness to seek chiropractic care after treatment and patient satisfaction, (4) Communication between the patient and chiropractor, and (5) Common presenting complaints.

Conclusion: The study offers insightful information about how pregnant women feel about chiropractic care, emphasising the value of emotional support, safe and efficient treatment methods and effective communication. The results highlight the need for more investigation into how pregnancy affects the musculoskeletal system and how chiropractic care might help treat musculoskeletal discomfort associated with pregnancy. The study's suggestions highlight the value of a patient-centred approach to healthcare and have real-world consequences for raising the standard of care given to expectant mothers.

Key words: Chiropractic, eThekwini, holistic, pregnancy, treatment

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ABBREVIATIONS

CAM	Complementary and alternative medicine
DUT	Durban University of Technology
FRC	Functional residual capacity
GFR	Glomermular filtration rate
HCG	Human chorionic gonadotropin
KZN	KwaZulu-Natal
LBP	Low back pain
mL/min	Millilitres per minute
ng/mL	Nanograms per millilitres
PARIHS	Promoting Action on Research Implementation in Health Services
PE	Pre-eclampsia
TENS	Transcutaneous electrical nerve stimulation
TLC	Total lung capacity
WHO	World Health Organization

CHAPTER ONE

ORIENTATION TO THIS STUDY

1.1 INTRODUCTION AND BACKGROUND

The physiological effects of pregnancy on a woman's body are profound, affecting not only her cardiovascular, endocrine and renal systems, but also her musculoskeletal system. While most women find pregnancy to be uncomplicated, every organ in the body changes in some manner. While some of these changes are normal and will pass, others might be bothersome and inconvenient (Soma-Pillay *et al.* 2016: 89–94).

Pregnancy is divided into three trimesters and lasts 40 weeks in duration. The mother's physique changes with each trimester. Pregnancy causes several biomechanical changes, including uterine expansion, which alters the dynamics of the body and causes instability and changes in gravity (Kesikburun *et al.* 2018: 229–234). Several hormones are essential during pregnancy, and relaxin and progesterone have a considerable impact on the musculoskeletal system. Numerous women experience substantial maternal discomfort throughout pregnancy because of low back pain (LBP), pelvic pain and other neuromuscular issues that are common during this time. Pregnant women suffer from various musculoskeletal problems, along the lines of extremity pain, neck, thoracic, pelvic and hip pain.

A common symptom endured by pregnant women is LBP (Hawker *et al*. 2021:1–7; Kesikburun *et al.* 2018: 229–234). According to Hawker *et al.* (2021: 1–7), pregnancy related LBP is not adequately described in the context of South Africa. Pain and disability during pregnancy could influence the careers of pregnant women negatively, whereby women may work through their pain or are need to take extra days of leave or early maternity leave (Sheraton, Streckfuss and Grace 2018: 321–327).

As a result of the opioid epidemic (Haycraft 2018: 19–23), non-pharmacologic pain management during pregnancy is becoming more and more necessary. One of the potential methods that provides intervention without medication is chiropractic treatment.

The diversity of people in South Africa, with their many diverse cultures and traditions, may have a significant impact on how pregnant women experience and cope with pain. A typical form of treatment for musculoskeletal pain in pregnancy is chiropractic care.

The World Health Organization (WHO) describes chiropractic as a health profession that treats the musculoskeletal system and the effect it has on the function of the nervous system and general health (World Health Organisation. 2005). Women who are pregnant frequently receive care from chiropractors (Khorson *et al*. 2009: 416–426; Corcoran *et al.* 2017: 573–578; Globe *et al.* 2016: 1–20). Due to chiropractic management not being limited to one form of treatment and chiropractors managing patients holistically, the overall experience will encompass the overall management that was received (LeFebvre, Peterson and Haas 2013: 76). Although this method of treatment is supported by a growing body of literature, the attitudes and perceptions of pregnant patients in the eThekwini Municipality, South Africa, have not yet been explored in a qualitative manner.

1.2 PROBLEM STATEMENT

Numerous musculoskeletal disorders including hip, pelvic, neck, thoracic and lumbar discomfort affect pregnant women (Britwell, Hammond, and Puckering 2015: 218–238). According to the literature, chiropractic care is effective in terms of managing the musculoskeletal problems encountered during pregnancy (Conner, Trudell and Conner 2021: 602–610). The aforementioned studies were primarily quantitative in nature. The attitudes and perception of pregnant women receiving chiropractic care have yet to be explored in a qualitative manner and in a South African context.

1.3 AIM OF THE STUDY

To explore the attitudes and perceptions of pregnant women receiving chiropractic care in the eThekwini Municipality.

1.4 RESEARCH QUESTIONS

1. What are the attitudes of pregnant women with respect to chiropractic care?
2. What are the perceptions of pregnant women with respect to chiropractic care?
3. Describe the chiropractic treatment experienced during pregnancy?

1.5 RATIONALE FOR THE STUDY

Due to chiropractic management not being limited to one form of treatment and chiropractors managing patients holistically, the overall experience will encompass the overall management that was received (LeFebvre *et al.* 2013:76).

The diversity of South African pregnant women could affect the outcome of how they perceive chiropractic treatment. A theme that emerged from the review of the perception of chiropractic care among women with migraines was that the participants reconsidered their previous conceptions of chiropractic care (Connor *et al.* 2020: 154). The participants in the same study characterised chiropractic as a multimodal intervention about musculoskeletal contributions and built on a collaborative patient relationship (Connor *et al.* 2020: 154).

According to an Australian study by Brown *et al.* (2014: 224), 42 of the participants either agreed or strongly agreed that they knew little about chiropractic before seeing their current chiropractor. This suggests that either a significant portion of the participants lacked a clear understanding of chiropractic before meeting with the chiropractor for the first time or that their perception of chiropractic was clarified or made more concise during that initial appointment.

Even though the reviewed studies were insightful, insufficient information is available regarding the attitudes and perceptions of pregnant women receiving chiropractic care in the eThekwini Municipality. Alcantara *et al.* (2023: 1–38) concluded that a gap in the body of knowledge about chiropractic pregnancy care is evident; few studies describe the perspectives of practitioners and patients.

1.6 SIGNIFICANCE OF THE STUDY

Accordingly, in this study, the perceived experience and theory would be that pregnant women had some knowledge about chiropractic before their consultation,

which would have an impact on how they perceived chiropractic. Their attitude toward chiropractic will also be influenced by the chiropractor's expertise. These could lead to either a negative or positive mindset or view, enhancing interaction, protocol and communication between the chiropractor and patient. It is stated that knowledge and experience from patients play an important role in enhancing the doctor-patient relationship and contributing to a more positive therapeutic outcome (Sadr, Allah-Abad and Stuber 2012; Bernard-Giglio 2021).

The purpose of this study was to interview pregnant women to explore their perceptions and attitudes of receiving chiropractic management and to subsequently describe their experience of chiropractic management. This study employed a qualitative paradigm with an exploratory and descriptive design to gather information on the attitudes and perceptions of each pregnant participant. This helped in gaining more in-depth knowledge about the connections that already exist between research participants and various emerging themes. It aimed to learn about and comprehend the topic under investigation from the viewpoints of those concerned (Jamali 2018).

1.7 OUTLINE OF THE THESIS

CHAPTER ONE:

As a preliminary introduction, this chapter offers information about the goals, objectives, justification, and importance of the research study.

CHAPTER TWO:

A thorough assessment of recent research on the topic is presented in the second chapter. Elements of the study are separated and expanded upon in this evaluation of the literature.

CHAPTER THREE:

This chapter focuses on the research technique, explaining the procedures used from the beginning to the end of the research process. The research model and design are thoroughly explained.

CHAPTER FOUR:

The study's findings are presented in this chapter.

CHAPTER FIVE:

The study's findings are interpreted and explained in this chapter, with an emphasis on their relevance to the research aims and objectives.

CHAPTER SIX:

The research is completed in the final chapter. A summary of the study's findings are presented, along with suggestions for future research and a statement about the study's limitations.

1.8 SUMMARY OF THE CHAPTER

This chapter provides an introduction to the research by contextualising its aims and objectives. It reviewed the study's background, the research problem, the study's aim and objectives. The research questions, the study's rationale and the dissertation's structure were outlined.

The available literature on the existing research pertaining to the topic isdiscussed further in the following chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter examines the literature on chiropractic care for pregnant women and identifies a knowledge gap in attitudes and perceptions of pregnant women, specifically in the eThekwini Municipality, South Africa.

2.2 BACKGROUND ON PREGNANCY

A woman's musculoskeletal system, as well as her cardiovascular, endocrine, and renal systems, are all significantly impacted by pregnancy's physiological effects. While pregnancy may be straightforward for the majority of women, every organ in the body changes in some way. While some of these changes are typical and will pass, others can become problematic and troublesome (Soma-Pillay *et al*. 2016: 89–94; Kazma *et al.* 2020: 271–285).

2.2.1 Changes Throughout Pregnancy

Pregnancy lasts for 40 weeks and has three trimesters. The body changes over each trimester. Each organ in the body transforms in some way after conception. A common pregnancy illness that can have an impact on a woman’s quality of life is nausea and vomiting. Hyperemesis gravidarum, a severe form of nausea and vomiting during pregnancy, can have a negative impact on the mother’s health and the outcome of the baby’s birth. The pregnancy pathophysiology of nausea and vomiting is yet unknown but it may be influenced by a number of genetic, endocrine and viral variables. Treatment reduces symptoms, and hazards to the mother and foetus are kept to a minimum, which vary depending on the severity of the disease (Bustos, Venkataramanan and Caritis 2017).

Women typically gain weight during pregnancy, which is a healthy outcome. Some women may not gain weight or may even lose weight during the first trimester, but this is also considered to be normal. A woman carrying a single foetus is expected to gain between 9kgs and 12kgs (Shagana *et al*. 2018: 1594–1597). According to the findings of a 2013 study by Li *et al.*, women with maternal pre-pregnancy obesity

and excessive gestational weight gain have a higher risk of pregnancy-induced hypertension, caesarean delivery and larger infant size at birth.

2.2.1.1 Haemodynamic Changes During Pregnancy

Due to the requirements of foetal homeostasis, plasma volumes will rise. Plasma volumes increase at the start of the sixth week of pregnancy and peak at 32 weeks of gestation. During the second trimester, blood volume is increased before slowing down (Shagana *et al*. 2018: 1594–1597). During a typical pregnancy, the plasma volume gradually increases, which causes the haemoglobin concentration, haemocrit and red blood cell count to decrease. Iron, folate and vitamin B12 requirements all increasae by a factor of two to three, as the platelet count gradually decreases (Soma-Pillay *et al*. 2016: 89–94; Kazma *et al.* 2020: 271–285). The coagulation system is altered, creating a physiologically hypercoagulable state that raises the risk of venous thrombosis. In the absence of anticoagulants or a coagulopathy, in vitro tests of coagulation remain normal. Venodilation and reduced flow are related to venous stasis in the lower limbs (Soma-Pillay *et al*. 2016: 89–94).

2.2.1.2 Cardiac Changes During Pregnancy

The relationship between heart rate and stroke volume is used to calculate cardiac output. Preload and afterload increase as a result of an increase in blood volume during pregnancy. Early in pregnancy, the maternal heart rate rises, reaching a peak and plateauing in the third trimester (Tan and Tan 2013: 791–802). As a result, cardiac output rises from 4.6 L/min in non-pregnancy to 8.7 L/min, an increase of 30% to 50%. The relationship between mean arterial blood pressure (MAP) and cardiac output and systemic vascular resistance, which are mediated by progesterone and nitric oxide, is direct (Tan and Tan 2013: 791–802; Kazma *et al.* 2020: 271–285).

During pregnancy, systemic vascular resistance decreases, reaching a low point around 20 weeks of gestation, then gradually increasing until term (Soma-Pillay *et al*. 2016: 89–94). The MAP decreases only slightly despite the reduction in systemic vascular resistance. The mother’s ability to keep up with the increasae in basal oxygen consumption during pregnancy depends on the increase in cardiac output. This improves blood flow to the skin, kidneys, breasts, uterus, and placenta, among other organs. Additionally, the end-diastolic volume rises during pregnancy, which

raises the risk of preterm, miscarriage and foetal problems such intrauterine foetal growth restriction (Tan and Tan 2013:791–802; Kazma *et al.* 2020: 271–285).

One of the most significant changes during the second trimester is when the heart moves upward and slightly to the left to make room for the expanding uterus, causing an increase in heart rate, an increase in stroke volume and a fall in systemic vascular plasma flow (Ireland and Ott 2000:169–179; Shagana *et al*. 2018: 10–18). Blood flow increases as the size of the uterus increases.

2.2.1.3 Respiratory Changes During Pregnancy

Pregnancy causes a large increase in oxygen demand due to a 15% increase in metabolic rate and a 20% increase in oxygen intake (Soma-Pillay *et al*. 2016: 89–94). This enhances minute ventilation and induces an increase in arterial pO2 and a decrease in arterial pCO2, with a compensatory decrease in serum bicarbonate.

Early in pregnancy, the volume of the inspiratory reserve is reduced but it increases in the third trimester (Soma-Pillay *et al*. 2016: 89–94). Pregnancy has no effect on peak expiratory flow rate or forced expiratory volume in one second (Tan and Tan 2013: 791–802; Kazma *et al.* 2020: 271–285). Subjective feelings of shortness of breath without hypoxia are most common in the third trimester and may ease with light exertion (Soma-Pillay *et al*. 2016: 89–94). Diaphragmatic elevation in late pregnancy reduces functional residual capacity (FRC) while leaving diaphragmatic excursion and vital capacity unchanged (Soma-Pillay *et al.* 2016: 89–94).

Lung volume and chest wall alterations during pregnancy, including elevation of the diaphragm and changed thoracic shape, are primarily caused by the growing uterine distension. Small airways close more quickly as a result of rising negative pleural pressure, which also lowers FRC and ERV. In order to maintain constant total lung capacity (TLC), other thoracic dimensions must grow as chest height decreases (LoMauro and Aliverti 2015: 297–301; Kazma *et al.* 2020: 271–285).

2.2.1.4 Changes in the Renal System

The kidneys gain about one centimetre in size as the uterus grows and shifts in a cephalad direction (Soma-Pillay *et al.* 2016: 89–94). Progesterone and the squeezing of the ureters at the pelvic brim result in the renal collecting system enlarging during the first trimester. Mechanical compression from the expanding and

dextro-rotated uterus and progesterone-mediated smooth muscle relaxation causes hydroureteronephrosis, which is more frequent on the right compared to the left (Tan and Tan 2013: 791–802). Increases in glomerular filtration rate (GFR) and effective renal plasma flow are brought on by the systemic vasodilatation that occurs during pregnancy. By the conclusion of the first trimester, the GFR increases by 40% to 50% and reaches a maximum of 180 mL/min (Soma-Pillay *et al.* 2016: 89–94).

Increased GFR during pregnancy affects serum analyte levels and may affect drug clearance (Tan and Tan 2013: 791–802). By four weeks into pregnancy, the creatinine clearance improves by 25%, reaching a peak of 45% at nine weeks. It is more difficult to diagnose and monitor renal disorders during pregnancy due to increased urinary excretion of protein and albumin (Soma-Pillay *et al.* 2016: 89–94). Although common during pregnancy, glucosuria is not a reliable indicator of glucose intolerance. Pregnancy-related net sodium retention assists in maintaining the dilated systemic vasculature's increased plasma volume. Renal perfusion is selectively decreased in conditions of hemodynamic compromise, which lowers urine production and increases the risk of acute tubular necrosis (Tan and Tan 2013: 791–802).

2.2.1.5 Endocrine Changes During Pregnancy

The endocrine system changes throughout pregnancy to accommodate the increased metabolic demands of the mother and foetus. The placenta expresses both gonadotrophin-releasing hormone (GnRH) and corticotrophin-releasing hormone (CRH), and both hormones are increased in pregnancy (Tan and Tan 2013: 791–802). Due to the diminished responsiveness to GnRH, the pituitary gland triples in size and gonadotrophin levels drop. Growth hormone expression in the placenta increases when pituitary growth hormone release declines. The typical negative feedback loop of high cortisol levels reducing adrenocorticotrophic hormone release is changed by pregnancy, which is a state of hypercortisolism (Tan and Tan 2013: 791–802).

As the pregnancy advances, the anterior pituitary releases more prolactin to prepare the baby for breastfeeding following delivery. The increase in human chorionic gonadrotrophin (HCG) causes a brief decrease in thyroid-stimulating hormone (TSH) release from the anterior pituitary during the first trimester (Soma-Pillay *et al.*

2016: 89–94). The metabolism of carbohydrates and fats is changed, such as the use of fatty acids and glycerol for maternal energy, instead of glucose and amino acids for the foetus (Tan and Tan 2013: 791–802).

Fasting glucose decreases 10% to 20% as a result of improved peripheral glucose utilisation, while insulin production rises as a result of beta cell hyperplasia in the pancreas (Tan and Tan 2013: 791–802). Despite the increase in insulin secretion during pregnancy, an elevated postprandial glucose level indicates a relative state of insulin resistance. The production of cholesterol, triglycerides and fat increases in the second trimester, whereas the third trimester is defined by the mother's consumption of fat reserves. Fatty acids and glycerol are released and lipolysis is also accelerated (Tan and Tan 2013: 791–802).

Fat has endocrine functions and is more than just an organ of storage. To maintain energy haemostasis, leptin and adiponectin are crucial, and the posterior pituitary gland also secretes oxytocin and antidiuretic hormone. Throughout the gestation, oxytocin levels increase, which plays a role in parturition. Postpartum nipple stimulation promotes oxytocin release and milk ejection (Tan and Tan 2013: 791–802).

2.3 EFFECTS OF RELAXIN AND PROGESTERONE ON THE MUSCULAR SYSTEM

Many hormones (**Table 2.1**) play crucial functions during pregnancy; however, the emphasis is on the effects of relaxin and progesterone on the musculoskeletal system. Progesterone and relaxin both contribute to pregnancy-related increased joint laxity. Table 2.1 lists the eight hormones that are involved in pregnancy, along with information on each hormone's function and mode of secretion. These hormones include human chronic gonadotropin, progesterone, estrogen, estoterone, prolactin, estradiol, placental growth factor and corticotropin releasing hormone.

Table 2.1: Detailing the various hormones secretions and their functions

Hormones	Secreted by:	Function
Human chronic gonadotropin (HCG)	The embryonic blastocyst starts secreting HCG shortly after fertilisation. The main source of the glycoprotein hormone HCG is the trophoblast.	This glycoprotein is essential during pregnancy because it prevents the corpus luteum from involution, which keeps the ovarian granulosa cells from secreting progesterone. Its value as a diagnostic indicator of pregnancy derives from the possibility that it is one of the earliest secreted hormone by the conceptus. It encourages the development of numerous processes, such as implantation, recognition, differentiation, angiogenesis, and foetal-maternal balance.
Progesterone	HCG stimulates the first round of progesterone production during pregnancy. Throughout pregnancy, the placenta continues to secrete more progesterone, which then starts to decline about four weeks before labour begins.	Progesterone supports and prepares the endometrium to facilitate earlier implantation. Progesterone is a strong immunomodulator that develops throughout pregnancy by lowering the generation of cytokines that promote inflammation.
Estrogen	In the corpus luteum, generated after implantation, this organ starts producing this hormone as the placenta develops.	The chemical changes at the cellular level required for growth, development, and energy are accelerated by hormones.
Estosterone	Produced by the adrenal glands, the fetoplacental unit, and the mother's ovaries in the early stages of pregnancy.	Increased maternal testosterone during pregnancy is linked to foetal growth restriction in utero.
Prolactin	The syncytiotrophoblast secretes the polypeptide hormone prolactin, which is greatest in late pregnancy.	Prolactin operates on the epithelial cells of the mammary gland to start milk production and on the corpus luteum cells of the ovary to induce progesterone secretion to maintain pregnancy.
Estradiol	During the luteal phase.	Decrease the risk of miscarriage.
Placental growth factor	The human endometrium.	A substantial impact on development, encouraging vascularisation and angiogenesis in the foetus during inflammation.
Corticotropin-releasing hormone (CRH)	With its levels peaking during labour, it is hypothesised to control the length of gestation.	Progesterone, oestrogens, nitric oxide, and tumour necrosis factor alpha all tightly regulate CRH, which directly affects myometrial cells to speed up the start of labour.

Adapted from Kumar and Magon (2012: 179–183); Nair, Verma and Singh (2017: 18–23); and Schuijt *et al.* (2019: 672–679).

2.3.1 Relaxin

Similar in structure to insulin, relaxin influences the musculoskeletal system by attaching receptors to tissue (Dehghan *et al.* 2014:220). Relaxin supports muscle and ligament recovery as well as bone remodelling (Dehghan *et al.* 2014:220). Relaxin is best known in the literature for its crucial physiological function in the development and differentiation of the reproductive tract during gestation. The hormone, which was originally identified in the corpus luteum of a pregnant sow in 1926, in an impure form, started to be investigated as a potential contributor to the physiological changes of pregnancy (Cernaro *et al.* 2014: 77–105). The mechanisms underlying the alterations in renal and systemic hemodynamic that take place during pregnancy heavily include relaxin. The corpus luteum and the ovary normally release relaxin (Cernaro *et al.* 2014: 77–105).

Relaxin is a pleiotropic hormone that plays a variety of roles in the body including, but not limited to, angiogenesis, extracellular matrix remodelling, bone remodelling, muscle regeneration, vasodilation, maintaining cardiovascular function and acting as an antifibrotic and cardiovascular protective agent. It also interacts with vascular endothelial growth factor, a key angiogenic factor (Marshall *et al.* 2017: 342–354),

Marshall *et al.* (2017: 342–354) state that additional research is required to determine whether and how relaxin may contribute to different gynaecological illnesses, such as abnormal uterine bleeding, uterine fibroids, endometriosis, gynaecological cancer. Recurrent miscarriage and early pregnancy loss are two disorders related to pregnancy that are caused by lower than normal amounts of relaxin in the blood. Low levels of relaxin are also linked to an increased risk of pre-eclampsia (PE) (Marshall *et al.* 2017: 342–354). These investigations are especially significant since relaxin may be a helpful treatment for reproductive health, particularly in early pregnancy and in individuals with low or missing circulating levels. Relaxin may facilitate and contribute to uterine health, as well as the intricate development of pregnancy in women (Marshall *et al.* (2017: 342–354).

Collagenase is activated by relaxin, changing the characteristics of cartilage and tendon. This hormone also aids in the rebuilding of bones and the recovery of skeletal muscle and ligament injuries (Dehghan *et al.* 2014: 220–229). Due to its collagenolytic impact, which is mediated by the release of matrix metalloproteinases,

relaxin hormone changes the mechanics of ligaments (Dehghan *et al.* 2014: 220–229).

Human osteoblastic proliferation and bone metabolism are controlled by relaxin 2. When osteoblasts are stimulated with relaxin 2, adenylate cyclase is activated and G-proteins produce more cyclic adenosine3',5'-monophosphate, which promotes cell proliferation. By controlling fibrosis, tissue remodelling and inflammation, relaxin may have a role in the recovery of skeletal muscle (Dehghan *et al.* 2014: 220–229). The length of tendon growth has been reported to be controlled by relaxin and tendon stiffness has been claimed to be reduced by increasing tendon laxity by activating collagenase (Dehghan *et al.* 2014: 220–229).

2.3.2 Progesterone

Progesterone, a member of the steroid hormone family, has been referred to as the "pregnancy hormone" because of its crucial function in the preservation of pregnancy (Schumacher, Costa and Zenclussen 2014:1–8). In preparation for labour, progesterone helps to thicken the pelvic wall and its level continuously rises throughout the trimesters (Kumar and Magon 2012:179–183; Cable and Grider 2022).

If pregnancy develops, HCG initially keeps progesterone levels stable by stimulating the corpus luteum to produce the homorne. Following the luteal-placental transition, the placenta assumes control of progesterone synthesis (Schumacher *et a.l* 2014: 1–8). Progesterone stimulates stromal cell differentiation into decidual cells (decidualisation) and reduces the contractility of uterine smooth muscle cells, preparing the uterus for implantation (Schumacher *et a.l* 2014: 1–8). Additionally, the start of labour is connected to progesterone withdrawal. Progesterone has been shown to have an impact on immunity, especially at levels associated with pregnancy (Schumacher *et al.* 2014: 1–8).

Progesterone levels increase gradually during pregnancy, rising from 25 nanograms per millilitre (ng/mL) at six weeks to 150 ng/mL at 37 weeks (LoMauro and Aliverti 2015: 297–301). The primary respiratory centre is triggered by progesterone by making it more sensitive to carbon dioxide, as seen by the ventilation curve's steeper slope in response to variations in alveolar carbon dioxide (LoMauro and Aliverti 2015: 297–301). Progesterone has a bronchodilator effect by changing the tone of

the smooth muscles of the airways. Additionally, it mediates mucosal oedema and hyperaemia, which results in nasal congestion (LoMauro and Aliverti 2015: 297–301).

2.4 BIOMECHANICAL CHANGES DURING PREGNANCY

Pregnancy causes several biomechanical changes, including uterine expansion, which alters the dynamics of the body and causes instability and changes in the centre of gravity (Kesikburun *et al.* 2018: 229–234). To compensate for the anterior relocation of the centre of gravity and maintain postural balance, the larger abdomen has been related to lower static stability and adaptive alterations in spine curvatures (Gharib and Aglan 2018:121–122). Numerous soft tissue, joint and postural adaptations affect the musculoskeletal system, causing discomfort and suffering in the spinal column, hips, knees and foot. In about 50% of all pregnancies, the pelvic and/or low back experience pain, which may continue or even worsen following delivery (Ribeiro, João and Sacco 2013: 99–108).

One of the most significant changes during the second trimester is when the heart moves upward and slightly to the left to make room for the expanding uterus, causing an increase in heart rate, an increase in stroke volume, and a fall in systemic vascular plasma flow (Ireland and Ott 2000:169–179; Shagana *et al.* 2018:8).

Blood flow increases as the size of the uterus increases. Lung volume and chest wall alterations during pregnancy, including elevation of the diaphragm and changed thoracic shape, are mostly caused by the gradual uterine dilation (Schumacher *et al* 2014:1–8). The diaphragm is displaced higher as a result of the expanding uterus, which has two effects on end-expiratory abdominal (gastric) pressure. First, the oesophageal pressure (Poes) increases, causing the tiny airways to close sooner, resulting in lower FRC and expiratory reserve volume (ERV). Second, to maintain a constant TLC, the chest height decreases while the other thoracic dimensions grow (Schumacher *et al.* 2014: 1–8).

The adjustments in the loading patterns of the lumbar spine brought on by changes in its shape may play a significant role in the development of LBP, as shown by the significant relationship between changes in the lumbar curvature and increased perceptions of LBP between 16 and 32 weeks of pregnancy (Ribeiro *et al* 2013: 99–108).

Bones and muscles are under a lot of stress due to the weight of the foetus, the larger uterus, the placenta and the amniotic fluid, as well as the increasing curvature of the lower back. As a result, back pain affects many pregnant women (Haddox, Hausselle and Azoug 2020: 389–395). Pregnancy induces physiological musculoskeletal alterations, including ligamentous laxity, oedema, which compresses nerves and blood vessels and pelvic tilting in an anterior direction which increases lumbar lordosis as a result of the increased load (Kesikburun *et al.* 2018: 229–234). All these postural realignments of the spinal curvatures have the potential to cause overloads in the major joints of the lower limbs, which can result in musculoskeletal pain and discomfort symptoms. These symptoms are usually linked to a reduction in quality of life, especially during the third trimester of pregnancy (Ribeiro *et al.* 2013: 99–108).Pregnancy-induced ligament and joint capsule laxities and dysfunctions of the trunk muscles may raise the likelihood of insufficient pelvic muscle strength, which could lead to pain. As a result, back muscular spasms were linearly related to pain levels (Ribeiro *et al.* 2013: 99–108).

During pregnancy, women have changes to their hip, knee and ankle ranges of motion and static alignment. The gait patterns of pregnant women, which are characterised by lower propulsive forces, longer stance periods, and increased plantar loads over the rear foot and fore foot, may be explained by these alterations (Ribeiro *et al.* 2013: 99–108).Walking is a necessary daily activity that helps prevent pregnancy-related adipose tissue weight gain. The mechanics of walking, however, could be impacted because of the maternal changes in shape and size that occur during pregnancy, especially in the trunk (Gharib and Aglan 2018:121–122). The lower trunk segment’s inertial properties increase at a substantially faster rate than those of the other body segments as pregnancy goes on. Daily actions, such as walking, can have their trunk segment kinematics changed by sudden changes in mass and moments of inertia (Gharib and Aglan 2018:121–122). The potential for altered kinematics is significant because it may potentially impact kinetics and, in turn, the musculoskeletal demands on the segments of the trunk (Gharib and Aglan 2018:121–122).

2.5 CONDITIONS AFFECTING THE MUSCULOSKELETAL SYSTEM DURING PREGNANCY

A common symptom endured by pregnant women is LBP (Hawker *et al.* 2021: 1–7; Kesikburun *et al.* 2018: 229–234). Perhaps pregnant women suffer from various musculoskeletal problems, along the lines of extremity pain, neck, thoracic, pelvic, hip pain and another problem is LBP. (Britwell *et al.* 2015: 218–238). According to Hawker *et al.* (2021: 1–7), pregnancy related LBP is not adequately described in the context of South Africa.

Pregnancy causes several changes that increase a woman's risk of developing musculoskeletal diseases (Fait *et al.* 2022: 1–21). Numerous musculoskeletal issues are brought on by weight increase, the expansion of the uterus with a change in centre of gravity, hormonal changes, and vascular alterations. As the neck bends and the shoulders sag, the centre of gravity shifts, resulting in lumbar lordosis (Fait *et al.* 2022: 1–21). The primary inducer of ligament relaxation, relaxin, causes the pelvic complex and peripheral joints to move more freely, which typically leads to instabilities of the lower and upper segments that predispose people to lower limb dysfunctions (Ribeiro *et al.* 2013: 99–108). Additionally, soft tissues are compressed in pregnant women due to fluid retention.

According to Sadr *et al* (2012: 1–8), half of all pregnant women have LBP at some point in their pregnancies. Research has shown that chiropractic care can help patients who are experiencing LBP throughout pregnancy by alleviating their pain (Sadr *et al.* 2012: 1–8). Although factors such as coffee, smoking, oral contraceptives, parity and exercise do not reveal strong associations, age, the existence of pain before pregnancy and particularly during menstruation, and ethnicity are all connected with a higher risk of LBP (Fait *et al.* 2022: 1–21). The mechanical compressions of a pregnant uterus, which alter the centre of gravity and increase the force acting on the spine, as well as the pelvic ligament laxity and vascular compression, are additional factors that can cause LBP (Fait *et al.* 2022: 1–21).

The pubic symphysis and the sacroiliac joints are the two musculoskeletal structures that are most impacted during pregnancy and postpartum (Fait *et al.* 2022: 1–21). Physiological alterations that are thought to be predisposing factors for the

development of joint pain include soft tissue oedema and joint laxity. In addition, joint discomfort, stiffness, and even arthralgia is linked to hormonal changes with higher levels of progesterone, oestrogen, relaxin and cortisol (Fait *et al.* 2022: 1–21). Some of the issues that pregnant women face are listed in **Table 2.2**, which was modified from Onyemaechi *et al.* (2021).

Table 2.2 delineates the prevalence of musculoskeletal problems by gestational trimester. The disorders that pregnant women face are listed in the table. Each trimester shows how many women are affected by each condition.

Table 2.2: Distribution of musculoskeletal disorders by trimester of pregnancy

Musculoskeletal Disorders	Number First trimester	Number Second Trimester	Number Third Trimester	Total Number (%)
Joint pain	1	34	116	151 (48.6%)
LBP	2	46	132	180 (56.8%)
De Quervain's tenosynovitis	2	33	60	95 (30.0%)
Carpal tunnel syndrome	1	29	43	73 (23.0%)
Muscle cramps	4	62	108	174 (54.8%)
Pelvic girdle pain	3	45	104	152 (47.9%)
Varicose veins	2	28	62	92 (29.0%)
Urinary incontinence	3	19	55	77 (24.2%)

Adapted from Onyemaechi *et al.* (2021)

In the same study by Onyemaechi *et al.* (2021), participants rated the severity of their disorders from mild to very severe. The severity of the musculoskeletal problems is described in Table 2.3. The disorders that pregnant women face are listed in the table along with their respective severity. Women might select from four levels of severity for their disorder: mild, moderate, severe, and extremely severe.

Table 2.3: Severity of the musculoskeletal disorders

Severity of musculoskeletal disorders	Mild Number(%)	Moderate *Number* (%)	Severe *Number* (%)	Very Severe *Number* (%)	Total Number (%)
Joint pains	88 (58.3%)	45 (29.8%)	15 (9.9%)	3 (2.0%)	151 (100)
LBP	100 (55.6%)	65 (36.1%)	13 (7.2%)	2 (1.1%)	180 (100)

De Quervain's tenosynovitis	66 (69.5%)	23 (24.2%)	5 (5.3%)	1 (1.1%)	95 (100)
Carpal tunnel syndrome	54 (74%)	17 (23.3%)	2 (2.7%)	0 (0%)	73 (100)
Muscle cramps	113 (64.9%)	48 (27.6%)	9 (5.2%)	4 (2.3%)	174 (100)
Pelvic girdle pain	93 (61.2%)	47 (30.9%)	10 (6.6%)	2 (1.3%)	152 (100)
Urinary incontinence	29 (37.7%)	35 (45.5%)	10 (12.9%)	3 (3.9%)	77 (100)

Adapted from Onyemaechi *et al*. (2021)

2.6 PAIN AND DISABILITY DURING PREGNANCY

Numerous women experience substantial maternal discomfort throughout pregnancy as a result of LBP, pelvic pain, and other neuromuscular issues that are common during this time. As a result of the opioid epidemic (Haycraft 2018: 19–23), non-pharmacologic pain management during pregnancy is becoming more and more necessary. One of the potential methods that provides intervention without medication is chiropractic treatment. Drug use and imaging technology are limited during pregnancy and, hence, pregnant women may struggle with diagnosis and pain relief; however, chiropractic treatment is a holistic approach to treating women conservatively and will be beneficial for women to manage day to day living with ease and less pain or stress (Lynch *et al.* 2018: 92–100; LeFebvre *et al.* 2013:76).

The most popular analgesic during pregnancy is paracetamol (acetaminophen). It is regarded as a useful and safe therapeutic agent at recommended therapeutic levels during pregnancy, since it has an analgesic potency equivalent to aspirin (Fait *et al.* 2022: 1–21). Due to its painkiller and antipyretic actions, acetaminophen is the principal active ingredient utilised by pregnant women to treat mild to moderate discomfort and fever (Fait *et al.* 2022: 1–21). Studies demonstrating a congenital side effect are lacking. When taken for longer than six weeks, paracetamol has been suggested to potentially carry a high risk of attention deficit hyperactivity disorder but the FDA says that the facts are inconclusive (Fait *et al.* 2022: 1–21). Non-steroidal anti-inflammatory drugs such as aspirin, ibuprofen, naproxen and celecoxib, should be avoided during pregnancy because they increase the risk of miscarriage in the first trimester and may negatively affect foetal circulation by causing the arterial canal to close prematurely and increase the risk of oligohydramnios (an amniotic fluid disorder resulting in decreased amniotic fluid volume) in the third trimester (Fait *et al.* 2022: 1–21).

The chance that an x-ray obtained while pregnant will have a negative impact on the foetus is quite low. The risk to the infant, however, is dependent on the radiation exposure level and the gestational age of the child (Fait *et al.* 2022: 1–21). Thus, high radiation exposure during the first two weeks after conception increases the risk of miscarriage; high radiation exposure during the next eight weeks raises the risk of congenital abnormalities; high radiation exposure during the last 16 weeks increases the risk of intellectual disability. The radiation dose from a single exposure is much lower than the doses linked to these concerns (Fait *et al.* 2022: 1–21).

Computed tomography, which examines bone and muscle damage, is another means of assessing musculoskeletal diseases. Compared to radiography, this approach allows for a more thorough study of the body. It is not proved that the radiation dose utilised in computed tomography has an impact on the foetus. However, to eliminate any chance of a child developing cancer, its usage on the abdominal or pelvic area should be avoided (Fait *et al.* 2022: 1–21).

Pain and disability during pregnancy could negatively influence the career life of pregnant women. In some cases, women may work through their pain or are required extra days of leave or early maternity leave (Sheraton *et al* 2018: 321–327). Chiropractic care can also help pregnant women with daily activities and making daily life more comfortable, as well as decreasing the pain intensity of pregnant women (Bernard and Tuchin 2016: 12–133). Patients indicated that chiropractic care increased their mobility and daily living activities, while reducing their overall pain and suffering, according to Gharib and Aglan (2018:121–122).

2.7 PHYSICAL ACTIVITY DURING PREGNANCY.

The foundation for addressing chronic musculoskeletal pain is exercise and rest. By adjusting the body's biochemical processes, physical activity helps to restore strength, endurance, flexibility and, most importantly, reduce chronic pain (Fait *et al.* 2022: 1–21). Exercise occasionally causes mild side effects, such as musculoskeletal injuries, increased pain, dehydration, hypo- or hyperthermia and in more severe circumstances, respiratory and cardiac issues (Fait *et al.* 2022: 1–21). Moderate regular physical therapy is not harmful to expectant mothers. This form of pain management offers numerous advantages over potential hazards and is a simple means of improving quality of life (Fait *et al.* 2022: 1–21).

The reduced risk of excessive pregnancy weight gain, as well as problems including gestational diabetes, preeclampsia, preterm birth, varicose veins and deep vein thrombosis, are all health benefits of physical activity during pregnancy (Evenson *et al.* 2014: 102–121). Physical activity during pregnancy may be linked to a shorter labour and delivery time and fewer difficulties according to research (Evenson *et al.* 2014: 102–121). However, engaging in vigorous leisure exercise is linked to lower birth weight (Evenson *et al.* 2014: 102–121). Physical activity during pregnancy has psychological advantages, such as lowering fatigue, tension, anxiety and depression as well as improving wellbeing. From the standpoint of general health, pregnant women who exercise are more likely to keep up their exercise after giving birth (Evenson *et al.* 2014: 102–121).

It has been demonstrated by Gharib and Aglan (2018:121–122) that regular, moderate exercise increases mothers' wellbeing in general. This was also evident in the patients' comments of this study, who said that their chiropractor had given them a home exercise programme. Patients who consistently followed their exercise regimen reported increased functioning and outcomes in daily living and functioning tasks (Gharib and Aglan 2018:121–122).

Exercise-induced alterations in heart rate, cardiac output, breathing and energy expenditure are all higher during pregnancy than in the absence of pregnancy and these effects may intensify as the pregnancy continues (Evenson *et al.* 2014: 102–121). Due to greater joint suppleness brought on by hormonal fluctuations, women may be more susceptible to accidents. Physical activity adaptations are required to lower the risk of harm for both the mother and the child (Evenson *et al.* 2014: 102–121).

2.8 CHIROPRACTIC BACKGROUND

The WHO describes chiropractic as a health profession that treats the musculoskeletal system and the effect it has on the function of the nervous system and general health (World Health Organisation. 2005). The use of complementary and alternative medicine (CAM) has grown significantly over the past few decades, with chiropractic continuing to be the most popular CAM profession in the United States of America and accounting for the majority of CAM visits (LeFebvre, Peterson

and Mitchell 2012: 1). Research conducted in England in 2005 by Sharp *et al.* (2018:1–19) revealed that 12% of the of the English population attended CAM, while a later study done there in 2018 revealed that 16% of the population did the same, with chiropractors being the most popular practitioners (Sharp *et al.* 2018:1–19).

Daniel David Palmer is the father of chiropractic. This history is distinctive in that it asserts to know not only the precise time, but also the name of one of the earliest, if not the very first, patient. Daniel David Palmer stated that he performed the first chiropractic adjustment on September 18, 1895 (Johnson 2020: 1–7). The first chiropractic school started by Palmer opened in 1897. Only three chiropractors practised at the time, and for the following few decades, the chiropractic profession struggled to remain viable because of severe medical license rules that declared it unlawful to practise. Early chiropractors concentrated on enacting legislation and engaging in legal battles (Johnson 2020: 1–7). By means of public relations campaigns and popular journalism, chiropractic gained popularity and quickly expanded throughout the United States of America (Johson and Green 2021: 45–54).

2.8.1 Chiropractic Care During Pregnancy

The neurological system can be affected by the subluxation of the spinal column and other joints, which can upset homeostasis and have a negative effect on health (Homola 2016). Chiropractic adjustments are used to restore and improve function by correcting the altered biomechanics caused by pregnancy (Alcantara, Alcantara, and Alcantara 2015). More pregnant women are seeking out CAM therapy for specific pregnancy-related health issues, such as back or neck pain (Frawley *et al.* 2016; Curnow and Geraghty 2019: 284–287). One such CAM therapy is chiropractic.

Chiropractic management involves spinal manipulative therapy, mobilisations, soft tissue therapy, advice on exercise and ergonomics, which are safe and effective forms of treatment. According to Vallone, Hawk, and Killinger (2017), the majority of chiropractors employ a diversified method that involves a high velocity, low amplitude spinal manipulation that is deemed safe during pregnancy. Pregnant women’s ligaments are supple and take minimal force to adjust, making them simple to manipulate (Hensel, Carnes, and Stoll 2016). The purpose of manual therapy is

to reduce muscular tension and restore joint motion (Curnow and Geraghty 2019: 284–287).

Transcutaneous electrical nerve stimulation (TENS), ultrasonography, and other auxiliary modalities can be used to supplement general patient treatment (Hart 2016: 48). TENS is a non-pharmacological technique that blocks the central nervous system from receiving pain signals by using a low-intensity electrical current (Fait *et al.* 2022: 1–21). According to Fait *et al.* (2022: 1–21) a randomised clinical experiment was conducted to assess the efficacy of TENS. In comparison to groups who exercised or who received paracetamol, the results revealed a decrease in pain intensity and an increase in function in pregnant women who followed this therapy. A lack of evidence is available, so more clinical trials are needed. TENS has also been shown to be a safe approach for both mother and newborn, and it can be used to lessen pain during childbirth (Fait *et al.* 2022: 1–21).

Chiropractors specialise in the diagnosis, treatment, and prevention of mechanical diseases of the neuromusculoskeletal system and they are also excellent resources for injury prevention, posture correction, workplace safety, nutritional counselling and stress management (Hart 2016: 48). Women who are pregnant frequently receive care from chiropractors (Khorson *et al.* 2009: 416–426; Corcoran *et al.* 2017: 573–578; Globe *et al.* 2016:1–20). Due to chiropractic management not being limited to one form of treatment and chiropractors managing patients holistically, the overall experience encompasses overall health management (LeFebvre *et al.* 2013:76).

2.8.2 Safety of Chiropractic Care During Pregnancy

Chiropractic is one of the most popular and well-established practitioner-based CAM therapies, with chiropractors active in more than 100 nations (Alcantara *et al.* 2023: 1–38; Beliveau *et al.* 2017:35). Since the beginning of the chiropractic profession, chiropractors have treated expectant mothers (Alcantara *et al.* 2023: 1–38). Chiropractic supports a woman's urge for a safe and natural childbirth and offers relief for their musculoskeletal concerns through a comprehensive and vitalistic approach to patient care (Alcantara *et al.* 2018: 90–98; Alcantara *et al.* 2023: 1–38).

The relative safety and efficacy of chiropractic care during pregnancy have been shown in prior studies and comprehensive reviews of the literature (Sadr *et al.* 2012:

1–8; Bernard-Giglio et al. 2022; Alcantara *et al.* 2023: 1–38). The same study showed that almost all chiropractors said that chiropractic care was successful in reducing pregnant patients' LBP. Most of the chiropractors claimed to have had success with their pregnant patients (Sadr *et al.* 2012: 1–8). All of the patients directly said in their interviews that they thought chiropractic treatment was safe and they had not had any negative side effects after any treatment, which has also been recorded in prior studies, according to Sadr *et al* (2012: 1–8). Throughout the course of their pregnancies, patients reported that their comfort levels with specific treatments changed and their chiropractors generally adapted the treatments to ensure their patients' safety and comfort (Sadr *et al.* 2012: 1–8).

According to Fait *et al.* (2022: 1–21), pregnant women with LBP and pelvic pain can benefit from massage therapy and chiropractic adjustments. Relatively few adverse effects were observed for the mother, and no harm to the infant, lumbar spine or pelvis.

2.9 DIVERSITY OF PREGNANT WOMEN IN A SOUTH AFRICAN CONTEXT

The diverse cultures and traditions of people in South Africa may have a significant impact on how pregnant women experience and cope with pain. The diversity in South African pregnant women could affect the outcome of how they perceive chiropractic treatment. According to a study in South Africa by Hawker *et al.* (2021:1–7), women under the age of 24 years made up the majority of pregnancies in the public sector. According to the same study, most women will have some musculoskeletal discomfort, with LBP being the most commonly mentioned. South Africa, according to Hawker *et al.* (2021:1–7), fails in research describing back pain in pregnant women.

South Africa has a stable antenatal care system in place with earlier visits for early detection and prevention of any life-threatening illness or ensuring a healthy pregnancy. South Africa's antenatal care system was redesigned with the intention of enhancing evidence-based therapies, with a minimum of eight prenatal visits. (Hlongwane *et al.* 2021: 220–227; Lincetto *et al.* 2015: 52). Chiropractic does not fall in the domain of the public health care sector as defined by the National Health Act; as a result, it is privatised and difficult for the public to access.

Traditional methods are frequently employed, despite the fact that prenatal and perinatal regimens are utilised all throughout the African continent. Understanding regional cultural perspectives and conventional healthcare systems is necessary to improve maternal health (Thipanyane *et al.* 2022: 1–14). More than 80% of Africans utilise traditional medicine, with the majority of them feeling that it is the only readily available alternative for basic health care, particularly in rural areas, where a variety of traditional remedies, including herbal medications, are used (Thipanyane *et al.* 2022: 1–14). According to reports, the use of herbal remedies during pregnancy varies significantly based on the person's location, ethnicity, cultural practices and financial status (Thipanyane *et al.* 2022: 1–14).

2.10 WOMEN'S PERCEPTION AND EXPERIENCE WITH CHIROPRACTIC

Perception is defined as recognising and interpreting sensory information, as well as the person's reaction to that information (Williams 2014: 1). As a psychological process that results from an individual's interpretation of information through the five senses of taste, touch, smell, sight and hearing, perceptions are unique to each individual (Williams 2014: 1). A variation among people exists, since perception also refers to how someone feels about a subject, which might be related to their beliefs, feelings and experiences (Frederick, Varatharajullu and Sibiya 2020: 32–42).

Women's perceptions and attitudes may also be associated with their use of CAM therapy during pregnancy. Those women who used CAM during pregnancy have been found to perceive CAM as more natural, safer and as being at least as effective as conventional maternity treatments (Adams *et al.* 2019; Steel *et al.* 2014).

In the studies by Adams *et al.* (2019) and Steel *et al.* (2014), women's attitudes about CAM and their visits to chiropractors were linked. In addition, those who believed their CAM practitioners offered more support than a general practitioner or obstetrician were more likely to consult with a chiropractor during pregnancy. These factors included the belief that CAM promotes a holistic approach to health, has fewer side effects, but also that more research needs to be done on CAM treatment regarding safety and side effects (Steel *et al.* 2014).

A theme that emerged from the review of perception of chiropractic care among women with migraine was that participants reconsidered their previous conceptions

of chiropractic care. The participants in the same study characterised chiropractic as a multimodal intervention about musculoskeletal contributions and built a collaborative patient relationship (Connor *et al.* 2020:154).

In a study about the drivers, barriers and response to care of pregnant women seeking chiropractic care, four themes emerged from Australia (Bernard-Giglio *et al*. 2022). The first theme outlined how crucial decision-making is while seeking chiropractic care. The second theme was that care barriers revealed cavitation during spinal manipulation, a lack of understanding regarding chiropractic therapy, normalisation of pain during pregnancy and negative attitudes. Biographical interruptions, such as infertility or miscarriage, constituted the third theme. The fourth theme, “reaction to care,” reflected findings from the literature and characterised participants’ experiences of improvement in activities of daily living with pain alleviation, enhanced psychosocial wellbeing, and satisfaction with chiropractic therapy (Bernard-Giglio *et al*. 2022).

2.11 SUMMARY OF THE CHAPTER

Pregnant women are affected by numerous musculoskeletal conditions during pregnancy, such as extremity pain, neck, thoracic, lumbar, pelvic and hip pain. According to the literature, chiropractic care is effective in terms of managing the musculoskeletal problems encountered during pregnancy. Chiropractors specialise in the diagnosis, treatment, and prevention of mechanical diseases, injury prevention, posture correction, workplace safety, nutritional counselling and stress management. Chiropractic care can help pregnant women reduce muscular tension and restore joint motion, but little evidence demonstrates its safety during pregnancy and the postpartum period.

The approach that was used to plan and conduct this investigation is highlighted in the next chapter.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The research methodology used in this study is described in detail in this chapter, with particular attention paid to the methods used for data collecting and analysis**.**

3.2 RESEARCH DESIGN

From the conceptualisation of a study's purpose, to the final presentation of the data after analysis, a research design directs the process (Abutabenjeh and Jaradat 2018: 238). The three main stages of the general research process are posing a question for investigation, gathering information to address the question, and presenting the result of the investigation (Abutabenjeh and Jaradat 2018: 238).

This was a qualitative study, using an exploratory, descriptive design to seek information about patients' attitudes and perceptions. Reflecting on George Engel's biopsychosocial model Lugg (2022: 55–59), the theoretical framework that was constructed to aid in data collecting is discussed in the following section.

3.2.1 Qualitative Research

The goal of qualitative research is to ascertain how individuals comprehend their own attitudes and perceptions (Palić *et al.* 2015). Qualitative research enables a researcher to delve deeply into the motivations and goals behind various social occurrences. This research study benefits from a qualitative approach because it involves direct personal experience.

3.2.2 Exploratory Research

Exploratory research looks for fresh perspectives on phenomena and clarifies complex circumstances (Hunter, McCallum and Howes 2019). The objective is to provide a foundation for future investigation, not to arrive at concrete evidence. Comparatively, descriptive research focuses on more narrowly defined problems. By addressing who, what, when, where and how questions, it describes characteristics of items, people, groups, organisations or settings (Palić *et al.* 2015). This design was beneficial in gaining an insight of patients' experience of

chiropractic care. The approach was naturalistic with a subjective interpretation of the participants' responses to aid the epistemology assumptions.

3.3 THEORETICAL FRAMEWORK

The biopsychosocial paradigm proposed by George Engel is the theoretical framework underpinning the study (Lugg 2022: 55–59). The concept of illness has evolved into one that is broader and more progressive.

Along with the biopsychosocial paradigm, the study will also nominate the Promoting Action on Research Implementation in Health Services (PARIHS) framework. The multifaceted and widely used conceptual framework of PARIHS was created to openly challenge the main model of implementation. The PARIHS framework asserts that effective implementation depends on the nature and type of evidence (including research, clinical experience, patient experience and local information), the characteristics of the implementation context (including culture, leadership and evaluation), and the manner in which the implementation process is facilitated (by an internal or external person acting as a facilitator to enable the process of implementation) (Bergstorm *et al.* 2020: 2).

According to Oben (2020), the patient experience is a multifaceted, intricately connected notion with several subcategories. Personal interactions, organisational culture, patient and family views and continuum of care are the four themes mentioned in the definition of patient experience. Needham (2012) emphasises two of the four previously mentioned dimensions and acknowledges the multifaceted nature of the patient experience by saying that both emotional and physical experiences must be managed.

3.4 RESEARCH SETTINGS

The research atmosphere should be one in which participants feel at ease and can make references to their natural surroundings. The eThekwini Municipality, which is situated in KwaZulu-Natal (KZN), a region of South Africa, are the residences of the study participants. The participants could choose to have their interviews in a room at the DUT Chiropractic Day Clinic or at a preferred coffee shop, at a time that was convenient for them.
The researcher contacted chiropractors in the eThekwini Municipality who are registered with AHPCSA after the study was approved by the DUT Institutional Research and Ethics Committee in order to obtain patient contact information. In order to recruit participants, notices with the researcher's contact details were left at prenatal groups and distributed via CASA KZN (Appendix D). The researcher,

bearing in mind the inclusion criteria of the study, contacted potential volunteers by phone or email.

3.5 POPULATION

3.5.1 Study Population

Elfil and Negid (2017: 52) state that a population is a collection of individuals who share a characteristic or illness, typically. A portion of this group, known as the sample population, is included in the study because it is frequently impossible to include an entire community of persons sharing the same ailment or trait when doing research. The sample population must accurately represent the entire population, with the least amount of inaccuracy, without substitution or incompleteness, in order to reduce bias and generalise the research findings (Elfil and Negid 2017: 52).

3.5.2 Population Size

Interviews were conducted with a sample of 12 individuals and data saturation was reached by 10 participants. Limited participants are needed for qualitative research because the emphasis is on depth and specificity rather than generalisation. The highest standard for deciding on purposive sampling sizes in qualitative research is saturation, which is a condition for stopping data gathering (Saunders *et al.* 2017: 4). Data saturation is reached when no extra information is available to develop the attributes of the category or the point in coding when no further new codes develop in the data (Saunders *et al.* 2017: 4). With a constant repetition of comparable events, the researcher is certain empirically that the data are saturated (Saunders *et al.* 2017: 4).

3.5.3 Sampling Process

The word “sampling process” refers to the procedure of creating a sample population from the entire population (Elfil and Negid 2017: 52). Purposive sampling is a sampling strategy where the researcher’s judgment is utilised to pick the study participants, and was employed by the researcher to select the sample (Dudovskiy

2016: 1). The sample in this study comprised of pregnant women, irrespective of trimester, residing in the eThekwini Municipality.

It was overlooked to collect the sample's demographic data. The study's primary shortcoming is that no demographic information was gathered. The limitations of the study provide an explanation for the bias in the study's omission of patient demographic and socioeconomic status data.

3.6 SAMPLE CHARACTERISTICS

The features of the sample will clarify the study's inclusion and exclusion, which show that there were two inclusion criteria and three exclusion criteria.

3.6.1 Inclusion Criteria

1. Women who were pregnant and over the age of 18 years.
2. Women who were receiving chiropractic care during their pregnancy

3.6.2 Exclusion Criteria

1. Participants who refused to being audio recorded during the interview.
2. Participants in the pilot study were excluded from the main study.
3. Participants who did not sign the informed consent form.

3.7 PARTICIPANT RECRUITMENT

The sample was obtained by contacting chiropractors to inform their pregnant patients about the study and the potential participants contacted the researcher. Additionally, a notification (Appendix D) about the study was sent via Chiropractic Association of South Africa (CASA KZN) and notification (Appendix D) were left at antenatal groups, such as Mommahood Group (Facebook platforms – a group for expectant mothers dealing with pregnancy-related problems), Storks Nest (a mother and baby clinic at St Augustine’s hospital), the DUT Chiropractic Day Clinic and Cato Manor antenatal clinic. All notifications included the researcher’s contact information.

To participate in the study, potential volunteers contacted the researcher or were contacted by the researcher if the participants were suggested by a chiropractor. Letters of information (Appendix B) and informed consent (Appendix C) were sent

via email to sign in agreement. The interview was scheduled at a certain date, time and location.

3.8 RESEARCH TOOLS

A semi-structured interview guide (Appendix A) was the research tool (Connor *et al.* 2021), which was used as the basis for the interview guide (**Table 3.1**). In order to better understand the attitudes and perceptions of chiropractic care among pregnant women in the eThekwini Municipality, the researcher created an interview guide with targeted questions, which comprised of nine key questions and probing questions .

According to Artino *et al.* (2014: 436–474), using published, pre-validated interview guidelines as research tools saves time and resources while improving study validity. Open-ended questions were used in semi-structured interviews in a specific order so that responses can be further questioned. This was determined to be appropriate for this study since it allowed the participants to speak freely and elaborate on their replies, providing the necessary information about their lived experiences, while also giving the interviews some structure and uniformity (Morse 2016: 88).

Table 3.1: A summary of the main questions used in the interview guide

Question number	Question	Facet of experience it aimed to address
Question 1	What were your attitudes/thoughts towards chiropractic care prior to your chiropractic treatment?	Personal knowledge of chiropractic care prior to consultation
Question 2	How would you perceive chiropractic care during your pregnancy?	Perception of chiropractic care.
Question 3	In your own words how did you feel about chiropractic care during pregnancy?	Personal experience and interaction received during the first chiropractic consultation.
Question 4	How many months pregnant were you when you first sought chiropractic care?	Gestational period for first chiropractic treatment
Question 5	Are you a first-time mom?	The number of pregnancies
Question 6	Did you receive chiropractic care prior to your pregnancy?	Personal experience of chiropractic care prior to pregnancy.
Question 7	During your pregnancy, how frequently did you visit your chiropractor?	The number and frequency of consultations
Question 8	What was your presenting compliant?	Personal symptomology upon consultation.

Question 9	In your own words how would you describe your treatment experience?	Personal experience of chiropractic treatment.

3.9 PER-TESTING OF DATA COLLECTION TOOLS

A pilot study was done to improve the study's credibility, acquire rich data and determine whether interview questions needed to be changed. One of the benefits of performing a pilot study is that it may reveal areas where the main research project may falter, such as when research protocols may not be followed or whether planned methodologies or instruments are inappropriate or overly complicated (Crossman 2020). The participants for the pilot study were recruited from the main study's participants via CASA KZN or an antenatal group; two participants were used for the pilot study. The two women who participated in the pilot study did not participate in the main study.

The inclusion and exclusion criteria for the pilot study were the same as that of the main research study. The interviewees were given a letter of information (Appendix B) explaining the research and a letter of informed consent (Appendix C). Semi-structured interviews were conducted in person. All interviews were digitally recorded.

3.10 DATA COLLECTION PROCESS

Once the study was approved by the DUT Institutional Research and Ethics Committee, the researcher contacted chiropractors in the eThekwini Municipality who are registered with AHPCSA to get patient contact information. To recruitparticipants, notifications were sent via CASA KZN and left at antenatal groups with the contact information of the researcher (Appendix D). The researcher contacted possible volunteers via email and/or telephone, keeping in mind the research's inclusion criteria.

Once individuals agreed, the researcher gained verbal consent and described the study as well as the inclusion and exclusion criteria to ensure that each participant fulfilled the requirements. Each participant was given an interview time slot. The participants were provided with the research details (Appendix A) and informed consent (Appendix C), which were returned to them prior to the interview.

The researcher obtained verbal consent to commence the interview, as well as a written consent for the interview to be audio recorded. The participants were encouraged to ask questions if they were confused about anything. The interview lasted between 20 to 30 minutes. The participant was thanked and reassured that all information would be kept confidential at the conclusion of the interview. Only the researcher and supervisor have access to the interview audio recordings and transcripts, which were stored on a password-protected laptop. These were downloaded on to a password-protected flash drive and stored in the Department of Chiropractic for five years before being erased.

3.11 DATA ANALYSIS

The process of describing, classifying and connecting phenomena with the researcher's concepts is known as qualitative data analysis (Palic *et al.* 2016). The researcher transcribed all interviews into a Microsoft Word document once completed. Each participant received a written transcription to verify the material. The data were analysed using Tesch's method to find themes and subthemes. According to Jones (2007), Tesch is a segment of text that is understandable by itself and contains one idea, episode, or piece of information.

Textual fragments of data were coded and extracted from their original data during de-contextualisation. Coding is the process of grouping comparable pieces of data into categories and assigning descriptors for later comparison. Documents are classified in qualitative analysis and codes are compiled into categories until the categories take on a distinct meaning (Jones 2007). The researcher analysed and evaluated the data under the supervision of the research supervisor to verify no bias and that all interpretations were fair and acceptable. Field notes were taken to improve data quality, increase trustworthiness, and facilitate data analysis.

3.12 ETHICAL CONSIDERATIONS

3.12.1 Ethical Approval

Ethical approval for this study was granted by the Institutional Research and Ethics Committee of the DUT (Ethics Reference Number:112/23).

3.I2.2 Ethical Principles

Before the interview began, each participant read the letter of information (Appendix B) and signed the informed consent (Appendix C). Personal information was withheld to maintain participant privacy and professionalism. Only the researcher and supervisor had access to the transcripts and recordings. The transcriptions will be saved in the chiropractic department archive, where they will remain for five years before being deleted.

No compulsion was utilised to force participation in the study, and volunteers were not paid or otherwise compensated for their involvement.

3.12.3 Autonomy

Each participant received an informed consent form (Appendix C), which outlined the study's goals, risks and benefits, as well as its confidentiality policies, and allowed them the option to withdraw at any time. The participant was given the opportunity to ask questions before deciding to participate in the interview and they had the option of leaving the study at any point without penalty.

3.12.4 Beneficence

Beneficence involves acting morally and protecting participants from danger (Houghton *et al.* 2013: 12–17). Pseudonyms were used in place of participant identities to accomplish anonymity to protect the participants.

This also holds true for any upcoming publications. The participants were made aware of how the findings would be released. The data were kept private by being stored on devices with password protection. The data were only accessed by the researcher and the supervisor.

3.12.5 Justice

Justice means equity and equality. This was achieved through giving participants a chance to express their ideas and respecting their right to reveal or withhold information. To give participants the option of conducting the interview in their preferred language, a translator was made available.

3.12.6 Non-Maleficence

Non-maleficence refers to a doctor's duty to protect their patients from harm. This straightforward idea upholds a number of moral standards (Varkey 2020: 17–18). The researcher established a trusting environment and openness. The researcher supported the participants' honesty. The researcher developed the habit of reflection, constantly considering interaction with the subjects and how this affected the findings.

3.12.7 Confidentiality

Information that is kept private is referred to as confidentiality The information gained from all parties was kept private by the researcher and the supervisor. By using pseudonyms, the participants' names remained hidden from readers. The researcher protected confidentiality by keeping the study's participants' identities private. Additionally, the participants were made aware of the confidentiality restrictions throughout the study. The Protection of Personal Information Act (2013) was observed in the data collecting process for the study, wherein participant information was obtained with consent.

3.13 TRUSTWORTHINESS

Confirmability, credibility, dependability, transferability, and reflexivity must all be met in order for a study to be considered trustworthy.

All interviews were transcribed verbatim by the researcher into a Microsoft Word document. Before emailing the document to participants, the supervisor reviewed the Word documents to ensure the transcribed documents were correct. The participant received the written transcripts for member checking and confirmed the interviews' transcribed contents.

Following the conclusion of the interviews, data were analysed utilising Tesch's method to find themes and subthemes (Tesch 1990; Creswell 2013). To avoid bias and guarantee that all interpretations were appropriate and fair, the researcher analysed the data and interpreted it under the continuous guidance of the supervisor. Field notes were taken to improve the quality of the data, increase its credibility and facilitate data analysis (Phillippi and Lauderdale, 2017).

By achieving data saturation and conducting member checks, credibility and dependability were attained (Thomas, 2017:23). To gain reflexivity when analysing data, the researcher kept a self-reflective notebook which recorded the researcher's thoughts and feelings during the investigation (Ortlipp, 2008; Korstjens and Moser, 2017).

Authenticity was attained by using a digital voice recorder to transcribe the data gathered. In order to assure transferability, data were gathered until a point of saturation, at which no new data, topics, categories or subcategories were found. Through utilising an audit trail, where the researcher recorded each choice and action performed during the research, the study attained confirmability (Shenton, 2004).

3.14 SUMMARY OF THE CHAPTER

The research paradigm and the philosophical foundations of the study design and procedure were extensively covered in this chapter. The study's ethical issues were also taken into account.

The study's results will be presented in the following chapter.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 INTRODUCTION

This chapter presents the findings from the analyses of 12 semi-structured interviews conducted on pregnant women in the eThekwini Municipality. The themes and sub-themes derived from Tesch's method of thematic analysis will also be presented in this chapter.

The study needed a minimum of 12 participants in order to have enough people to record differences between emerging themes. A minimum of 12 individuals were chosen, allowing for enhanced data collection to aid in answering and comprehending the research question.

This research yielded five primary themes: positivity towards chiropractic care, perception of chiropractic care and safety, readiness to seek chiropractic care after treatment and patient satisfaction, communication between the patient and chiropractor, and common presenting complaints among pregnant women. Every theme and sub-theme were established by examining how each participant's interview responses overlapped with one another.

4.2 MAJOR THEMES

Theme 1: Positivity towards chiropractic care.

Theme 2: Perception of chiropractic care and safety.

Theme 3: Readiness to seek chiropractic care after treatment and patient satisfaction.

Theme 4: Communication between the patient and chiropractor.

Theme 5: Common presenting complaints among pregnant women.

The five themes and associated sub-themes that emerged from the data collected are presented in **Table 4.1**.

Table 4.1: Overview of emergent themes and sub-themes

Themes/ Sub-Themes	Description of themes and sub-themes
Theme 1	**Positivity towards chiropractic care**
Sub-theme 1.1	The influence of family and relations.
Sub-theme 1.2	Social media and internet influences
Theme 2	**Perception of chiropractic care and safety**
Sub-theme 2.1	Safety and efficaciously of chiropractic care during pregnancy
Sub-theme 2.2	Precaution and communication during consultation
Sub-theme 2.3	Confidence in chiropractic care during pregnancy
Theme 3	**Readiness to seek chiropractic care after treatment and patient satisfaction**
Sub-theme 3.1	Positive/Beneficial outcome experiences
Sub-theme 3.2	Pervious interaction and relationship with a chiropractor
Sub-theme 3.3	Experience of pregnant patient adjustment, therapeutic modalities and treatment protocol
Theme 4	**Communication between the patient and chiropractor**
Sub-theme 4.1	Home exercises or additional advice during pregnancy
Theme 5	**Common presenting complaints among pregnant women**
Sub-theme 5.1	History of musculoskeletal conditions
Sub-theme 5.2	Complications during pregnancy

4.3 PRESENTATION OF THEMES AND SUB-THEMES

The study's findings are presented as follows, along with the major themes and sub-themes that came out of the analysis of the interviews. **Table 4.1** lists the five topics that emerged from the research. To support the findings, pertinent passages from the transcripts are presented.

4.3.1 Theme 1: Positivity Towards Chiropractic Care

When asked to describe their attitudes towards chiropractic care prior to their chiropractic treatment, the participants voiced their beliefs in a positive manner as evident in the excerpts.

> "*… well positive because I've always been to a chiropractor for many years and I went to a chiropractor with my first pregnancy. So yeah, was amazing. Very beneficial"* (Participant 1).

"… ooh I love going to the chiro. So I've had a relationship with the chiro in Kloof for many years" (Participant 3).

"I've probably been to a chiropractor since I'm 17, so hmm I was always pro chiropractic treatment" (Participant 4).

"Really enjoy it so I suffer with migraines and like LBP. So, I'm always happy to see my chiropractor" (Participant 5).

"… but it was yeah, I would day a positive attitude." (Participant 7).

"I think I was open minded. Yes, I did like have doubts, but that's based on other people's perceptions and conversations. If it would, that's a question, would it work? Would it make a difference? You know, if they're going to be a positive outcome and obviously the positive outcome" (Participant 9).

"… so yeah, I felt positive after finding out you should actually seek out that kind of help" (Participant 10).

"For me it was better to get chiropractic treatment rather than medicinal because most doctors won't treat me with medicine during pregnancy and most treatment was Panado, (a brand name in South Africa for paracetamol) *which does nothing"* (Participant 12).

4.3.1.1 Sub-Theme 1.1: The Influence of Family and Relations

When questioned about how they came to know about chiropractic care, the participants acknowledged having a lengthy relationship with their chiropractor through familial ties and friendships. The participants stated that:

"I had two kids already via C-section, so I struggle with back pain and "name removed" *recommended coming here, and I mean I studied at DUT as well, so I know of the clinic"* (Participant 2).

"… for close to 10 years now, and I see the same chiro, it's the family chiro… and moved into Kloof in 2013 and my boyfriend, who I'm now married to his whole family went to see this particular chiro in Kloof… I don't know. It was a thing. I don't know it was just something that the family did, but definitely my husband's family. They swore by the chiro. The whole lot of them have gone all the time to do everything and my husband's mother, she goes and has

*gone over 10 years for that maintenance chiro she goes to, she goes to "*name removed*" I would say every six weeks with or without pain"* (Participant 3).

"I would say, friends. Yeah, we like making a social setting" (Participant 5).

"… well I heard this from my colleagues that they had much relief from treatment so I thought why not try it out" (Participant 8).

*"Have been "*name removed*" because we were in university together. So, because she's my friend I went to her, when I was studying in my final year …. There after continue going to her for many years"* (Participant 11).

4.3.1.2 Sub-Theme 1.2: Social Media and Internet Influences

Of the 12 participants, three said they had learned about chiropractic care from online research or through the use of social media.

The participants stated that:

"Honestly, I just felt the pain and I knew I needed help and I Googled the nearest one" (Participant 9).

"It must have been on TikTokey. I found out on like TikTok has honestly become my live Google" (Participant 10).

"*I'm in the medical field, so I think from my own research and you know, purely from my own research and then obviously through other clients of mine and friends' referrals, I got to meet different Chiros and you know seek their help"* (Participant 12).

4.3.2 Theme 2: Perception of Chiropractic Care and Safety

Most participants shared the sentiment that, although they perceived chiropractic care as a beneficial form of treatment, when it came to their pregnancy, they had concerns about treatment while pregnant.

The participants were asked how they perceived chiropractic care during pregnancy, to which they responded:

"Yeah, very positive and very beneficial and it helped me. It still is helping me and obviously when you pregnant, you can't take medication like Panado and

all of those sort of things for headaches or aches and pains. So, then I'd default to go to a chiro" (Participant 1).

"… ahh I'd highly recommend it. For me it's holistic care. It not just the back pain" (Participant 2)

"Because I think the perception is with a lot of people who are pregnant is they'll say, oh, they didn't know you could go to chiro. You know, it's a massive misconception that you can't go to chiro, it's not safe for you or for the baby, and lying on your stomach or, God forbid, that needles. You can't have any needles. So you do get that when you tell people that you going to the chiro, I think they probably know that's the misconception" (Participant 3).

"… uhm Good, I've enjoyed it. I always it and I have a new chiropractor now and she's been really nice and yeah. I would be surprised that most pregnant women aren't seeing a chiropractor" (Participant 4).

"Perfect! I love it. You know I think its great alternative in comparison to medical care. I think it's fast, its effective. Its treatment lasts long, so definitely much better than medicine" (Participant 12).

Theme 2 is closely related to all three of its sub-themes, since the participants also mentioned the effectiveness and safety of chiropractic care for expectant mothers. The decision to continue receiving chiropractic treatment is influenced by the favourable opinion of chiropractic care. Theme 4 is that perceptions of chiropractic care are influenced by communication between patients and chiropractors. According to similar excerpts, chiropractors improved treatment outcomes and had excellent communication skills.

4.3.2.1 Sub-Theme 2.1: Safety and Efficaciously of Chiropractic Care During Pregnancy

When asked if they believed chiropractic care was safe during pregnancy, the participants expressed their impression that initially they had had concerns about the method of treatment. Their responses were as follows:

"… well, actually when I got pregnant, I just had to call to take if it's recommended for pregnant women. I wasn't even sure, so I didn't even know if it's an option for pregnant women. So I called the Clinic and they confirmed

it and I Googled and yeah, so I felt safe enough. But I guess I did have concerns" (Participant 2).

"… so the first time I went, we don't get me wrong. I had reservation's but I actually discussed with the reception before I'll book to ask is it safe? I think I was like 9 or 10 weeks or something and she said no, it's perfectly fine" (Participant 3).

"I was a little bit nervous initially, uhm … but yeah, my chiropractor made me feel super comfortable" (Participant 4).

"I didn't think it was safe before, but now I know it is safe" (Participant 10).

*"I would say safe because I did ask "*name removed*" is it safe now that I'm pregnant to come and see you"* (Participant 11).

Although these four participants were hesitant before the initial consultation, they now believe that chiropractic care is safe for expectant mothers. Of the 12 participants, eight agreed that receiving chiropractic care while pregnant is safe.

4.3.2.2 Sub-Theme 2.2: Precautions and Communication During the Consultation

Overall, the transcripts showed a shared view that the participants found it easy to interact with their chiropractor, and their treatment and treatment goals were explained to them during their consultation.

*"Yeah, when we started "*name removed*" the first session, we spoke about it. She did say that needling wasn't recommended, especially in the first trimester"* (Participant 2).

"Yes, advised me throughout my session" (Participant 8).

"… and then she also made me feel better, saying like the equipment and stuff it can accommodate my body as it changed with pregnancy, with the bump and stuff. If you need to lay down the equipment can do that" (Participant 9).

4.3.2.3 Sub-Theme 2.3: Confidence in Chiropractic Care During Pregnancy

The participants expressed their conviction that they were confident in their ability to be managed by their chiropractor during pregnancy. A clear link between safety

and effectiveness exists in management when pregnant. Several examples of the replies included:

> *"… and so I went to the chiro then 10 years ago and it was like life changing and then I realised that the muscles are sore because the spine has gone out and going to the physio and learning exercises on how to stretch, this doesn't actually solve the root cause. So then I just stopped going to the physio and then I just started going to the chiro"* (Participant 3).

> *"… uhm so I have been to a physio this week and she also worked on my neck which is completely out and I must say I feel like you get a quicker ... you get the results quicker with the chiropractor than with Physio. Uhm yeah, today I feel like I need to go back with ... I think if I'd seen my chiropractor especially for my neck I would have felt better already if that makes sense"* (Participant 4).

> *"Ok, so the main thing was I always go to Doctor "*name removed*" like prior my pregnancy and because I trust her and have a good relationship with her, I saw her in my pregnancy as well and I also spoke to her like in my first pregnancy … I'm more of like a pro chiropractic than physiotherapist, 'cause I enjoy my sessions with the chiropractor, like the alignment of the back and the like ... any session that I had with Doctor "name remove" it always helped me a lot"* (Participant 7).

> *"So she guided, she talked me and guided me through that process and because it's a physical thing it's a lot of contact. She's manoeuvring your body for you. So, I felt very comfortable with her"* (Participant 9).

> *"I've got a good relationship with the two chiropractors I go to so and I trust them very much. I feel very comfortable. I think it's good"* (Participant 10).

> *"So, I prefer chiropractic treatment because you know, my chiro knows how to handle a pregnant woman. You know, would care, you know, so he doesn't hurt me or my unborn child"* (Participant 12).

4.3.3 Theme 3: Readiness to Seek Chiropractic Care After Treatment and Patient Satisfaction

The participants used phrases such as “it’s great”; “I loved it”; “always good”; “10 out of 10, my chiropractor is the best”; “helpful”; “life changing or life healing”; and “amazing” to characterise their treatment experiences when asked to do so. The first theme, “positive attitude toward chiropractic care” and the second theme, “perception of chiropractic care and safety” both strongly relate to these findings. When asked how they felt about chiropractic therapy during pregnancy, the individuals gave similar answers.

> Participant 10 responded: *“Look, it’s not fun. Some of the things are painful but because I know they will be worth it, they are worth it”*.

After their initial treatment, all 12 participants reported feeling ready to seek chiropractic care, and patient satisfaction was high. To further elaborate upon the participants’ first consultation and number of follow-up visits with their chiropractors, seven, or the majority, of the 12 participants received their initial consultation in the first trimester. In the second trimester, one participant received their first consultation and in the third trimester, one participant received their first consultation.

The data gathered showed that the frequency of follow-up visits revealed:

- Three follow-up visits for three individuals.
- Follow-up visits totalled six for three individuals.
- Monthly follow-up visits for two individuals.
- The two individuals did not have scheduled follow-up appointments.
- One person saw a follow-up chiropractor twice.
- A follow-up visit was scheduled for one participant every four weeks.
- During the second trimester, one participant received follow-up visits either every month or every two months.

Throughout this research, the interviews revealed that most participants had three or six follow-up visits on a regular basis. A monthly, or every two months, follow-up was given to a few individuals. Some participants did not have scheduled follow-up appointments. A participant followed up once every four weeks, which was a unique follow-up programme.

General trends with theme 3 was that most individuals started receiving chiropractic care in the first trimester of their pregnancy. The frequency of follow-up appointments varied, but most followed a typical plan of three or six sessions. A small number of participants chose to return less frequently, while others had no set strategy for follow-up.

Each participant's follow-up appointment was unique because each participant was at a different stage of pregnancy when the interview was performed. Some of the participants had only recently begun their pregnancies, so they had only visited their chiropractor once when the interview was conducted. They were still going to receive chiropractic care going forward.

The participants stated that:

> *"I think it would be quite frequent, probably like every month or every two months, just to help with the lower back pain"* (Participant 5).
>
> *"Once, because after the treatment that I received with her, I felt a lot better"* (Participant 7).
>
> *"Once and I went like four days after it started and I as meant to do follow-up but I haven't as yet"* (Participant 9).
>
> *"Because Doctor* "name removed" *is only there Monday to Wednesday and I'm at work. So, I'm quite frustrated"* (Participant 11).

4.3.3.1 Sub-Theme 3.1: Positive/Beneficial Outcome Experiences

Experiences with positive or beneficial outcomes are strongly related to themes one, two, and three, as well as theme 4 and all of its sub-themes. The excerpts indicated that all of the participants had a favourable attitude towards chiropractic care and believed it to be advantageous during pregnancy. Prior to receiving chiropractic care, some participants had concerns but those issues were all addressed, and they agreed that receiving chiropractic care is safe during pregnancy. They also mentioned how well their chiropractor described their treatment plan and its objectives, and the participants unanimously felt that chiropractors have excellent communication skills**.**

The participants experienced the benefits of receiving chiropractic care while pregnant as evident in some of their responses:

"I just love to go see a chiropractor to get aligned and release mostly my upper neck and shoulders, but also we do some gym and some running so to make sure you know my hips are aligned and like I went once for my ankle" (Participant 1).

"But I just wanted to be prepared with the weight of the pregnancy so yeah. It's just part of a holistic self-care and making sure that I'm well enough to cope with the pregnancy" (Participant 2).

"So, I think it's great that we can see chiropractors during pregnancy and I would be surprised if other people don't" (Participant 4).

Participant 6 relied on the chiropractic care received during pregnancy "*That's a useful tool I needed".*

*"Once, because after the treatment that I received with her, I felt a lot better and then I didn't actually have any. So, at first when I was admitted in hospital in my first trimester and I received physio at the hospital and that didn't help me at all. So, when I saw doctor "*name removed*" then my pain was like and up until now touch wood. I still don't have like back pain"* (Participant 7).

"You know, my previous pregnancies and this one for me to seek chiropractic treatment as alternative treatment for pain relief" (Participant 12).

4.3.3.2 Sub-Theme 3.2: Pervious Interaction and Relationship with a Chiropractor

Most participants mentioned having enduring relationships with their chiropractors; this sub-theme is strongly related to the themes mentioned previously. In a similar manner, the participants expressed gratitude for chiropractic therapy in theme 1, and those who participated in sub-theme 1.1 mentioned their prior encounters and relationships with their chiropractor.

To describe the relationships and interactions that participants and chiropractors have with one another.

Participants 1, 2, 3, 4, 5, 6, 7, 10, 11 and 12 have had pervious interactions or treatments with their chiropractors in the past. In prior pregnancies, participants 1, 3, 6, and 12 have all received chiropractic care.

In contrast, in prior pregnancies, participants 2 and 7 did not receive chiropractic care.

Participants 8 and 9 had never seen a chiropractor before or received any kind of therapy from one. Both individuals are first time mothers.

Participants 4, 5, 8, 9, 10 and 11 are first time mothers.

In conclusion, 10 of the 12 participants had contact with chiropractors in the past for treatments or interactions. The other two participants had never seen a chiropractor before, nor had they received any therapy from one.

Only four of the participants who had prior encounters had received prior chiropractic treatment for their pregnancies. During their previous pregnancies, two of the individuals did not receive chiropractic care. A total of six participants reported being first time mothers.

4.3.3.3 Sub-Theme 3.3: Experience of Pregnant Patient Adjustment, Therapeutic Modalities and Treatment Protocol

According to their chiropractor, each person had a varied experience with treatment, but the majority of participants said that they frequently had adjustments and massages.

The treatments that the research participants received were:

- Adjustments: All participants (1–12) had adjustments.
- massage/physio gun: Of the 12 participants, nine received massage therapy or physiogun therapy.
- Heat therapy or myofascial work: Five individuals (1, 5, 7, 10, and 11) reported obtaining heat therapy, either alone or in combination with the other.
- Dry needling: For participants 1, 2, 3, 5, and 6, dry needling was used.
- The usage of therapeutic modalities (TENS): This was only reported by participant 6.

The trends that were observed for treatments given to the participants appear to follow a regular pattern, with adjustments and massage/physiotherapy gun being used by all. Dry needling appears to be less consistently applied across participants.

The following was stated by the participants regarding chiropractic treatment received while pregnant:

> *"… hmm she did some myofascial release, she did needles and heating and then aligned"* (Participant 1).
>
> *"… ah she used the gun then and just hand massage after. I think now because of the accident I've just started attending to my shoulders, so she did needling the last time and today again"* (Participant 2).
>
> *"… so she would normally start with you lie on the bed, you sit on the side of the bed. You feel your neck feel, the shoulder feel, the back you would lie down and she'd sort of poke around. Think she would do a massage, should have thorough massage for at least 10 minutes I would say. Ah neck, shoulders or whatever it was tight based on your assessment. Once you've done that, should needle were ever you need needling after that she will manipulate you first lying your stomach, then on your one side, then on the other side, and then lying your back"* (Participant 3).
>
> *"… uhm and so with "*name removed*" uh I sit, start off sitting and she kind of feels down my spine and then we pretty much lie down. So we make the provisions for the tummy and she does the back. I'm not too keen on needling, but she does obviously offer that I think she has maybe I don't know if she actually, I'm not sure if she has done that during pregnancy the needling and so she does the massage of the back and then I turn to the side and we kind of do the side like manipulation where she clicks and then lie my back and the she does the neck part and neck manipulations, other side and manipulations and then I sit up and she feels up and down. She also does something with my legs where she closes them and she tells me to push them open and yeah that's pretty much"* (Participant 4).
>
> *"She starts by placing a warm wheat bag to just warm up the muscles. She then did some acupuncture on the specific points. She used a vibrating machine on my glutes because of my low back. Uh and then massaging and adjusting"* (Participant 5).
>
> *"… uhm so it's the needling the acupuncture. I think you call it. And then the massage and then the adjustments"* (Participant 6).

"… so she massaged like my lower back in the line and my neck also that helped and like the use of like wheat bag" (Participant 7).

"… well, he did realignment and massaging" (Participant 8).

"… but like she aligns me and she like cracks my joints. Yeah, but like she says, for the round ligament pain. And she does the massaging thing with the massager that vibrating one" (Participant 10).

"… so it's basically its some uh spinal manipulation, at the mainly at the top, you know, during my neck, my shoulders. At the upper half and its my shoulders and my traps." (Participant 12).

4.3.4 Theme 4: Communication Between the Patient and Chiropractor

The participants expressed the sentiment that their chiropractors were very reassuring during their visit and explained effectively during their session. The chiropractors instructed the participants throughout the session, which made them feel at ease.

Strong connections exist between theme 4, communication between the patient and chiropractor, and theme 2, perception of chiropractic care and safety, and sub-theme 4.1, satisfaction of patient interaction with chiropractor. Similarly, the participants expressed that chiropractors talked to them throughout the consultation, which made them feel at ease during their treatment. The participants also shared similar sentiments that they were satisfied with their chiropractor and treatment.

The participants stated the following:

*"Yeah. When we started "*name removed*" the first session we spoke about it… so yeah she basically talked me through it and we agreed on what I was comfortable with"* (Participant 2).

"Yes, advised me throughout my sessions" (Participant 8).

"Yeah, she did she listened to me and tried to understand where I was, what I was experiencing what could be the problem and we used to like circumvented or assist it" (Participant 9).

"I was very comfortable with just expressing myself" (Participant 10).

"Definitely because "name remove" told me when I get to work, even though I'm sitting in the office. She said be careful not to bend and she told me what to do" (Participant 11).

When asked "did your chiropractor explain your treatment and treatment goals", all participants answered yes during their interviews.

4.3.4.1 Sub-Theme 4.1: Home exercises or additional advice during pregnancy

The participants responded affirmatively when asked if their chiropractor used any interventions to manage their discomfort, such as stretches, or had given them home exercises or advice. The participants responded as follows when asked if they received any home exercises or advice:

"Yeah, she did and stuff to buy what to eat" (Participant 2).

"… and she show me the stretches to do to help to ease the neck muscles" (Participant 3)

"Yes, he gave me stretches in the rooms and uh he gave me some to do at home" (Participant 8).

"… to put a pillow when I sleep in between my legs. So I've got that pregnancy pillow but she just taught me how to actually utilise it and she told me I needed to get some ball. She didn't have it at that time, but for my feet. So to roll my feet on it" (Participant 10).

- Of the 12 participants, 11 received interventions, such as stretches, to manage their pain.
- Only one participant stated that she did not receive any intervention to manage her pain.
- Of the 12 participants, 10 reported that home education and advice were given to them by their chiropractor.
- Two participants reported that their chiropractor did not advise them about any home education or any other advice.
- Participant 5 did not receive any interventions to manage her pain nor any home education or advice.

- Participant 3 did not receive any home education and advice, but was told how to manage her pain by performing stretches.

4.3.5 Theme 5: Common Presenting Complaints Among Pregnant Women

The most common complaint was LBP and sacroiliac pain, with all participants reporting that they experienced those complaints. Of the 12 participants, five reported experiencing neck pain, of which two participants also reported experiencing migraines. Only three participants reported experiencing thoracic pain. The participants did not report extremity pain during the interviews. Participant 1 and participant 4 reported experiencing LBP/sacroiliac pain, neck pain and thoracic pain. Some participants reported multiple types of pain; for example, participant 6 reported experiencing neck pain, migraines and thoracic pain. Participant 12 reported experiencing LBP/sacroiliac, neck pain, and migraines.

The participants stated the following when asked what the presenting complaint was when seeking chiropractic care:

> *"…mainly headaches, and ah tight* neck *and you know tight back"* (Participant 1).
>
> *"I didn't really have any complaints. I just wanted to prep my body for the pregnancy and make sure that my back was strong enough to deal with"* (Participant 2).
>
> *"Neck as well. Normally it would be upper back because your boobs get so big and so heavy that your upper back compensate. That was a problem. My neck is problems the way that I sleep, that's changed the whole way that I lay on. Obviously on my back"* (Participant 3).
>
> *"… uhm it's always been my neck, but she said because of the lumbar scoliosis at the bottom it would work its way up to the neck. So like the tension would work its way up"* (Participant 4).
>
> *"I'm sure it'll be LBP"* (Participant 5).
>
> Participant 6 said *"… the migraine. My back a little high up there. The shoulders was all top".*

"… my main area of concern was my lower back pain and the goal would be just to cure that" (Participant 7).

"… my lower back" (Participant 8).

"… so it wasn't a lower back pain. It was a, it's your tailbone. It was the tailbone the right side of my tailbone" (Participant 9).

"… lower back ache, it felt like you know if the tailbone. You know where that starts, I think and what I would it just felt like I had fell on it. So it was terribly sore and then it started radiating across my whole lower back" (Participant 10).

"… lower back pain" (Participant 11).

"… you know, most of the time it will be my migraines, its nothing to do with the you know, obviously the pain in the back, you know the lower back pain or you know pain on the sides on your pelvis, but that is manageable, it's mainly by migraine pain" (Participant 12).

In general, LBP and sacroiliac pain appeared to be the most prevalent complaints among participants regarding the discomfort they felt during pregnancy. Additionally, neck pain was prevalent. A lesser percentage of participants reported having migraines or thoracic pain. It is crucial to remember that every pregnant woman experiences pain differently, and the observations made here are based on the information supplied.

4.3.5.1 Sub-Theme 5.1: History of Musculoskeletal Conditions

The participants also expressed a history of musculoskeletal conditions during their interviews. This sub-theme and the four themes are strongly related. Similar quotes demonstrated their favourable opinions of chiropractic care for expectant mothers. They also concurred that receiving chiropractic therapy is safe while expecting. A history of musculoskeletal disorders may affect participants' willingness to receive chiropractic care.

- LBP: Participants 2, 4, 5, 7, 10 and 12 have a history of LBP.
- Neck pain: Participants 1, 3 and 4 reported a history of neck pain.
- Scoliosis: Participants 4 and 6 reported a history of scoliosis.

- Participant 4 reported a history of neck pain, LBP and scoliosis.
- Migraines/ headaches participants 2, 6 and 12 have a history of migraines.
- Participant 6 reported migraines and scoliosis, whereas participant 12 reported a history of migraines and LBP.
- Participants 1 and 12 reported a history of extremity pain.
- Of the 12 participants, six reported a history of LBP prior to their current pregnancy.
- Participants 8 and 9 did not have a history of musculoskeletal conditions or pain prior to their pregnancy.

The participants' responses about their history of musculoskeletal conditions included:

> *"I just love to go see a chiropractor to get aligned and release mostly my upper neck and shoulders, but also we do some gym and some running so to make sure you know my hips are aligned and like I went once for my ankle"* (Participant 1).
>
> *"it's not just the back pain. Yeah because I mean the I think when I was here last year was struggling with migraines. Prior to that it was back pain"* (Participant 2).
>
> *"Neck! Always always"* (Participant 3).
>
> *"hmm she said I had lumbar scoliosis in the bottom and then it often would like I wouldn't have to often go see her, but maybe twice a year and then when I did go, it got to a point where it would build up to my neck"* (Participant 4).
>
> *"I suffer with migraines and like LBP"* (Participant 5).
>
> *"it helps me with my migraines and all of that so if I go regularly then I actually don't suffer with my back pain and all of that"* (Participant 6).
>
> *"… but post like post my caesar 2 months post my caesar I went to"* (Participant 7).

"back ache" (Participant10).

"… because I'm a migraine chronic pain patient and who suffers you know very regularly from it for me" (Participant 12).

4.3.5.2 Sub-Theme 5.2: Complications During Pregnancy

Only two participants reported a complication during their pregnancy:

"Yes, this pregnancy I have, the doctor says it's called uterine arterial pressure, which is a bit high" (Participant 6).

Participant 4 stated that: *"I must say I have recently got … uhm … we figured out possible carpal tunnel".*

Participant 4 stated that: *"so far, no, but I have had two miscarriages before and we did IVF for this baby, so I feel like although my gynae says I'm not high risk, in my mind when I see doctors and other people, I'm like I'm high risk".*

4.4 SUMMARY OF THE CHAPTER

In this chapter, the study's results were reported. Excerpts from the interview transcripts were used to support each theme and its related sub-themes.

The findings of this investigation are reported in the chapter that follows.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 INTRODUCTION

The results from the previous chapter have been interpreted and discussed in this chapter. According to the methodological approach, they will be interpreted within a more contextual framework, employing information from outside sources to clarify what is learned from the transcripts. The findings and interpretations will also be contrasted with those in related literature and any potential explanations for significant differences, if any, will also be presented simultaneously.

5.2 OVERVIEW OF THE RESEARCH DISCUSSION

The aim of the study was to explore the attitudes and perceptions of pregnant women receiving chiropractic care in the eThekwini Municipality. The following five themes were discovered after the semi-structured interviews investigated this:

Theme 1: Positivity towards chiropractic care.

Theme 2: Perception of chiropractic care and safety.

Theme 3: Readiness to seek chiropractic care after treatment and patient satisfaction.

Theme 4: Patient and chiropractor communication.

Theme 5: Common presenting complaints among pregnant women.

These themes and their subthemes are addressed, contrasted with related literary works, explained, and supported by additional literary evidence.

Finally, this chapter will give the researcher's interpretation of the findings and demonstrate how the themes might be related to reveal information that may not have been immediately apparent. Secondary literature and other sources that permit the informed construction of an extensive context will help with this.

5.3 RECOGNISING CONTEXTUAL GAPS

According to the methodological design, which was previously expounded upon in Chapter Three, supporting media and literature were carefully chosen to help create

a more complete study. This literature should offer plausible explanations for any understandings that the researcher came to during the data gathering process, in addition to adding to our current understanding. Numerous musculoskeletal conditions, such as hip, pelvic, neck, thoracic and lumbar discomfort, afflict pregnant women, as is discovered during the initial interpretation process (Britwell *et al* 2015: 218–238). Chiropractic treatment is beneficial at treating musculoskeletal issues that arise during pregnancy, according to literature (Conner *et al* 2021: 602–610). The studies described had a strong quantitative component. No qualitative investigation exists of the attitudes and perceptions of pregnant women receiving chiropractic care in eThekwini Municipality.

5.4 DISCUSSION OF THEMES AND SUB-THEMES

5.4.1 Theme 1: Positivity Towards Chiropractic Care

Prior to receiving chiropractic treatment, the participants were asked to characterise their thoughts about chiropractic care. They all gave a favourable response. Each of the 12 participants shared their pleasure and joy at receiving chiropractic care. Some participants even said they would suggest chiropractic care for other pregnant women. Another participant expressed astonishment that most pregnant women do not visit a chiropractor.

Research has validated the attitudes about chiropractic care during pregnancy. For example, studies by Adams *et al.* (2019) and Steel *et al.* (2013) found a connection between women's attitudes about CAM and their visits to chiropractors. Furthermore, pregnant women were more likely to see a chiropractor if they thought their CAM practitioners provided better assistance than an obstetrician or general practitioner. Among them were the notions that CAM requires safety and side effect testing, has fewer side effects, and encourages a holistic approach to health (Steel *et al.* 2013).

For specific pregnancy-related health conditions, such back or neck discomfort, more pregnant women are turning to CAM therapy (Frawley *et al.*, 2016; Curnow and Geraghty 2019: 284–287). Chiropractic care is one such CAM therapy (Khorson *et al*. 2009: 416–426; Corcoran *et al.* 2017: 573–578; Globe *et al.* 2016: 1–20) for which chiropractors routinely treat pregnant women. The whole experience includes

overall management because chiropractic management is not restricted to one method of treatment and chiropractors manage patients holistically (LeFebvre *et al* 2013:76). The literature that has been cited is strongly related to theme 1, positivity towards chiropractic care.

5.4.1.1 Sub-Theme 1.1: The Influences of Family and Relations

When asked how they became aware about chiropractic care, the participants admitted that they had been visiting their chiropractor for a long time; five of the 12 participants said they had been getting chiropractic care for a long time before becoming pregnant. The participants even mentioned their “family chiropractor” as the chiropractor they visit. A qualitative case study of expectant Australian mothers who sought chiropractic treatment for pelvic girdle and LBP revealed that three factors led people to seek chiropractic care: A referral from family or friends, a desire for a natural solution, and dissatisfaction with medical care. Cost, time and worries about the safety of chiropractic care during pregnancy were among the obstacles to receiving treatment (Bernard-Giglio *et al.* 2022).

Working alliance (WA) is a construct that has been utilised to operationalise the professional relationship between patient and healthcare provider, according to Ivanova *et al.* (2022). The WA considers the cognitive and emotional aspects of the interpersonal processes that take place during care between the two partners. According to research, WA is linked to physical function, pain, disability, patient satisfaction, adherence to the treatment plan and the treatment’s overall perceived benefit (Ivanova *et al.* 2022). Since psychotherapy is where the term WA first appeared, its definition is unclear. According to Bordin, a patient and their therapist — in this case, a chiropractor — join forces to contest an issue, such as persistent LBP, and work toward a shared objective such as enhanced physical function (Ivanova *et al.* 2022). Thus, in order to reap the benefits of the cooperative connection, it is imperative that patients establish a rapport with their chiropractor. The working partnership will be strengthened when chiropractors develop a mental and emotional bond with their patients and their families.

5.4.1.2 Sub-Theme 1.2: Social Media and Internet Influences

Among the 12 individuals, three mentioned that they heard about chiropractic treatments from social media or online research. A participant said she had not

previously had chiropractic care and that this was her first consultation with a chiropractor. A second participant had previously received chiropractic care but, as a first-time mother, this was her first-time receiving treatment while pregnant. A third participant had previously undergone chiropractic treatment and she had also undergone chiropractic treatment during her previous pregnancies.

According to a study by Ismail *et al*. (2023), KZN has 101 chiropractors who have websites. The study looked at the frequency of chiropractic-related vocabulary on South African chiropractors' websites. According to the study, Gauteng, KZN and the Western Cape are the three most frequently mentioned provinces, and University of Johannesburg and DUT are the two most frequently mentioned universities. Additionally, it was mentioned that several chiropractors lacked a Google website (Ismail *et al*. 2023).

Only one participant said she asked her gynaecologist whether she could see a chiropractor while pregnant, when asked in the interview if their gynaecologist or general practitioner referred them to their chiropractor. The interprofessional referral connections between chiropractors and other musculoskeletal providers in South Africa have been shown to be weak, with 60.2% of chiropractors receiving almost no referrals from orthopaedic specialists (Ismail *et al*. 2023). However, considering that over one-third of South African chiropractors work in multidisciplinary health-care offices, it is necessary to foster and maintain chiropractic-medical interprofessional collaboration through communicative skills (Ismail *et al*. 2023).

5.4.2 Theme 2: Perception of Chiropractic Care and Safety

Most participants (42%) expressed that, even though they thought chiropractic care was a good kind of treatment, they were worried about receiving it while pregnant. In contrast, 58% of the participants described their perceptions with optimism. The words that were used were "helpful", "beneficial", "enjoyable", "perfect" and "love it". A participant also mentioned a misconception regarding chiropractic care and pregnancy. She went on to say that some people think the baby will suffer injury if an expectant mother lies on her stomach.

The notion involving perception and chiropractic care during pregnancy has been supported by the literature, which suggests that women's attitudes and perceptions may also be related to their use of CAM during pregnancy. According to research

conducted by Adams *et al.* (2019) and Steel *et al.* (2013), women who utilised CAM during their pregnancies believed it to be safer, more natural and at least as successful as traditional maternity therapies.

A pattern that emerged from the examination of how migraine-affected women perceived chiropractic care was that the participants re-examined their preconceived notions about the treatment. In the study by Connor *et al.* (2020:154), the participants in that study described chiropractic as a multimodal intervention concerning musculoskeletal contributions and developed a cooperative patient connection. In this current study, women saw chiropractic care as useful and beneficial. However, four participants asked questions regarding safety prior to their initial visit but they later agreed that it is safe. They also thought that chiropractic treatment was holistic and helpful.

5.4.2.1 Sub-Theme 2.1: Safety and Efficaciously of Chiropractic Care During Pregnancy

As previously indicated, the four participants were now of the opinion that chiropractic care was safe for expecting moms, despite their initial reluctance. Before the initial consultation, two of the four participants questioned the chiropractors' receptionists and the other two queried their own chiropractors. According to eight out of the 12 participants in this study, it is safe to receive chiropractic care while pregnant.

Previous research and thorough analyses of the literature have demonstrated the relative safety and effectiveness of chiropractic care during pregnancy (Sadr *et al.* 2012: 1–8). Based on the statements of all 12 participants, this study has recommended the safety of chiropractic treatments during pregnancy. With practitioners practicing in more than 100 countries, chiropractic is one of the most well-liked and reputable practitioner-based CAM therapies (Alcantara *et al.* 2023: 1–38; Beliveau *et al.* 2017: 35). Chiropractors have treated expecting mothers since the founding of chiropractic (Alcantara *et al.* 2023: 1–38).

As stated by Bernard-Giglio *et al*. (2022), most participants in their study reported that friends, family and other antenatal health professionals had unfavourable opinions regarding the safety of chiropractic care for expectant mothers and expressed uncertainty about the chiropractor's ability to handle such patients. The

participants encountered misunderstandings regarding chiropractic adjustments, which created an obstacle to seeking care for back discomfort associated with pregnancy. One participant in this study discussed these misconceptions but she also mentioned that she knew it was safe because she had visited her chiropractor for a long time. Certain participants understood that chiropractic care was safe since they had a prior relationship with their chiropractor. The participants in this study did not, therefore, experience any unfavourable feelings regarding the safety of chiropractic care.

5.4.2.2 Sub-Theme 2.2: Precaution and Communication During Consultation

The transcripts generally supported the participants' perceptions that they could easily communicate with their chiropractors and that their consultation included an explanation of their treatment plan and goals. The participants stated that they discussed their treatment objectives with their chiropractors. According to the participants, during treatment, chiropractors gave instructions to patients on how to lie down and how the equipment would fit their bodies.

Health care practitioners' interactions with patients and the communication styles they use matter considerably, as stated by Gliedt *et al.* (2017). Direct and indirect communications from a doctor to a patient can either have a good, empowering effect that fosters personal development and self-efficacy, or a negative effect that reinforces passivity and self-limiting behaviour (Gliedt *et al.* 2017). Being able to make such a significant difference in the health and well-being of individuals seeking chiropractic care is a great honour for chiropractors (Gliedt *et al.* 2017). As a result of this, chiropractors must constantly assess their behaviours, methods and communication strategies to improve their ability to provide the best possible care, and establish themselves as highly knowledgeable and competent leaders (Gliedt *et al.* 2017).

Gliedt *et al.* (2017) address the value of effective communication between chiropractors and their patients in their article, which mentions that a chiropractor's language and delivery style have a significant impact on whether patients experience positive or negative results. According to Gliedt *et al.* (2017), certain communication strategies employed by chiropractors, such placing too much emphasis on pathoanatomical diagnoses or using terminology connected with

disabilities and pain, can lead to unfavourable, dehumanising attitudes and actions. According to Gliedt *et al.* (2017), in order to more effectively encourage patients to make healthy behavioural changes, chiropractors should speak with patients using positive incentives rather than scare tactics.

Gliedt *et al.* (2017) make the following recommendations in their article regarding communication skills between chiropractor and patients which includes:

1. Using acceptance and commitment therapy (ACT), cognitive-behavioural therapy (CBT) and motivational interviewing (MI) as preferred techniques for chiropractors to initiate doctor-patient communication regarding instituting self-empowerment strategies.
2. Evaluating each patient's total health and wellbeing requirements in addition to pain control.
3. Telling the patient about the advantages of adopting a positive behaviour modification.
4. Rather than concentrating on a single appointment that quickly treats an episode of exaggerated pain, weekly chiropractic appointments are used to help patients start good lifestyle changes.
5. Holding on when the patient is dissatisfied with their lack of development or has started to make positive adjustments.
6. Constantly assessing routines, approaches, and communication endeavours and honing these styles to provide the best possible care and establish themselves as knowledgeable leaders with the highest degree of awareness and proficiency.

5.4.2.3 Sub-Theme 2.3: Confidence in Chiropractic Care During Pregnancy

Of the 12 participants, six were adamant that they felt secure enough in their chiropractor's abilities to manage them during pregnancy. The connection between management, effectiveness and safety is indisputable. Additionally, a connection exists between the background and nature of chiropractic and patient care. According to Bernard-Giglio *et al*. (2022), particularly in the later stages of their pregnancy, pregnant women may find it uncomfortable to lie face down on a chiropractic table. Certain chiropractors have tables or cushions designed specifically to make it comfortable for expectant mothers to lie face down. The

participants in this study reported feeling at ease when chiropractors described the tools and accommodations for a pregnant body.

Gliedt *et al.* (2017) discuss how patients feel about their chiropractors. According to Gliedt *et al.* (2017), chiropractors can successfully persuade their patients to adopt good living habits. The authors also highlight how crucial it is to adjust standard clinical communication procedures to better match with biopsychosocial concepts. Doing so can improve patient outcomes and establish chiropractors as authorities on spine and pain management. This implies that one of the most crucial aspects of the advice given in the article is fostering patient confidence and trust in chiropractors (Gliedt *et al.* 2017).

Pregnant women can feel confident in seeking chiropractic care for low back and pelvic girdle pain, according to Bernard-Giglio *et al*. (2022). However, they should always speak with their healthcare provider and locate a chiropractor who has experience treating expectant patients and employs safe techniques (Bernard-Giglio *et al*. 2022). Demonstrating this, the current study's participants contacted chiropractors before obtaining chiropractic care while pregnant. A participant said she inquired with her gynaecologist prior to seeing a chiropractor. This sub-theme is related to the themes one and three and its sub-themes listed since it is possible to seek multiple follow-up visits with a chiropractor when patients have confidence in the chiropractor, which will result in patient satisfaction. Chiropractors' confidence can be increased by effective communication with their patients.

5.4.3 Theme 3: Readiness to Seek Chiropractic Care After Treatment and Patient Satisfaction

The results of theme 3 are closely related to the first theme, positive attitude toward chiropractic care, and the second theme, perception of chiropractic care and safety. A majority of eight of the 12 individuals visited their chiropractors more than twice. Every participant would have had a distinct follow-up appointment since, as stated in Chapter Four, everyone was at a different stage of pregnancy when the interviews were conducted. Some of the participants had only recently started their pregnancies and had only made one visit to their chiropractor.

Connell and Bainbridge (2020: 97) assert that trust is a fundamental element of therapeutic relationships and that it has a positive correlation with treatment

satisfaction. Patients who have a high degree of faith in their medical professionals report better health behaviours, less symptoms and an improved quality of life. Connell and Bainbridge (2020: 98) state that the components of any therapeutic alliance between a patient and a healthcare provider, a chiropractor in this instance, are collaborative and have affective bond, agreement and trust.

A “therapeutic alliance provides the central foundation for patients to receive the benefits from other contextual factors and their placebo effects, further improving health related outcomes” according to Stilwell and Harman’s (2017: 6–17) suggestion. The notion of trust encompasses various dimensions and necessitates susceptibility to the kindness, generosity and proficiency of another person (Connell and Bainbridge 2020: 98). Certain things usually need to happen or occur before a patient and chiropractor can begin to trust one another (Connell and Bainbridge 2020: 98).

5.4.3.1 Sub-Theme 3.1: Positive/Beneficial Outcome Experiences

Positive or advantageous experiences are closely associated with themes one, two, and three, as well as with theme 4 and all of its sub-themes. The excerpts showed that the participants all thought chiropractic care was beneficial during pregnancy and they had a positive attitude toward it.

Peterson, Mühlemann, and Humphreys (2014) state that pregnant individuals with LBP or pelvic pain have been demonstrated to benefit from chiropractic therapy. A significant number of pregnant patients receiving chiropractic care reported clinically meaningful improvement in their symptoms, at all time periods up to one year, according to a prospective cohort research study by Peterson *et al.* (2014). Furthermore, a qualitative study assessing the care received by pregnant patients receiving chiropractic adjustments revealed that the approach taken by chiropractors toward these patients is patient-centred rather than symptom-centred, which could account for the high proportion of study participants who expressed satisfaction with their care (Peterson *et al.* 2014).

Pregnancy-related benefits of chiropractic therapy include, but are not limited to, better symptoms, as it has been demonstrated that pregnant patients with low back or pelvic pain respond better to chiropractic therapy. Pregnancy-related back pain, pelvic pain and other discomforts can be lessened with chiropractic adjustments

(Peterson et al. 2014). Furthermore, pregnant patients who are treated by chiropractors who adopt a patient-centred approach, which may increase patient satisfaction (Peterson *et al.* 2014). Chiropractic therapy can ease labour and delivery (Bernard-Giglio 2021). Chiropractic care can enhance general health and wellness, which can result in a better pregnancy and healthier infant (Bernard-Giglio 2021).

5.4.3.2 Sub-Theme 3.2: Previous Interaction and Relationship with a Chiropractor

Of the 12 participants, 10 said they had previously seen a chiropractor; three of these individuals said they had attended a chiropractic appointment during a prior pregnancy, which was described in Chapter Four. The majority of participants mentioned the sub-theme of enduring connections with chiropractors, which is strongly related to the topics covered. Similarly, in theme 1, individuals expressed thankfulness for chiropractic care, and in sub-theme 1.1, participants talked about their past interactions and connections with their chiropractor.

Although very complicated, the idea of trust is essential to therapeutic relationships. Patients' actions and attitudes are influenced by trust and these include their propensity to seek medical attention, return for more sessions, disclose private information, and follow a treatment plan (Connell and Bainbridge 2020: 97). Research indicates that a positive correlation exists between trust in physicians and following outcomes of following treatment recommendations; being willing to refer a physician to others; feeling that care is helpful; improving self-reported health; staying under the same doctor's supervision; and refraining from getting second opinions (Connell and Bainbridge 2020: 97). Individuals who have a great deal of faith in their medical professionals indicate improved health behaviours, a reduction in symptoms, an improvement in life quality, and higher contentment with the course of care (Connell and Bainbridge 2020: 97).

A collaborative relationship characterised by information exchange, a professional and emotional connection, a partnership agreement, respect and honesty are what is meant by a patients' trust in their chiropractor (Connell and Bainbridge 2020: 97). Gaining insight into how chiropractors establish trust with their patients can help promote trust (Connell and Bainbridge 2020: 97).

The importance of the therapeutic alliance between the patient and the chiropractor is emphasised by Marthick-Hone *et al.* (2022) about providing chiropractic care to individuals who are disadvantaged. It emphasises how crucial results for patients were found to include the preservation and improvement of symptoms, sincere relationships with practitioners, and advantages related to mental health.

According to a study by Marthick-Hone *et al.* (2022), a positive therapeutic alliance between the patient and the practitioner is also essential to enablement and the high degree of enablement patients claim demonstrates the existence of real relationships that interviewees experienced. Furthermore, the results show that the environment and the connections created within it play a part in the advantages that individuals receive. Marthick-Hone *et al*. (2022) emphasise the beneficial effects of sincere connections and a therapeutic setting on the experiences and results of patients getting chiropractic therapy in a community clinic.

The majority of participants reported having enduring connections with their chiropractors; this sub-theme is highly related to the themes one, two, three and four described, which is consistent with the study's findings.

5.4.3.3 Sub-Theme 3.3: Experience of Pregnant Patient Adjustment, Therapeutic Modalities and Treatment Protocol

Chiropractic care, which includes spinal manipulative therapy, mobilisations, soft tissue therapy, advice on exercise and ergonomics and auxiliary therapies, is safe to receive during pregnancy. The results of this study revealed that 11 out of 12 participants had adjustments throughout their visits. Of the 12 participants, nine reported receiving soft tissue therapy during their visits, five reported receiving heat and fascial therapy, and five reported receiving dry needling. Even though TENS has been shown to be a safe method for both mother and baby and can be used to reduce pain during childbirth (Fait *et al.* 2022: 1–21), just one participant in this study reported receiving auxiliary therapy during their visits, which adds more credence to the study by Fait *et al.* 2022: (1–21), that since there is now insufficient evidence, more clinical trials are required.

According to Sadr *et al* (2012), all the patients who were interviewed for a qualitative study on the treatment of pregnant patients with LBP and their chiropractors stated that they thought chiropractic care was helpful in relieving their symptoms of LBP.

Patients stated that receiving chiropractic care had reduced their overall pain and suffering and improved their mobility and ability to carry out everyday tasks (Sadr *et al* 2012). According to Peterson *et al.* (2014), a significant number of pregnant women with LBP or pelvic pain who get chiropractic care report symptom relief that is clinically significant, at all times up to a year.

The study by Bernard and Tuchin (2016:130) explains that routine prenatal consultation was part of obstetric care. Chiropractors offered manual treatment, stabilisation exercises and patient education as part of multimodal care. Comparing the combination of management to standard obstetric care alone, a noticeable improvement in pain and physical function was shown. Bernard and Tuchin (2016:130) find that many pregnant patients receiving chiropractic care reported clinically meaningful improvement at each interval of time examined, in an observational prospective cohort research study involving 115 participants. Evidence-based research in SMT and chiropractic care is starting to offer an alternate approach to treating back pain (Bernard and Tuchin 2016:130). Bernard and Tuchin's (2016: 130) study concluded that patient-reported outcomes were a good way to track improvements and record successful outcomes. After receiving regular obstetric treatment, in addition to chiropractic musculoskeletal management, the patients reported improvements in pain and functional movement.

Skarica's (2018: 134) study investigated how well manual spine therapy worked at minimising and getting rid of pregnancy-related symptoms. The findings indicate that manual therapy for the thoracic and cervical spines can effectively lessen the discomfort associated with pregnancy. While a small percentage of patients needed two or three manual sessions, most patients had immediate symptom relief. The majority of pregnant women in that study reported that their deliveries were simple and quick, with either full or partial outcomes. This study supports the previous notion by demonstrating a significant reduction in left and right cervical mobility in the pregnant subjects (Skarica 2018: 134).

5.4.4 Theme 4: Patient and Chiropractic Communication

The dialogue between patients and chiropractors is represented by theme 4. The first three themes and this theme are strongly related. Every participant said that their chiropractor provided them with a lot of comfort and clear explanations during

their appointment. The patients felt more at ease because the chiropractors gave them instructions during the session. This yielded a favourable result that satisfied theme 1 and had an impact that improved theme 2 (perception of safety and chiropractic care) and theme 3 (readiness to seek chiropractic care following treatment and patient satisfaction).

According to a study by Connell and Bainbridge (2020), information transmission in a healthcare setting can involve both verbal and non-verbal forms of communication and can be quite complex. During the interviews, the idea of communication was covered, and emphasis was made on listening to patients and establishing clear expectations. Patients can feel included through uninterrupted listening, which has been regarded as a way to build deep connections (Connell and Bainbridge 2020). All 12 study participants agreed that they had good contact with their chiropractors, supporting the aforementioned assertion.

As part of giving care and pointing out what to expect, according to Sadr *et al.* (2012), chiropractors typically place a strong emphasis on good communication with their patients. Some of the chiropractors gave a great deal of attention to educating their patients about pregnancy, especially in regard to the physical changes that occur during pregnancy or the different causes of their LBP symptoms (Sadr *et al.* 2012).

According to Connell and Bainbridge (2020), interactions with patients frequently entail educating them about their disease, the scope of practice of their practitioner, and the safety or procedural aspects of interventions. When asked if the chiropractor had explained their course of care and its objectives, every participant in this current study responded in the affirmative, which is consistent with the literature.

Linking theme 4 to theme 2, Connell and Bainbridge (2020) claim that chiropractors have an opportunity to comprehend patient expectations and reassure patients that they are in a safe environment through prompt and clear communication. Connell and Bainbridge (2020) continued by saying that crucial patient communication happens in settings other than the treatment area. In this study, participants mentioned that they contacted the reception staff to check if treatment was safe during pregnancy. The reception staff reassured them, and they made an appointment to see their chiropractor.

Connell and Bainbridge (2020) acknowledged the significance of non-verbal communication in the clinical encounter, even with the focus on verbal communication and listening. Given the personal nature of manual treatment, establishing rapport with patients can be facilitated by a handshake, a smile, and eye contact. More critically, it requires knowing when to touch a patient and when not to. Recognising body language can be a useful technique in patient interactions to gauge comfort levels (Connell and Bainbridge 2020). For instance, participants in sub-theme 2.2, precaution and communication during consultation, reported that they felt more at ease because their chiropractor had conversed to them the entire time.

5.4.4.1 Sub-Theme 4.1: Home Exercise or Additional Advice During Pregnancy

A majority of 10 participants indicated that their chiropractor had given them home instruction and advice and 11 participants confirmed that interventions, such as stretches, were performed during their consultation to manage their discomfort. According to Yuen *et al.* (2013), patients of chiropractors are regularly given food and nutritional advice.

Micronutrient supplementation as part of prenatal treatment may lessen maternal morbidity and mortality in two ways: directly by treating a pregnancy-related illness or indirectly by reducing the chance of difficulties during birth. However, the focus of research on the efficacy of supplementing programmes, particularly those pertaining to iron and folate, has typically been on the effects on baby outcomes, pre-term delivery, perinatal death and low birth weight (Yuen *et al.* 2013). According to the participants in the survey by Yuen *et al.* (2013), folic acid and multivitamins were the most often suggested dietary supplements for expectant patients. For instance, one study participant claimed that her chiropractor had given her dietary and shopping recommendations.

Based on the study by Weis *et al.* (2022), chiropractors should counsel patients who are pregnant or who have just given birth and have LBP or pelvic girdle pain on proper sleeping practices. It implies that patients ought to be motivated to sleep in a way that both supports and comforts their spines. Chiropractors could advise using pillows with support or other tools to enhance sleep and reduce pain. The intention is to give patients better sleep and pain management techniques during pregnancy

and in the postpartum period (Weis *et al.* 2022). The participants in this study reported that their chiropractors recommended them to get a pregnancy pillow and adopt a recommended sleeping posture.

Weis *et al.* (2022) state that pregnant women with LBP ought to be urged to maintain their level of activity and, if feasible, carry on with their regular activities. They should adhere to a personal fitness regimen as well. Additionally, it was said that physical treatment does not pose a risk to expecting moms. This type of pain relief is a straightforward way to improve quality of life with many benefits over the risks (Fait *et al.* 2022: 1–21). According to the study by Weis *et al.* (2022), chiropractors can advise pregnant women to use safe self-care interventions, such as at-home exercise and the use of pelvic belts or pillows to manage pregnancy-related back pain. Of the 12 participants, 11 of them agreed that their chiropractor had provided stretches and other home exercises.

5.4.5 Theme 5: Common Presenting Complaints Among Pregnant Women

As stated by Kesikburun *et al.* (2018), during pregnancy, the most common musculoskeletal problems were hip, hand-wrist, LBP and back pain. With the exception of elbow, shoulder and neck pain, the participants' musculoskeletal pain and symptoms increased in the third trimester compared to the first and second trimesters.

Supporting the literature discussed in Chapter Two, this study reveals that 10 out of the 12 participants complained of LBP, for which they sought treatment from their chiropractors. LBP is a common symptom experienced by pregnant women (Hawker *et al.* 2021:1–7; Kesikburun *et al.* 2018: 229–234). Of the 10 individuals who reported having LBP, six also reported having a history of LBP. According to the study by Onyemaechi *et al.* (2021), **Table 2.3** displays that 55.6% of individuals had mild LBP, 36.1% had moderate LBP, 7.2% had severe LBP and 1.1% had very severe LBP. In their study, Ramachandra *et al*. (2015) discover that the first trimester has a lower prevalence of LBP than the second and third trimesters. This is consistent with the finding that pregnancy-related LBP is made worse by the lumbosacral ligaments and joints becoming softer, as well as by higher levels of the hormones relaxin and progesterone (Ramachandra *et al*. 2015).

Only two individuals in this study reported having migraines, while five of the 12 participants in the study reported having neck pain. It has been reported by Sandoe and Lay (2019) that up to 25% of women in reproductive age have primary headache problems, such as tension-type headaches and migraines. A majority of 67% of pregnant women report an improvement in migraine symptoms, especially in the second and third trimesters (Sandoe and Lay 2019). However, due to hormonal swings, some women may experience migraines getting worse or develop new symptoms, such as new auras. It is challenging to determine the prevalence of secondary headache disorders during pregnancy since study designs vary (Sandoe and Lay 2019).

According to Ramachandra *et al*. (2015), upper back pain was only common during the third trimester. During postural evaluation, it was seen that four of the women who had reported this issue had kyphotic posture of the upper back. After more assessment, it was found that the women rarely used supportive brassiere underwear because they felt it would result in “tightness of chest”. Despite being at different stages of their pregnancies, three participants in the study all reported experiencing thoracic pain during their pregnancies. Of those three participants, two also reported having a diagnosed scoliosis and history of LBP.

In this study, carpal tunnel syndrome was reported by just one participant; however, in a study by Ramachandra *et al*. (2015), carpal tunnel syndrome was also reported to be the second most common musculoskeletal complaint during pregnancy, with lumbar pain being the most common. This is concerning since the hands play a crucial role in daily activities, particularly for women who must use them to care for their unborn child during pregnancy and the postpartum period. According to Ramachandra *et al*. (2015), the second trimester had a 9.3% prevalence of carpal tunnel syndrome and 5.1% during the third trimester.

5.4.5.1 Sub-Theme 5.1: History of Musculoskeletal Conditions

The six patients in this study reported low back discomfort, three reported neck pain, two reported headaches or migraines, two reported scoliosis and two reported pain in their extremities as prenatal musculoskeletal problems. Gaining weight and the gravid uterus’s expansion of the abdominal cavity all contribute to lumbar lordosis, lumbosacral stiffness, weakened core muscles, excessive hip flexion, cervical spine

protraction and depressed shoulder blades (Bernstein and Takoudes 2017: 144). These factors also increase the strain on the lumbar paraspinal muscles, especially when bearing weight. Pregnancy increases the likelihood of back discomfort for women due to these changes, as well as the known hyperlaxity of the sacroiliac joints and pubic symphysis (Bernstein and Takoudes 2017: 144). The largest risk factor is the course of pregnancy, but other risk factors are present as well, such as discomfort prior to conception, back pain during a prior pregnancy, and multiparity (Bernstein and Takoudes 2017: 144).

Dewan, Mummareddy, and Bonfield (2018) state that adolescent idiopathic scoliosis accounts for the great majority of cases of idiopathic scoliosis, which is the most frequent type of scoliosis. The great majority of adolescent idiopathic scoliosis patients (85%) are women and, hence, concerns about women's health are particularly pertinent in this illness (Dewan *et al.* 2018).

Congenital malformations progress very slowly over a protracted period, typically resulting in the patient's reaching adulthood during this time (Snetkov *et al.* 2020). Accordingly, the adult epidemiology of idiopathic scoliosis is substantially reflected in the epidemiology of the condition in adolescents (Snetkov *et al.* 2020). According to a study done in South Africa, Gauteng, on doulas' perceptions and knowledge of chiropractic treatment for pregnant women with lower back pain, 88.9% of doulas said they would highly likely or probably refer their clients to a chiropractor for scoliosis (Petersen 2012: 26).

5.4.5.2 Sub-Theme 5.2: Complications During Pregnancy

High uterine artery pressure was the only pregnancy complication that any of the participants reported experiencing. Although this study's inclusion criteria encompassed current pregnancies, one participant experienced difficulties from their first pregnancy, including PE and heartburn. Another participant stated that she believed she was at high risk because she had two miscarriages.

The application of Bayes' theorem to integrate the *a priori* risk from maternal features and medical history with the outcomes of various combinations of biophysical and biochemical tests at different points during pregnancy provides an effective screening method for PE (Andrietti *et al.* 2017: 221). The uterine artery pulsatility index (UtA-PI), mean arterial pressure (MAP) and serum placental growth factor

(PlGF) are useful indicators at 11 to 13 weeks and 19 to 24 weeks (Andrietti *et al.* 2017: 221).

Pre-eclampsia is a pregnancy-specific syndrome that often manifests as elevated blood pressure and proteinuria in pregnant women. It affects 3%–5% of pregnancies. One of the leading causes of maternal, foetal, and neonatal death is PE, particularly in low- and middle-income nations (Mol *et al.* 2015: 999). The International Society for the Study of Hypertension in Pregnancy (ISSHP) Mol *et al.* (2015: 999) modified the PE diagnostic criteria in 2014. PE, according to 18 ISSHP, is defined as *de novo* hypertension that manifests after 20 weeks of gestation in addition to proteinuria (>300 mg/day); other maternal organ dysfunction, such as renal insufficiency, liver involvement, neurological or haematological complications; uteroplacental dysfunction; or reduced foetal growth (Mol *et al.* 2015: 999).

5.5 SUMMARY OF THE CHAPTER

The study aimed to explore the attitudes and perceptions of pregnant women receiving chiropractic care in the eThekwini Municipality. The five themes that were identified after semi-structured interviews were: 1) Positivity towards chiropractic care, 2) Perception of chiropractic care and safety, 3) Readiness to seek chiropractic care after treatment and patient satisfaction, 4) Patient and chiropractor communication, and 5) Common presenting complaints.

Pregnant women often experience musculoskeletal conditions during pregnancy and chiropractic treatment is beneficial for treating these issues. Studies have found a connection between women's attitudes about CAM and their visits to chiropractors. For specific pregnancy-related health conditions, more pregnant women are turning to CAM therapy, such as chiropractic care.

Family and relation influences play a significant role in the awareness of chiropractic care among pregnant women. Social media and internet influences also play a role in the awareness of chiropractic treatments among pregnant women.

The study explored the perception of chiropractic care during pregnancy, focusing on women's attitudes and perceptions. Despite initial reluctance, most participants found chiropractic care helpful and beneficial. However, some participants faced misconceptions about the safety of chiropractic care during pregnancy.

The study also found that participants found it easy to communicate with their chiropractor, discussing their treatment plan and goals. The study emphasised the importance of healthcare practitioners' interactions with patients and communication styles in fostering personal development and self-efficacy. Chiropractors must constantly assess their behaviours, methods and communication strategies to improve their care and establish themselves as knowledgeable leaders.

The research's strengths, limitations and recommendations are provided in the chapter that follows, which also summarises the study's findings.

CHAPTER SIX

CONCLUSION

6.1 INTRODUCTION

The objectives of this study are restated and summarised in this chapter. The research questions suggested in the first chapter will be examined in this chapter. The benefits and shortcomings of the research will be examined in the conclusion, followed by the researcher's analysis and suggestions based on the findings.

6.2 SUMMARY OF THE STUDY

The current study conducted semi-structured interviews with pregnant women seeking chiropractic care in the eThekwini Municipality of South Africa. The aim of the study was to explore how the women perceived chiropractic care, how they interacted with their chiropractors, communication with their chiropractor, and common presenting complaints.

This thesis began with an introduction that contextualised the research problem and described the goals and objectives of the investigation. The introduction also offered an overview of the literature on the subject, emphasising the need for more research on the effects of pregnancy on the musculoskeletal system.

A thorough overview of the literature on the physiological effects of pregnancy on the musculoskeletal system was given in Chapter Two. The chapter covered the hormonal changes that take place during pregnancy, such as the production of progesterone and relaxin, which can cause more instability and laxity in the joints. The chapter also discussed the main musculoskeletal issues that pregnant women face, such as hip, pelvic, lumbar, neck and extremities discomfort.

The study's methodology, including participant recruiting, data collecting and data analysis was described in detail in Chapter Three. Semi-structured interviews were conducted with 12 pregnant women who were receiving chiropractic care. Tesch's theme analysis approach was utilised to examine the interview data.

The study's results were presented in Chapter Four. Regarding the women's perceptions of chiropractic care, their interactions with their chiropractors, and their

presenting concerns, the study found five key themes, which were as follows: (1) Positivity towards chiropractic care, (2) Perception of chiropractic care and safety, (3) Readiness to seek chiropractic care after treatment and patient satisfaction, (4) Communication between the patient and chiropractor and (5) Common presenting complaints.

The study's conclusions and their implications for chiropractic therapy during pregnancy were presented in Chapter Five. The chapter offered insights for chiropractors who treat expectant patients, such as the value of open communication, the application of safe and efficient treatment methods and the requirement for emotional support.

All things considered, this study has offered insightful information about how pregnancy affects the musculoskeletal system and how chiropractic care can help treat musculoskeletal pain associated with pregnancy. The study has emphasised the value of emotional support, safe and efficient treatment methods and communication.

6.3 STRENGTHS OF THE STUDY

The study's overall worth is enhanced by several of its qualities. First, the collected data offer insightful information about how pregnant women perceive and react about chiropractic care. Limited qualitative research is available on this subject, especially in South Africa, making this an important field of study.

Second, the study's rigorous methodology, which included thematic analysis and semi-structured interviews, enabled a thorough investigation of the women's experiences with and opinions of chiropractic treatment.

Third, the study offers suggestions for chiropractors who treat expectant patients, emphasising the value of open communication, safe and efficient treatment methods, and emotional support. These suggestions have real-world applications for raising the standard of care given to expectant mothers.

Fourth, the research adds to the growing corpus of information regarding the physiological impacts of pregnancy on the musculoskeletal system. The literature review included in the dissertation offers a thorough summary of previous studies

on this subject and emphasises the need for more research on the effects of pregnancy on the musculoskeletal system.

6.4 REFLECTIONS OF THE STUDY

The study offers multiple perspectives on the methods and outcomes of the investigation. First, the study emphasises how crucial it is to conduct qualitative research in order to investigate pregnant women's attitudes and views regarding chiropractic care. The results of the study imply that qualitative research can offer insightful information about pregnant women's experiences that quantitative research can overlook.

Second, the study highlights how crucial it is for chiropractors and expectant patients to communicate. The results of the study indicate that good communication can enhance patient outcomes and satisfaction and that communication skills should be given priority in chiropractic education and practice.

Third, the study emphasises the need for further investigation into the effects of pregnancy on the musculoskeletal system and the function of chiropractic adjustments in the treatment of musculoskeletal discomfort associated with pregnancy. The results of the study indicate that more extensive research is required to determine the long-term benefits of chiropractic care for musculoskeletal discomfort associated with pregnancy. These studies should also include control groups.

Ultimately, the study offers suggestions for chiropractors who treat expectant patients, stressing the value of utilising safe and efficient treatment methods, offering emotional support, and cooperating with other medical professionals. These suggestions emphasise the value of a patient-centred approach to healthcare and have real-world consequences for raising the standard of care given to expectant mothers.

6.5 LIMITATIONS OF THE STUDY

The study addresses several issues that need to be considered when evaluating the results. A constraint of this study is its limited sample population, as only expectant mothers were undergoing chiropractic care. This restricts the findings' applicability to other groups of expectant mothers who might not be getting chiropractic care.

The study's potential for selection bias stems from the fact that it only included individuals who were already getting chiropractic care. This might have led to a sample of pregnant women who were more likely to see chiropractic care favourably and might not be typical of the larger community of pregnant women.

The study's bias in omitting patient demographic and socioeconomic status data is another limitation. In contrast, one participant who visited the DUT Chiropractic Day Clinic stated that she was seeking care from a South African public hospital; however, this information was not included in the study interview. This resulted in selection bias because pregnant women seeking chiropractic care typically can afford private healthcare.

Lastly, the fact that the study was limited to the eThekwini Municipality in South Africa may have limited the applicability of the results in other contexts.

6.6 CONCLUSION

In summary, the research has provided valuable insights into the attitudes of expectant mothers toward chiropractic adjustments, highlighting the importance of emotional support, safe and effective techniques and clear communication. The findings have emphasised the need for additional research on the effects of pregnancy on the musculoskeletal system and the potential benefits of chiropractic care in treating pregnancy-related musculoskeletal discomfort. The recommendations made by the study have emphasised the need of a patient-centred approach to healthcare and have practical implications for improving the quality of treatment provided to pregnant mothers.

REFERENCES

Abutabenjeh, S. and Jaradat, R. 2018. Clarification of research design, research methods and research methodology: A guide for public administration researchers and practitioners. *Teaching Public Administration*, 36(3): 238.

Alcantara, J., Alcantara, J. D. and Alcantara, J. 2015. The use of validated outcome measures in the chiropractic care of pregnant patients: A systematic review of the literature. *Complement Ther Clin Pract*, 21(2): 131-136. Available: https://doi.org/10.1016/j.ctcp.2015.01.003

Alcantara, J., Nazarenko, A. L., Ohm, J. and Alcantara, J. 2018. The use of the patient reported outcomes measurement information system and the Rand VSQ9 to measure the quality of life and visit-specific satisfaction of pregnant patients under chiropractic care utilizing the Webster technique. *J Altern Complement Med*, 24(1): 90–98.

Alcantara, J., Whetten, R., Emmanuel, E., Grace, S. and Myers, S. 2023. The chiropractic care of pregnant women: a scoping review of the literature. *Research square*, February: 1–38.

Andrietti, S., Carluccl, S., Wright, A., Wright, D. and Nicolaides, K. H. 2017. Repeat measurements of uterine artery pulsatility index, mean arterial pressure and serum placental growth factor at 12, 22 and 32 weeks in prediction of pre-eclampsia. *Ultrasound Obstet Gynecol*, 50: 221–227.

Artino, A.R., LaRochelle, J. S., Denzee, K. J. and Genhlbach, H. 2014. Developing questionnaires for educational research: AMEG. Guide No: 87. *Medical Teach*, 36(6): 436–424.

Beliveau, P. J. H., Wong, J. J., Sutton, D. A., Simon, N. B., Bussieres, A. E., Mior, S. A. and French, S. D. 2017. The chiropractic profession: a scoping review of utilization rates, reason for seeking care, patients' profiles, and care provided. *Chiropractic & Manual Therapies*, 25(November): 35.

Bernard, M. and Tuchin, P. 2016. Chiropractic management of pregnancy-related lumbopelvic pain: A case study. *Journal of Chiropractic medicine*, 15: 12–133. Available: http://www.sciencedirect.com.dutlib.dut.ac.za/science/article

Bernard, M. and Tuchin, P. 2016.Chiropractic management of pregnancy-related lumbopelvic pain: A case study. *Journal of Chiropractic medicine*, 15(1556–3707): 12–133. Available: http://www.sciencedirect.com.dutlib.dut.ac.za/science/article

Bernard-Giglio, M. 2021. *Experiences of Australian pregnant women seeking chiropractic care for low back and pelvic girdle pain: A qualitative exploration*. Degree of Master of research, Macquarie University.

Bernard-Giglio, M., French, S. D., Myburgh, C. and de Lauca, K. 2022. Drivers, barriers, and response to care of Australian pregnant women seeking chiropractic care for low back and pelvic girdle pain: A qualitative case study. Research Square. *Chiropr Man Therap*, 31(1): 43. https://doi.org/10.1186/s12998-023-00516-x

Bernstein, C. and Takoudes, T. C. 2017. *Medical Problems During Pregnancy: A Comprehensive Clinical Guide*. Switzerland: Springer International Publishing.

Britwell, B., Hommond, L. and Puckering, C. 2015. Me and my Bump: An interpretative phenomenological analysis of the experiences of pregnancy for vulnerable women. *Clinical child psychology and psychiatry*, 20(2): 218–238.

Brown, B T. Bonello, R. Fernandez-Caamano, R. Eaton, S. Graham, P L. and Green, H. 2014. Consumer Characteristics and perceptions of chiropractic and chiropractic services in Australia: results from a cross-sectional survey. *Journal of Manipulative and Physiological Therapeutics*, 4(37): 219–229. Available: http://dx.doi.org/10.1016/j.jmpt.2014.01.001\7

Bustos, M., Venkataramanan, R. and Caritis, S. 2017. Nausea and vomiting of pregnancy – What's new? *Author manuscript*, 202(January): 62–72.

Cable. J. K and Grider. M. H. 2022. *Physiology, Progesterone*. Statpearls. Available: https://europepmc.org/article/nbk/nbk558960#free-full-text

Cernaro, V., Lacquaniti, A., Lupica, R., Buemi, A., Trimboli, D., Giorgianni, G., Bolignano, D. and Buemi, M. 2014. Relaxin: New Pathophysiological Aspects and Pharmacological Perspectives for an Old Protein. *Medicinal Research Reviews*, 34(1): 77–105.

Connell, G. and Bainbridge, L. 2020. Understanding how chiropractors build trust with patients: a mixed-methods study. *The journal of the Canadian chiropractic association*, 64(2): 97–108.

Conner, S, N, Trudell, M.S and Conner, C.A. 2021. Chiropractic Care for the Pregnant Body. Clinical obstetrics and gynaecology64(9): 602–610. Available: https://doi.org/10.1097/GRF.0000000000000621

Connor, J. P., Bernstein, C., Kilgore, K., Rist, P.M., Osypuik, K., Kowalski, M. and Wayne, P M. 2021. Perceptions of chiropractic care among women with migraine: a qualitative substudy using a grounded theory framework. *Journal of manipulation and physiological therapeutics*, 44(2): 156–162

Corcoran, K. L., Dunn, A. S., Formolo, L. R. and Beehler, G. P. 2017. Chiropractic management for US female veterans with lowback pain: A retrospective study of clinical outcomes. *Journal of manipulation and physiological therapeutics*, 573–578.

Creswell, J. W. 2013. *Research design: Qualitative, quantitative, and mixed methods approach*. 4th edition. Los Angeles: Sage.

Crossman, A. 2020. An overview of qualitative research methods. Direct observation, interview, Participation, immersion, focus groups. *Thought Co*. Available: https://www.thoughtco.com/qualitative-resaerch-methods-3026555

Curnow, E, and Geraghty, S. 2019. Chiropractic care of the pregnant woman and neonate. *British Journal of Midwifery*, 27(5): 284–287. Available: https://doi.org/10.12968/bjom.2019.27.5.284

Dehghan, F., Haerian, B.S., Muniandy, S., Yusof, A., Dragoo, J. L. and Salleh, N. 2014. The effect of relaxin on the musculoskeletal system. *Scandinavian journal of medicine & science in sports*, 24: e220–e229.

Dewan, M. C., Mummareddy, N. and Bonfield, C. 2017. The influence of pregnancy on women with adolescent idiopathic scoliosis. *Eur spine J*, 27(2): 253–263.

Dudovskiy, J. 2016. *Purposive sampling*. [Online]. Available: https://www.research-methodology.net/sampling/in-primary-data-collection/purposive-sampling [Accessed 30 July 2017]

Elfil, M. and Negid, A. 2017. Sampling methods in clinical research, an educational review. Emergency, 5(1): 52.

Evenson, K. R., Barakat, R., Brown, W. J., Dargent-Molina, P., Haruna, M., Mikkeisen, E. M., Mottola, M. F. Owe, K. M. and Rousham, E. K. 2014. Guidelines for physical activity during pregnancy: Comparisons from around the world. *AM J Lifestyle Med*, 8(2):102–121.

Fiat, F., Merghes, P. E., Scurtu, A. D., Guta, B. A., Dehelean, C. A., Varan, N. and Bernad, E. 2020. The Main Changes in Pregnancy—Therapeutic Approach to Musculoskeletal Pain. *Medicina*, 58(1115): 1–21. Available: https://doi.org/10.3390/medicina58081115

Frawley, J. Sibbritt, D., Broom, A., Gallois, C., Steel, A. and Adams, J. 2016. Complementary and alternative medicine practitioner use prior to pregnancy predicts use during pregnancy. *Women & Health*, 56(8): 926–939. Available: https://doi.org/10.1080/03630242.2016.1145170

Frederick, T. M., Varatharajullu, D. and Sibiya, M.N. 2020. Perceptions of New Graduate Chiropractors in Their Management of Paediatric Patients in the eThekwini Municipality. *Global Journal of Health Science*, 12(3): 32–42.

Gharib, M. N. E. L. and Aglan, A. D. 2018. Changes in Skeletal System during Pregnancy. *Int Gyn & Women's Health*, 2(1): 121–122.

Gharib, M. N., and Aglan, A. D. 2018. Changes in Skeletal System during Pregnancy. *Interventions in Gynecology and Women's Healthcare*, 121–123

Gliedt, J. A., Schneider, M. J., Evans, M. W., King, J. and Eubanks, J. E. 2017. The biopsychosocial model and chiropractic: a commentary with recommendations for the chiropractic profession. *Chiropractic & manual therapies*, 25(16): 1–9.

Globe, G., Farabaugh, R J., Hawk, C., Morris, C., Baker, G., Whalen, W M., Walters, S., Kaeser, M., Dehen, M. and Augat, T. 2016. Clinical practice guideline: chiropractic care for low back pain. *Journal of manipulation and physiological therapeutics*. 1–20.

Haddox, A. G., Hausselle, J. and Azoug, A. 2020. Changes in segmental mass and inertia during pregnancy: A musculoskeletal model of the pregnant woman. *Gait & Posture*, 76: 389–395.

Hart, J. 2016. Analysis and Adjustment of Vertebral Subluxation as a Separate and Distinct Identity for the Chiropractic Profession: A Commentary. *Chiropractic Humanities*, 23(1): 48.

Hawker, C., O'Connor, L., Reddy, P., Haffejee, F., Sibiya, M.N., Borg, D., Ghuman, S., Ngxongo, T.S.P. and Govender, N. 2021. Back pain in pregnant women attending an antenatal clinic in KwaZulu-Natal, South Africa. *Health SA Gesondheid*, 26(1507): 1–7. Available: https://doi.org/10.4102/hsag.v26i0.1507

Haycraft, A. L. 2018. Pregnancy and the opioid epidemic. *Journal of Psychosocial nursing and Mental health service*, 56(3): 19–23.

Hensel, K. L., Carnes, M. S. and Stoll, S. T. 2016. Pregnancy research on Osteopathic manipulation optimizing treatment effects: The PROMOTE study protocol. *J Am Osteopath Assoc*, 116(11): 716–724.

Holongwane, T M., Bozkurt, B., Barreix M C., Pattinson, R., Gulmezoglu, M., Vannevel, V. and Tuncalp, O. 2021. Implementing antenatal care recommendation. *Bull World Health Organ*, 99: 220–227. https://doi.org/10.2471%2FBLT.20.278945

Homola, S. 2016. Chiropractic: a summary of concerns. The Hippocratic post. Available: https://www.academia.edu/103817211/Chiropractic_A_Summary_of_Concerns

Houghton, C., Casey, D., Shaw, D. and Murphy, K. 2013. Rigour in qualitative case study research. Nurse Researcher, 20(4): 12–17.

Hunter, D., McCallum, J. and Howes, D. 2019. Defining Exploratory-Descriptive Qualitative (EDQ) research and considering its application to healthcare. *Journal of Nursing and Health Care*, 4(1): 1–8.

Irland, M. L. and Ot., S.M. 2000. The effects of pregnancy on the musculoskeletal system. *Clinical orthopadics and related research*. 372: 169–179.

Ismail, F., Pretorius, M., Peterson, C. and Yelverton, C. 2023. The prevalence of chiropractic-related terminology on South African chiropractors' webpages: a cross-sectional study. *Chiropractic & manual therapies*, 31(11): 1–10.

Ivanova, D., Bishop, F. L., Newell, D., Field, J. and Walsh, M. 2022. Mixed methods systematic review of the literature base exploring working alliance in the chiropractic profession. *Chiropractic & manual therapies*, 30(35): 1–19.

Jamali, H. R. 2018. Does research using qualitative methods (grounded theory, ethnography, and phenomenology) have more impact? *Elsevier*, September: 201–207.

Johnson, C. D. 2020. Chiropractic Day: A Historical Review of a Day Worth Celebrating. *Journal of Chiropractic Humanities*, 1–7. Available: https://doi.org/10.1016/j.echu.2020.11.001

Johson, C. D. and Green, B. N. 2021. Looking back at the lawsuit that transformed the chiropractic profession part 3: Chiropractic growth. *J Chiropr Educ*, 35(S1): 45–54.

Jones, M. L. 2007. Using software to analyse qualitative data. *Malaysian Journal of Qualitative Research*, 1(1):64–76.

Kazma, J.M., van den Anker, J., Allegaert, K., Dallmann, A. and Ahmadzia, H. K. 2020. Anatomical and physiological alterations of pregnancy. *J Pharmacokinet Pharmacodyn*, 47(4): 271–285. Available: https://doi.org/10.1007/s10928-020-09677-1

Kesikburun, S., Güzelküçük, Ü., Fidan, U., Demir, Y., Ergün, A. and Tan, A. K. 2018. Musculoskeletal pain and symptoms in pregnancy: a descriptive study. *Therapeutic Advances Musculoskeletal Disease*, 10(12): 229–234.

Khorson, R., Hawk, C., Lisi, A.J. and Kizhakkeveettil, A. 2009. Manipulative therapy for pregnancy and related conditions: a systematic review. *Obstetrical & gynecological survey*, 64(6): 416–426. Available: https://doi.org/10.1097/ogx.0b013e31819f9ddf

Korstjens, I. and Moser, A. 2017. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European journal of general practice*, 24(1).

Kumar, P. and Magon, N. 2012. Hormones in pregnancy. *Nigerian Medical Journal*, 53(4): 179–183.

LeFebvre, R., Peterson, D. and Haas, M. 2013. Evidence-Based Practice and Chiropractic care. *Journal of Evidence-Based Complementary & Alternative Medicine*, 18(1):76.

Li, N., Liu, E., Guo, J., Pan, L., Li, B., Wang, P., Liu, J., Wang, Y., Liu, G., Baccarelli, A. A., Hou, L. and Hu, G. 2013. Maternal Prepregnancy Body Mass Index and Gestational Weight Gain on Pregnancy Outcomes. *PLoS ONE*, 18(12): 1–6.

Lincetto, O., Mothebesoane-Anoh, S., Gomez, P. and Munjanja, S. 2012. *Opportunities for Africa's Newborns*. Antenatal Care. https://www.healthynewbornnetwork.org/hnn-content/uploads/Opportunities-for-Africa-s-Newborns-Book.pdf

LoMauro, A. and Aliverti, A. 2015. Respiratory physiology of pregnancy. *Physiology masterclass*, 11(4): 297–301.

Lugg, W. 2022. The biopsychosocial model, history, controversy and Engel. *Australasian psychiatry*, 30(1): 55–59.

Lynch, M. M., Squiers, L. B., Kosa, K. M., Dolina, S., Read, J. G., Broussard, C. S., Frey, M. T., Polen, K. N., Lind, J. N., Gilboa, S. M. and Biermann, J. 2018. Making Decisions About Medication Use During Pregnancy: Implications for Communication Strategies, 22(1): 92–100.

Marshall, S. A., Senadheera, S. N., Parry, L. J. and Girling, J. E. 2017. The Role of Relaxin in Normal and Abnormal Uterine Function During the Menstrual Cycle and Early Pregnancy. *Reproductive Sciences*, 24(3): 342–354.

Marthick-Hone, D., Doyle, A. K., Kennedy, G. A., Vindigni, D. and Polus, B. I. 2022. The importance of setting and therapeutic relationships when delivering chiropractic care to those living with disadvantage. *Chiropractic & manual therapies*, 30(47): 1–14.

Mol, B. W. J., Roberts, C. T., Thangaratinam, S. Magee, L. A., de Groot, C. J. M. and Hofmeyr, G. J. 2016. Pre-eclampsia. *Lancet*, 387: 999–101.

Morse, J. M. 2016. Underlying Ethnography. *Sage journals*, 26(7): 875–876.

Nair, R. R., Verma, P. and Singh, K. 2017. Immune-endocrine crosstalk during pregnancy. *General and Comparative Endocrinology*, 242(March): 18–23.

Needham, B. R. 2012. The truth about patient experience: what we can learn from other industries, and how three Ps can improve health outcomes, strengthen brands, and delight customers. *J Health Mana*, 57:255–63. Available: https://doi.org/10.1097/00115514-201207000-00006

Oben, P. 2020. Understanding patient experience: A conceptual framework. *Journal of patient experience*, 7(6): 906–910. Available: https://doi.org/10.1177/2374373520951672

Onyemaechi, N. O., Chigbu, C. O., Ugwu, E. O., Omoke, N. I., Lasebikan, O. A. and Ozumba, B. C. 2012. Prevalence and Risk Factors Associated with Musculoskeletal Disorders Among Pregnant Women in Enugu Nigeria. *Nigerian Journal of Clinical Practice,*1573–1579.

Ortlipp, M. 2008. Keeping and using reflective journals in the qualitative research process. *HCAS Journals*, 13(4).

Petersen, K. 2012. *Knowledge and perceptions of Doulas to chiropractic treatment of pregnant women with low back pain in Gauteng*. Masters Dissertation, University of Johannesburg.

Peterson, C. K., Mühlemann, D. and Humphreys, B. K. 2014. Outcomes of pregnant patients with low back pain undergoing chiropractic treatment: a prospective cohort study with short term, medium term and 1 year follow-up. *Chiropractic & manual therapies*, 22(15): 1–7.

Phillippi, J. and Lauderdale, J. 2017. A guide to field notes for qualitative research: context and conversation. *Sage Journals*, 28(3).

Ramachandra, P., Maiya, A. G., Kumar, P. and Kamath, A. 2015. Prevalence of musculoskeletal dysfunction among Indian pregnant women. *J. Pregnancy*, (January).

Republic of South Africa. (2013). *The Protection of Personal Information Act 4 of 2013*. https://www.gov.za/documents/protection-personal-information-act

Ribeiro, A. P., João, S. M. A. and Sacco, I. C. N. 2013. Static and dynamic biomechanical adaptations of the lower limbs and gait pattern changes during pregnancy. *Women's Health*, 9(1), 99–108.

Sadr, S., Allah-Abad, N. P. and Stuber, K. J. 2012. The treatment experience of patients with low back pain during pregnancy and their chiropractors: a qualitative study. *Chiropractic and Manual Therapies*, 20(32):1–8.

Sandoe, C. H. and Lay, C. 2019. Secondary Headache during pregnancy: when to worry. *Current neurology and neuroscience reports*, 19: 1–8.

Saunders, B. S. J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C. 2017. Saturation in qualitative research: Exploring its conceptualization and operationalization. [Online]. Available at: https://link.springer.com/article/10.1007/511135-017-0574-8#citeas [Accessed 6 January 2018].

Schuijt, M. P., Sweep, C. G. J., van der Steen, R., Olthaar, A. J., N M M L Stikkelbroeck, N. M. M. L., Ross, H. A. and van Herwaarden, A. E. 2019. Validity of free testosterone calculation in pregnant women. *Endocrine connections*, 8(6): 672–679.

Schumacher, A., Costa, S. D. and Zenclussen, A.C. 2014. Endocrine factors modulating immune responses in pregnancy. *Frontiers in Immunology*, 5(196): 1–8.

Shagana, J. A., Dhanraj, M., Jain, A. R. and Nirosa, T. 2018. Physiological changes in pregnancy. *Drug intervention today*, 10(8): !594–1597.

Sharp, D., Lorenc, A., Morris, R., Feder, G., Little, P., Hollinghurst, S., Mercer, S.W. and MacPherson, H. 2018. Complementary medicine use, views, and experiences: a national survey in England. *British Journal of General Practice Open*. https://bjgpopen.org/content/2/4/bjgpopen18X101614

Shenton, A. K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, 22(2): 63–75.

Sheraton, A., Streckfuss, J. and Grace, S. 2018. Experiences of pregnant women receiving osteopathic care. *Journal of Bodywork and movement therapies*, 22(2): 321–327.

Skarica, B. 2018. Effectiveness of manual treatment on pregnancy symptoms: usefulness of manual treatment in treating pregnancy symptoms. Medical Archives, 72(2): 134.

Snetkov, A. A., Kolesov, S. V., Gorbatyuk, D. S. Panteleyev, A. A., Shvets, V. V., Eskin, N. A. and Fedotov, E. A. 2020. Pregnancy and delivery in patients with idiopathic scoliosis. *Hirurgia Pozvonochnika*, 17(2): 15–22.

Soma-Pillay, P., Nelson-Piercy, C., Tolppanen, H. and Mebazaa, A. 2016. Physiological changes in pregnancy. *Cardiovascular journal of Africa*, 27: 89–94.

Steel, A., Adams, J., Sibbritt, D., Broom, A., Gallois, C. and Frawley, J. 2014. Determinants of women consulting with a complementary and alternative medicine practitioner for pregnancy related health conditions. *Women & Health*, 54(2): 127–144.

Stilwell, P. and Harman, K. 2017. Contemporary biopsychosocial exercise prescription of chronic low back pain: questioning core stability programs and considering context. *The journal of the Canadian chiropractic association*, 61(1): 6–7.

Tan, E. K. and Tan, E.L. 2013. Alterations in physiology and anatomy during pregnancy. *Best Practice & Research Clinical Obstetrics and Gynaecology*, 27: 791–802.

Tesch, R. 1990. *Qualitative research analysis types and software tools.* Falmer press.

Thipanyane, M. P., Nomatshila, S. C., Oladimeji, O. and Musarurwa, H. 2022. Perceptions of Pregnant Women on Traditional Health Practices in a Rural Setting in South Africa. *IJERPH,* 19(7): 1–14.

Vallone, S., Hawk, C. and Killinger, L. Z. 2017. Chiropractic care for special populations: pregnant women, children, and older adults. *BJM*, 27(5). https://doi.org/10.12968/bjom.2019.27.5.284

Varkey, B. 2020. Principles of clinical ethics andtheir application to practice. *PubMed,* 30(1): 17–28.

Weis, C. A., Pohlman, K., Barrett, J., Clinton, S., da Silva-Oolup, S., Draper, C., Lee, J., Kumar, R., O'Beirne, M., Stuber, K. and Hawk, C. 2022. Best-Practice Recommendations for Chiropractic Care for Pregnant and Postpartum

Patients: Results of a Consensus Process. *Journal of Manipulative and Physiological Therapeutics*, (September): 469–487.

Williams, Y. 2014. *What is perception in psychology?* [Online]. Available at: https://study.com/academy/lesson/what-is-perception-in-psychology-definition-theory-quiz.html

World Health Organisation. 2005. WHO guidelines on basic training and safety in chiropractic. Geneva.

Yuen, T., Wells, K., Benoit, S., Yohanathan, S., Capelletti, L., Stuber, K. 2013. Therapeutic interventions employed by Greater Toronto Area chiropractors on pregnant patients: results of a cross-sectional online survey. *J Can Chiropr Assoc*, 57(2): 132–142.

APPENDICES

APPENDIX A: INTERVIEW GUIDE

Interviews will be approximately thirty minutes long.

In order to make the participant feel at ease and comfortable enough to be open and honest, the researcher introduces herself and strikes up a relationship through casual chat. A description of the study will be given, and questions are welcome. To verify that the participant satisfies the requirements for the study, the researcher will specify the inclusion and exclusion criteria. Before the interview may start, the interviewee must sign the consent form and grant permission for it to be digitally voice recorded.

Interview questions with prompts

1. What were your attitudes/thoughts towards chiropractic care prior to your chiropractic treatment?
    - In your own words, how did you find out of chiropractic care during pregnancy?
    - Did your gynaecologist or general practitioner refer you?
    - Did you find out about chiropractic care during pregnancy from the internet, friends or family.
2. How would you perceive chiropractic care during your pregnancy?
    - In your own words what is your understanding of chiropractic care during pregnancy?
    - In your own words would you say chiropractic care is safe and efficaciously during pregnancy? Did you find it easy to understand and communicate with your chiropractor?
    - Did your chiropractor explain your treatment and treatment goals clearly?
3. In your own words how did you feel about chiropractic care during pregnancy?
4. How many months pregnant were you when you first sought chiropractic care?
5. Are you a first-time mom?
    - If not, did you receive chiropractic care for your pervious pregnancy.
    - If yes, how many months pregnant were you when you sought chiropractic care during your pregnancy?
    - How many children do you have?
    - Were any of your pregnancies complicated?
6. Did you receive chiropractic care prior to your pregnancy?
    - What was your presenting complaint?

- Did you visit your chiropractor frequently?

7. During your pregnancy, how frequently did you visit your chiropractor?
8. What was your presenting compliant?
9. In your own words how would you describe your treatment experience?
    - What did your treatment consist of? (e.g. adjustments, mobilisations or soft tissue therapy)
    - Where any therapeutic modalities used to manage your pain?
    - Where there any other interventions used to manage pain, such as stretches?
    - Did your chiropractor give you any home education or exercises?

Interview prompts - Tell me more about that, how so, and what do you mean when you say "XYZ," among other interview questions.

After the interview is over, the researcher will thank the interviewee for their time and remind them about member checking so that the contents of the transcript can be verified.

Isithasiselo A: Umhlahlandlela Wezingxoxo

Izingxoxo zizothatha cishe imizuzu engamashumi amathathu ubude.

Ukuze enze umhlanganyeli azizwe ekhululekile futhi enethezekile ngokwanele ukuba avuleleke futhi athembeke, umcwaningi uzethula futhi aqale ubudlelwano ngengxoxo nje. Incazelo yocwaningo izonikezwa, futhi imibuzo yamukelekile. Ukuqinisekisa ukuthi umhlanganyeli uyazanelisa izimfuneko zocwaningo, umcwaningi uzocacisa imibandela yokufakwa neyokukhishwa. Ngaphambi kokuthi inhlolokhono iqale, lowo ozoxoxwa naye kufanele asayine ifomu lemvume futhi anikeze imvume yokuthi liqoshwe izwi ngokwedijithali.

Imibuzo yenhlolokhono enezinkinga:

1. Yayiyini imibono/imicabango yakho ngokunakekelwa kwe-chiropractic ngaphambi kokwelashwa kwakho kwe-chiropractic?
    - Ngamazwi akho, uthole kanjani ukunakekelwa kwe-chiropractic ngesikhathi sokukhulelwa?
    - Ingabe uke wakutshela udokotela wezifo zabesifazane noma udokotela ojwayelekile?
    - Ingabe uthole mayelana nokunakekelwa kwe-chiropractic ngesikhathi sokukhulelwa kusuka ku-inthanethi, abangani noma umndeni.
2. Ungakubona kanjani ukunakekelwa kwe-chiropractic phakathi nokukhulelwa kwakho?
    - Ngamazwi akho kuyini ukuqonda kwakho ngokunakekelwa kwe-chiropractic ngesikhathi sokukhulelwa?
    - Ngamazwi akho ungathi ukunakekelwa kwe-chiropractic kuphephile futhi kuyasebenza ngesikhathi sokukhulelwa? Ingabe ukuthole kulula ukukuqonda nokuxhumana ne-chiropractor yakho?
    - Ingabe i-chiropractor yakho ikuchaze ngokucacile imigomo yakho yokwelashwa nokwelashwa?
3. Ngamazwi akho wazizwa kanjani ngokunakekelwa kwe-chiropractic

ngesikhathi sokukhulelwa?

4. Unezinyanga ezingaki ukhulelwe lapho uqala ukufuna ukunakekelwa kwe-chiropractic?
5. Ngabe ungumama okokuqala?
    - Uma kungenjalo, uthole ukunakekelwa kwe-chiropractic ngokukhulelwa kwakho okuqhubekayo.
    - Uma kunjalo, unezinyanga ezingaki ukhulelwe lapho ufuna ukunakekelwa kwe-chiropractic ngesikhathi ukhulelwe?
    - Unezingane ezingaki?
    - Ingabe ukukhulelwa kwakho kwakuyinkinga noma kwake kwaba yinkinga na?
6. Ingabe uthole ukunakekelwa kwe-chiropractic ngaphambi kokukhulelwa kwakho?
    - Siyini isikhalazo sakho?
    - Ingabe uye wavakashela udokotela wakho wezifo zamathambo njalo?
7. Phakathi nokukhulelwa kwakho, uvakashele kaningi kangakanani udokotela wakho we-chiropractor?
8. Ikuphi ukuthobela kwakho?
9. Ngawakho amazwi ungasichaza kanjani isipiliyoni sakho sokwelashwa?
    - Bekuhlanganisani ukwelashwa kwakho? (isb. ukulungisa, ukuhlanganisa noma ukwelashwa kwezicubu ezithambile)
    - Lapho noma yiziphi izindlela zokwelapha ezisetshenziselwa ukuphatha ubuhlungu bakho?
    - Lapho kukhona okunye ukungenelela okusetshenziselwa ukuphatha ubuhlungu, njengokunwebeka?
    - Ingabe udokotela wakho we-chiropractor ukunikeze imfundo yasekhaya noma ukuzivocavoca?

Ukwaziswa kwengxoxo - Ngitshele okwengeziwe ngalokho, kanjani, futhi usho ukuthini uma uthi “XYZ,” phakathi kweminye imibuzo yenhlolokhono.

Ngemva kokuba inhlolokhono isiphelile, umcwaningi uzobonga lowo oxoxwa naye ngesikhathi sakhe futhi amkhumbuze ngokubheka kwamalungu ukuze okuqukethwe okulotshiwe kuqinisekiswe.

APPENDIX B: LETTER OF INFORMATION

LETTER OF INFORMATION

Dear Participant

I am a Chiropractic student at DUT doing research for my Master's degree.

I would like to invite you to participate in the research.

Title of the Research Study: Attitudes and perceptions of chiropractic care among pregnant women of the eThekwini Municipality: A qualitative study

Principal Investigator/s/researcher: Sumeshni Perumal, M. Tech Chiropractic

Co-Investigator/s/supervisor/s: Dr Desiree Varatharajullu, PhD: Health Sciences; M.Tech: Chiropractic; Adv Dip: Business Administration

Brief Introduction and Purpose of the Study: Although pregnancy is a joyful time in a woman's life, it is often accompanied by its own set of challenges, such as musculoskeletal problems. A common symptom endured by pregnant women is low back pain. Pregnant women suffer from various musculoskeletal problems, along the lines of extremity pain, neck, thoracic, pelvic and hip pain.

The World Health Organization (WHO) describes chiropractic as a health profession that treats the musculoskeletal system and the effect it has on the function of the nervous system and general health.

Although there is emerging evidence that pregnant women commonly seek chiropractic care, the attitudes and perceptions of these women in the eThekwini Municipality have not yet been investigated.

The aim of the study is to explore the attitudes and perceptions of pregnant women receiving chiropractic care in the eThekwini Municipality.

What is Research -Research is a systematic search or enquiry for generalised new knowledge.

The eThekwini Municipality's pregnant residents who seek Chiropractic care are the subject of this study. You are requested to partake in this study. You will be questioned on a number of topics related to your chiropractic care if you decide to participate. You are encouraged to ask as many questions as you wish because it is important that you understand the study. You are entitled to discuss the study with

your family and under no obligations to commit at this stage, for this purpose, a copy of the letter of Information is given to you to take home.

Outline of the Procedures: Before beginning the interview, the researcher will outline the inclusion and exclusion criteria to make sure you meet the requirements. After agreeing to participate in the study, you will be asked to sign a consent form authorising the researcher to use a digital voice recorder prior to the interview. The interview will take place in accordance with a predetermined interview schedule and locations. You will be requested to answer a series of questions relating to the attitudes and perceptions while receiving chiropractic care. The interview will be approximately thirty minutes long. The researcher will enter the interview's transcript into a Microsoft document after it is finished. To help you confirm the information from the interview, a transcript will be given to you.

Risks or Discomforts to the Participant: There is no risk or discomfort to you as a participant.

Explain to the participant the reasons he/she may be withdraw from the Study: if you feel uncomfortable during interview and do not agree with the transcribed document of the interview. You can withdraw from this study without experiencing any negative effects.

Benefits: The findings of this study will help the chiropractic profession improve protocols for treatment, interaction, and patient communication between practitioner and patient

Remuneration: none

Costs of the Study: There are no cost involved for you as a participant.

Confidentiality: Information that is kept private from all parties besides the researcher and the supervisors is referred to as confidential. By using pseudonyms, your name will remain hidden from the readers. The researchers will also protect confidentiality by keeping the your identity private. It must be concealed how the remarks are connected to particular participants. Additionally, you will be made aware of the confidentiality restrictions throughout the study.

Results: the research will be published and made available at the Durban University of Technology Library thesis layout once completed**.**

Research-related Injury: none to be expected

Storage of all electronic and hard copies including tape recordings: The researcher will be the only one with access to the password-protected laptop where the transcripts and recordings of the interviews are kept. These will be downloaded, saved on a password-protected flash drive, and kept with all other research files in the chiropractic department for five years. After that, all electronic data will be removed, and paper files will be shredded and thrown away.

Persons to contact in the Event of Any Problems or Queries: Supervisor - Dr Desiree Varatharajullu on 031 373 2533, Please contact the researcher on 065 948 3213, or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support MS V Govender on 031 373 2577 or researchdirector@dut.ac.za.

ISITHASISELO B

INCWADI YOLWAZI

Isihloko Socwaningo Locwaningo: Izimo kanye nemibono yokunakekelwa kwe-chiropractic phakathi kwabesifazane abakhulelwe bakamasipala waseThekwini: Ucwaningo lwekhwalithi

Umphenyi/abaphenyi/abaqondisi: Sumeshni Perumal, M. Tech Chiropractic

Umphenyi/abaphenyi/abaqondisi Dr Desiree Varatharajullu, PhD: Health Sciences; M.Tech: Chiropractic; Adv Dip: Business Administration

Isingeniso Esifushane Nenjongo Yesifundo: Nakuba ukukhulelwa kuyisikhathi esijabulisayo ekuphileni kowesifazane, ngokuvamile kuhambisana neqoqo lakho lezinselele, njengezinkinga zemisipha namathambo. Uphawu oluvamile olubekezelelwa abesifazane abakhulelwe ubuhlungu obuphansi emuva. Abesifazane abakhulelwe bahlushwa izinkinga ezihlukahlukene ze-musculoskeletal, eduze kwemigqa yobuhlungu bomkhawulo, intamo, i-thoracic, i-pelvic kanye nobuhlungu be-hip.

I-World Health Organization (WHO) ichaza i-chiropractic njengomsebenzi wezempilo ophatha uhlelo lwe-musculoskeletal kanye nomphumela onalo emsebenzini wesimiso sezinzwa kanye nempilo evamile.

Yize kunobufakazi obusafufusa bokuthi abesifazane abakhulelwe bavamise ukufuna usizo lwe-chiropractic, isimo sengqondo nemibono yalaba besifazane kumasipala weTheku bekungakaphenywa.

Inhloso yalolu cwaningo ukuhlola isimo sengqondo nemibono yabesifazane abakhulelwe abathola usizo lwe-chiropractic kumasipala weTheku.

Mhlanganyeli Othandekayo

Ngingumfundi weChiropractic e-DUT ngenza ucwaningo ngeziqu zami zeMasters.

Ngithanda ukukumema ukuthi ubambe iqhaza ocwaningweni.

Yini Ucwaningo - Ucwaningo wusesho oluhlelekile noma uphenyo lokuthola ulwazi olusha olujwayelekile.

Izakhamuzi ezikhulelwe zikaMasipala weTheku ezifuna ukunakekelwa kweChiropractic yizo ezidingidwa kulolu cwaningo. Uyacelwa ukuthi ubambe iqhaza kulolu cwaningo. Uzobuzwa ngezihloko eziningi ezihlobene nokunakekelwa kwakho kwe-chiropractic uma unquma ukubamba iqhaza. Uyakhuthazwa ukuthi ubuze imibuzo eminingi ngokuthanda kwakho ngoba kubalulekile ukuthi uluqonde ucwaningo. Unelungelo lokuxoxisana nomndeni wakho ngocwaningo futhi akukho ngaphansi kwesibopho sokuzibophezela kulesi sigaba, ngale njongo, ikhophi yencwadi yoLwazi unikezwa ukuthi uye nayo ekhaya.

Uhlaka Lwezinqubo: Ngaphambi kokuqala inhlolokhono, umcwaningi uzochaza indlela yokufaka nokukhipha ukuze aqinisekise ukuthi uyahlangabezana nezidingo. Ngemva kokuvuma ukubamba iqhaza ocwaningweni, uzocelwa ukuthi usayine ifomu lemvume eligunyaza umcwaningi ukuthi asebenzise isiqophi sezwi sedijithali ngaphambi kwenhlolokhono. Inhlolokhono izokwenzeka ngokuhambisana neshejuli yenhlolokhono enqunywe kusengaphambili kanye nezindawo. Uzocelwa ukuthi uphendule uchungechunge lwemibuzo ehlobene nezimo zengqondo nemibono ngenkathi uthola ukunakekelwa kwe-chiropractic. Inhlolokhono izothatha cishe imizuzu engamashumi amathathu ubude. Umcwaningi uzofaka okulotshiweyo kwenhlolokhono kudokhumenti ye-Microsoft ngemva kokuba isiqediwe. Ukukusiza ukuthi uqinisekise ulwazi oluvela kunhlolokhono, umbhalo uzonikezwa wena.

Izingozi noma Ukungaphatheki kahle Kobambe iqhaza: Abukho ubungozi noma ukungakhululeki kubahlanganyeli.

Chazela umhlanganyeli izizathu zokuthi angahoxa Ocwaningweni: uma ababambiqhaza bezizwa bengakhululekile ngesikhathi senhlolokhono futhi bengavumelani nedokhumenti ebhaliwe yenhlolokhono. Ungakwazi ukuhoxa kulolu cwaningo ngaphandle kokubhekana nemiphumela engemihle.

Izinzuzo: Okutholwe kulolu cwaningo kuzosiza umsebenzi we-chiropractic ukuthuthukisa izivumelwano zokwelapha, ukusebenzisana, nokuxhumana kwesiguli phakathi kodokotela nesiguli

Umholo: Awukho

Izindleko Zocwaningo: Azikho izindleko ezihilelekile kuwe njengomhlanganyeli.

Ukugcinwa okuyimfihlo: Ulwazi olugcinwe luyimfihlo kuzo zonke izinhlangothi ngaphandle komcwaningi nabaphathi lubizwa ngokuthi luyimfihlo. Ngokusebenzisa amagama-mbumbulu, amagama abahlanganyeli azohlala efihliwe kubafundi. Abacwaningi bazophinde bavikele ukugcinwa kuyimfihlo ngokugcina imininingwane yabahlanganyeli bocwaningo iyimfihlo. Kumele kufihlwe ukuthi ukuphawula kuxhunyaniswa kanjani nabahlanganyeli abathile. Ukwengeza, ababambiqhaza bazokwaziswa ngemikhawulo yobumfihlo kulo lonke ucwaningo.

Imiphumela: ucwaningo luzoshicilelwa futhi lwenziwe lutholakale e-Durban University of Technology Library isakhiwo uma seluqediwe**.**

Ukulimala okuhlobene nocwaningo: akukho okumele kulindelwe

Ukugcinwa kwawo wonke amakhophi e-electronic kanye nama-hard copies okuhlanganisa namakhasethi eqoshiwe: Umcwaningi nguyena kuphela ozokwazi ukufinyelela i-laptop evikelwe ngephasiwedi lapho kugcinwa khona imibhalo kanye nokuqoshwa kwezingxoxo. Lezi zizolandwa, zilondolozwe ku-flash drive evikelwe ngephasiwedi, futhi zigcinwe nawo wonke amanye amafayela ocwaningo emnyangweni we-chiropractic iminyaka emihlanu. Ngemva kwalokho, yonke idatha ye-elekthronikhi izokhishwa, futhi amafayela ephepha azosikwa futhi alahlwe.

Abantu ongathintwa uma kunezinkinga noma imibuzo: Umphathi - uDkt Desiree Varatharajullu ku-031 373 2533, Sicela uthinte umcwaningi ku-065 948 3213, noma umqondisi we-Institutional Research Ethics Administrator ku-031 373 2375 kuMqondisi Wezikhalazo. Ucwaningo kanye Nokwesekwa Kweziqu Zeziqu Eziphakeme MS V Govender ku-031 373 2577 noma researchdirector@dut.ac.za.

APPENDIX C: LETTER OF INFORMED CONSENT

Full Title of the Study: Attitudes and perceptions of chiropractic care among pregnant women of the eThekwini municipality: A qualitative study
Names of Researcher/s: Sumeshni Perumal
Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Sumeshni (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: 112/23,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
Full Name of Participant	Date	Time	Signature/Right Thumbprint

I, _____ (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____	_____	_____
Full Name of Researcher	Date	Signature
_____	_____	_____
Full Name of Witness (If applicable)	Date	Signature

_____
Full Name of Legal Guardian

IMVUME: Isithasiselo C

Isihloko Esigcwele Socwaningo: Izimo kanye nemibono yokunakekelwa kwe-chiropractic phakathi kwabesifazane abakhulelwe bakamasipala waseThekwini: Ucwaningo lwekhwalithi

Amagama Omcwaningi/Abacwaningi: Sumeshni Perumal

Isitatimende Sesivumelwano Sokuba Iqhaza Ocwaningweni Locwaningo:

- Ngalokhu ngiyaqinisekisa ukuthi ngaziswe umcwaningi, uSumeshni (igama lomcwaningi), mayelana nesimo, ukuziphatha, izinzuzo kanye nobungozi balolu cwaningo - Ukucaciswa Kwezimiso Zokucwaninga inombolo: _____,
- Ngiphinde ngathola, ngifunde futhi ngaqonda ulwazi olubhalwe ngenhla (Incwadi Yombambiqhaza ka Ulwazi) mayelana nocwaningo.
- Ngiyazi ukuthi imiphumela yocwaningo, okuhlanganisa imininingwane yomuntu siqu mayelana nobulili bami, ubudala, usuku lokuzalwa, amagama okuqala kanye nokuxilongwa kuzocutshungulwa ngokungaziwa kwenziwe umbiko wocwaningo.
- Ngokubheka izidingo zocwaningo, ngiyavuma ukuthi idatha eqoqwe phakathi nalolu cwaningo ingacutshungulwa ohlelweni lwekhompuyutha ngumcwaningi.
- Ngingakwazi, kunoma yisiphi isigaba, ngaphandle kokubandlulula, ngihoxise imvume yami nokubamba iqhaza ocwaningweni.
- Ngibe nethuba elanele lokubuza imibuzo futhi (ngokuzithandela kwami) ngazitshela ukuthi ngikulungele ukubamba iqhaza ocwaningweni.
- Ngiyaqonda ukuthi okutholakele okusha okubalulekile okuthuthukiswe phakathi nalolu cwaningo okungenzeka okuhlobene nokubamba kwami iqhaza kuzokwenziwa kutholakale kimi.

_____	_____	_____	_____
Igama Eligcwele Lombambi qhaza	**Usuku**	**Isikhathi**	**Isiginesha/ngokugcwele Izigxivizo zesithupha sokudla**

Mina, _____(igama lomcwaningi) qinisekisa ngalokhu ukuthi umhlanganyeli ongenhla ubegcwele ngokugcweleukwaziswa ngohlobo, ukuziphatha kanye nobungozi bocwaningo olungenhla.

_____	_____	_____
Igama Eligcwele lomcwaningi	Usuku	Isiginesha
_____	_____	_____
Igama Eliphelele LoFakazi (Uma likhona)	Usuku	Isiginesha

_____
Igama Eligcwele Umnakekeli Wezomthetho

APPENDIX D: NOTIFICATION LETTER

RESEARCH IS BEING CONDUCTED ON PREGNANT RESIDENTS OF THE ETHEKWINI MUNICIPALITY RELATED TO CHIROPRACTIC MANAGEMENT WHILE PREGNANT.

SHOULD YOU BE INTERESTED OR REQUIRE FURTHER INFORMATION, YOU CAN CONTACT THE RESEARCHER

SUMESHNI PERUMAL

ON

0659483213

LUYENZA UCWANINGO NGEZAKHAMUZI EZIKHULELWE ZIKAMASIPALA WETHEKU OKUPHATHELENE NOKUPHATHWA KWE-CHIROPRACTIC NGESIKHATHI ZIKHULELWE.

INGABE UNENTSHISEKELO NOMA UDINGA ULWAZI OLUNYE, UNGATHINTA UMHLELI

SUMESHNI PERUMAL

kulenombolo

0659483213

APPENDIX E: GATEKEEPER'S PERMISSION

08/06/2023

I Sumeshni Perumal, a Masters Chiropractic student

Request for Permission to Conduct Research

Dear Ms Lebo Ramakatsa

My name is Sumeshni Perumal, a chiropractic student at the Durban University of Technology. The research I wish to conduct for my Masters Dissertation involves, Attitudes and Perceptions of Chiropractic Care among pregnant women of the eThekwini Municipality: a qualitative study.

I am hereby seeking your consent to conduct this study in the eThekwini Municipality.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the DUT-Institutional Research Ethics Committee (DUT-IREC).

If you require any further information, please do not hesitate to contact me on 081 4760 918 or email at perumalsumeshni@gmail.com . Thank you for your time and consideration in this matter.

Yours sincerely,

Sumeshni Perumal

Durban University of Technology

APPENDIX F: TRAINING CERTIFICATE

TRREE

Zertifikat

Certificat

Certificado

Certificate

Promouvoir les plus hauts standards éthiques dans la protection des participants à la recherche biomédicale
Promoting the highest ethical standards in the protection of biomedical research participants

Certificat de formation - Training Certificate

Ce document atteste que - this document certifies that

Clinical Trials Centre
The University of Hong Kong

Sumeshni Perumal

a complété avec succès - has successfully completed

Introduction to Research Ethics

du programme de formation TRREE en évaluation éthique de la recherche
of the TRREE training programme in research ethics evaluation

Release Date: 2023/06/08

Professeur Dominique Sprumont
Coordinateur TRREE Coordinator

APPROVED BY SIWF FMH ISFM

Programmes de formation continue (2 crédits)
Continuing Education Programs (2 credits)

Foederatio Pharmaceutica Helvetiae

FPH

Programmes de formation postgraduée et continue

Programmes de formation continue
Continuing Education Programs

Ce programme est soutenu par - This program is supported by :

APPENDIX G: IREC APPROVAL

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

24 August 2023

Mrs S Perumal
82 Universal Place
Block 5, Road 1108
Crossmoor
Chatsworth

Dear Mrs Perumal

Attitudes and Perceptions of Chiropractic care among pregnant women of the eThekwini Municipality: A qualitative study
Ethics Clearance Number: IREC 112/23

The DUT-Institutional Research Ethics Committee acknowledges receipt of your notification regarding the piloting of your data collection tool.

Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the DUT-IREC acknowledges receipt of your gatekeeper permission letters.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the DUT-IREC according to the DUT-IREC SOP's.

Please note that any deviations from the approved proposal require the approval of the DUT-IREC as outlined in the DUT-IREC SOP's.

It is compulsory for a student or researcher to apply for recertification on an annual basis. The failure to do so will result in withdrawal of ethics clearance. It is the responsibility of the researcher and the supervisor to apply for recertification.

Please note that you are required to submit a Notification of Completion of Study form together with an abstract to the DUT-IREC office on completion of your study.

Yours Sincerely

Prof J K Adam
Chairperson: DUT-IREC

APPENDIX H: PLAGIARISM REPORT

CHAPTER FINAL.docx

ORIGINALITY REPORT

8%	5%	6%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Eng Kien Tan, Eng Loy Tan. "Alterations in physiology and anatomy during pregnancy", Best Practice & Research Clinical Obstetrics & Gynaecology, 2013 Publication	1%
2	www.mdpi.com Internet Source	1%
3	uir.unisa.ac.za Internet Source	1%
4	chiromt.biomedcentral.com Internet Source	<1%
5	Amie Steel, Jon Adams, David Sibbritt, Alex Broom, Cindy Gallois, Jane Frawley. "Determinants of Women Consulting with a Complementary and Alternative Medicine Practitioner for Pregnancy-Related Health Conditions", Women & Health, 2014 Publication	<1%
6	Submitted to Australian Catholic University Student Paper	<1%