

THE PHYSICAL AND PSYCHOSOCIAL EFFECTS OF MIGRAINES ON FEMALE ADULTS AND THEIR EXPERIENCE OF CHIROPRACTIC TREATMENT IN PAIN MANAGEMENT

By

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I, Ashalya Pirthiraj, do hereby declare that this dissertation is representative of my
own work in both conception and execution (except where acknowledgements
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DEDICATION

I dedicate this dissertation to my family, Sanny, Anisha and Thashrik Pirthiraj, for their love, support and encouragement.

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I thank God for granting me the strength and wisdom to complete this study.

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ABSTRACT

The purpose of this study was to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in the management of pain. The objectives of this study were to explore the physical symptoms with which female patients with migraines presented, to understand how migraines affected female adults psychologically and socially, to understand how chiropractic treatment enabled their management of migraines, and to explore which other complementary and alternative treatments were used by patients for their migraines.

This study used a qualitative descriptive design which explored the experiences of female chiropractic patients, between the ages of 18-65 who presented to chiropractic practices for migraine treatment in eThekwin, KwaZulu-Natal. Purposive, convenience and snowball sampling were used to recruit participants for this study. The data was collected through 12 semi-structured interviews and subsequently analysed using thematic analysis. From the study, six main themes emerged.

Theme one focused on the physical effects of migraines. The sub-themes that emerged were the symptoms of migraines, and the impact on physical functioning and daily life.

Theme two related to the psychological and cognitive effects experienced by the participants. The sub-themes that emerged were depression, anxiety, feelings of hopelessness and withdrawal, fear-avoidance behaviour and lifestyle changes, and acceptance of migraines.

Theme three focused on the effects migraines had on relationships. The sub-themes that emerged were the impact on family and social networks, which included both strained and supportive relationships, and the impact on work life.

Theme four explored the factors that contributed to migraines. The sub-themes that emerged were hormonal factors, oral contraceptives, dietary factors, weather-related factors and lighting, musculoskeletal factors, and sleep deprivation.

Theme five focused on chiropractic treatment for migraines. The sub-themes that emerged were the experiences of chiropractic treatment for migraine pain management, and perceptions of chiropractic treatment approaches to migraine management.

Theme six discussed the self-management of migraines. The sub-themes that emerged were resistance to medication, factors that alleviated migraines and alternative therapies.

This is one of the first qualitative studies in South Africa to highlight the severe burden of this disease and the psychosocial impact of migraines on female chiropractic patients. Chiropractic treatment improved the quality of life, and reduced the duration, severity and frequency of migraines, and the need for pharmacological therapy. All participants had favourable experiences with chiropractors for migraine management, with some patients expressing that chiropractic treatment was the only effective treatment for their migraines. This was despite their experience with different alternative therapies. Furthermore, alternative and holistic therapies were sought wherever possible as an alternative to pharmacological therapy. This study builds on the body of knowledge for migraine management and supports the use of chiropractic treatment for migraine management.

Future studies should include more qualitative research studies on the psychosocial impact of migraines amongst the female population. The impact of menstruation, pregnancy and menopause on migraines should be further investigated in other qualitative studies. A more detailed study should be undertaken to ascertain the impact and efficacy of chiropractic treatment for migraines.

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CHAPTER ONE: INTRODUCTION

"Over the course of treatment with chiropractic care, participants became more aware of the role of musculoskeletal tension, pain, and posture in triggering migraine; participants revised their prior conceptions of chiropractic care beyond spinal manipulation; and participants viewed the chiropractor–patient relationship as an essential and valuable component to effectively managing their migraines."
(Connor et al. 2021: 1)

1.1 INTRODUCTION

Headaches are broadly classified into two types, namely primary and secondary headaches. Primary headaches are those that are not associated with an underlying pathological cause, whereas secondary headaches are attributed to an underlying medical condition (Mier and Dhadwal 2018: 1). A migraine headache is a primary headache disorder that is characterised by reversible systemic or neurological symptoms (Dodick 2018: 1315). Migraine attacks that occur for less than 15 days per month are known as episodic migraines, whereas attacks that occur for more than 15 days per month, for more than three months are classified as chronic migraines (Headache Classification Committee of the International Headache Society 2018: 24). Chronic migraine affects between 1-2.2% of the worldwide population (Odell et al. 2019: 1). Although both types of migraines have a pervasive effect psychologically and socially, chronic migraines were reported to have higher disability scores than episodic migraines (D'Amico et al. 2015: S9).

Migraine headaches are one of the world's most debilitating headaches, ranking seventh among the ten leading causes of years lived with disability worldwide (Vos et al. 2016: 1545). Migraines have a global prevalence of 12% (Palacios-Ceña et al. 2017: 9). Although migraines are highly prevalent and have a significant burden on the quality of life, migraines are underestimated, underdiagnosed, and undertreated (Befus et al. 2018: 1). There is also a high socio-economic burden associated with migraines. According to Truter (2015: 450), it is an expensive

condition to treat in South Africa as health care systems fail to provide effective treatment for migraines. Chiropractic treatment has been shown to reduce migraine frequency and intensity (Rist 2019: 532), as well as migraine medication use and frequency (Cerritelli *et al.* 2015 and Chaibi *et al.* 2017, cited in Odell *et al.* 2019: 8). Complementary and alternative medicine (CAM) for the treatment of migraines or severe headaches was shown to decrease moderate mental distress in women by 27% (Rhee and Harris 2017: 97). Therefore, knowledge with regard to approaches that are effective for migraineurs builds on the body of knowledge for its management.

1.2 BACKGROUND OF THE STUDY

The Global Burden of Disease (GBD) study in 2015, declared migraines as the third leading cause of disability worldwide for those under the age of fifty, and in the GBD study in 2010, it was the third most prevalent disorder in the world (Headache Classification Committee of the International Headache Society, 2018; Steiner, Stovner and Vos 2016: 104). In the South African Stress and Health Study (SASH), the prevalence of headache / migraine was 32.6% with an average person taking 16.7 mean annual days leave from work for mental or physical illness (Mall *et al.* 2015: 465). Among urban hospital outpatients in South Africa, migraine contributed to severe psychological distress in 39.2% women and 23.5% men (Peltzer, Pengpid and Skaal 2012: 10). Migraineurs reported dissatisfactory or insufficient treatment, despite the variety of treatment approaches that are available (Malone, Bhowmick and Wachholtz 2015: 537). This study explored the physical symptoms and psychosocial effects that adult female migraine patients of chiropractors presented with, how chiropractic improved their migraine symptoms, and which complementary and alternative medicine treatments have been used by these patients for migraine management.

1.3 CONTEXT

Migraines affect nearly 56 million people in Africa (Woldeamanuel, Andreou and Cowan 2014: 1), with 3-7% of the African population having migraine headaches (Truter 2015: 448). The most disability occurs in the productive years of life,

ranging predominately from 25-55 years of age (Dowson 2002, cited in Truter 2015: 448). Migraines are prevalent amongst people of all age groups. However, it is most prevalent globally amongst young and middle-aged women (Stovner *et al.* 2018: 954). Migraines are three times more common in females than males, with the peak prevalence in the fifth decade (MacGregor 2017: ITC50; Connor *et al.* 2021: 1). This suggests a need to understand how migraines impact the female population. Hence, this study explored the experiences of migraines on females between the ages of 18-65.

Locally, there is a need for empirical studies, with a qualitative design, that will better understand the experiences of female migraineurs psychologically and socially. A quantitative study, conducted amongst university students in South Africa, found that migraineurs experienced reduced concentration and an inability to complete tasks or daily activities without assistance during migraine episodes (Basdav, Haffejee and Puckree 2016: 1680). These migraineurs felt as if they were a burden to others and also neglected their social activities during migraine attacks. The physical symptoms experienced by university students in another local study, which used a quantitative design included photophobia, loss of appetite, nausea, dizziness, sleepiness, tingling, vomiting and tinnitus (Du Preez 2004: 112).

International studies reported on the psychosocial effects of migraines. Migraineurs felt misunderstood, isolated, frustrated, and hopeless about their inability to manage their migraines. Furthermore, migraineurs experienced an associated decrease in their quality of life, and a negative social impact in the workplace, personal relationships and family relationships due to their migraines (Persson *et al.* 2021: 8; Gibbs *et al.* 2020: 1352; Leonardi and Raggi 2019: 6; Banciu and Bouleanu 2018: 28; Vo *et al.* 2018b: 326; Palacios-Ceña *et al.* 2017: 9; Nichols *et al.* 2017: 5; Malone, Bhowmick and Wachholtz 2015: 538; D'Amico *et al.* 2015: S9; Rutberg and Öhring 2012: 332; Peters *et al.* 2005: 44; Scaratti *et al.* 2018: 1383; Befus *et al.* 2019: 3; Speck *et al.* 2020: 1988; Estave *et al.* 2021: 1009; Wilderman, Tallarigo and Pugacheva-Zingerman 2021: 4). Banciu and

Bouleanu (2018: 27) stated that most studies regarding the experience and effects of migraines were guided by a quantitative approach, with only a few studies using a qualitative approach. Hence, the use of a qualitative approach to explore how migraines are experienced can help to address the factors which trigger the onset of migraines, and coping methods used by migraineurs. The need for this study is further supported by Banciu and Bouleanu (2018: 29) who stated that migraines change the lived experience, increase vulnerability, and bring with it the experience of excruciating pain, various attempts to cope with migraine-related pain, and low expectations of healing. This highlights the importance of understanding coping mechanisms and treatment approaches to migraine management.

A recent international qualitative study by Connor *et al.* (2021: 1) sought to understand female migraineurs perceptions of chiropractic treatment for migraines. This contributed to greater awareness amongst patients towards the musculoskeletal contributory factors as triggers of migraines. Moreover, the study viewed chiropractic as an effective treatment for migraines (Connor *et al.* 2021: 1). Studies using a qualitative approach, regarding this topic in a chiropractic context have not been evidenced in South Africa. Prior studies on migraines in South Africa, have used quantitative approaches to document the incidence and prevalence of migraines (Basdav 2016; Pranglely 2010; Kleingeld 2016; Du Preez 2004; Whittle 1995). There have been no prior research studies that have sought to understand the physical, psychological, and social factors related to migraines and how it affects adult females in South Africa.

1.4 PROBLEM STATEMENT

In Africa, there is a higher prevalence of migraines amongst the urban populations, working-age populations and student populations (Woldeamanuel, Andreou and Cowan 2014: 1). Previous South African studies, evidenced under the context of the study, focused mainly on adopting a quantitative approach to understanding the incidence and effects of migraines. Hence, although previous studies in South Africa documented symptoms of migraines using quantitative designs, these

studies have not contributed to understanding the impact of migraines in an intrapersonal and interpersonal manner on patients, through the use of a qualitative design. In the South African context, empirical work that documents the effects of migraines on the working-age or older adult female populations, particularly with regard to the physical or psychosocial experiences of migraines and how these affect their daily life, family, social life and work life is limited. Qualitative research on the preference of chiropractic treatment for migraines, beneficial CAM therapies in migraine management, and how these may holistically contribute to a patient's well-being has also not been documented in South Africa. This constitutes the research gap in the literature and justified the onset of the current study.

1.5 AIM OF THE STUDY

Aim: The aim of this study was to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

1.6 OBJECTIVES OF THE STUDY

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

1.7 RESEARCH QUESTIONS

1. What are the physical symptoms patients present with during a migraine?
2. What are the psychosocial effects of a migraine on female patients?
3. How has chiropractic treatment enabled the management of migraines?

4. Which other complementary and alternative treatments are used by patients for their migraines?

1.8 SIGNIFICANCE OF THE STUDY

Migraines have a significant impact on one's lifestyle, productivity, interpersonal relationships and intrapersonal relationships. In an international study conducted by Palacios-Ceña *et al.* (2017: 1), it was found that female patients' perspectives of chronic migraines provided insight into the suffering experienced both psychologically and socially. Knowledge of migraine patients' experiences can therefore contribute to better doctor-patient communication and compliance with treatments (Palacios-Ceña *et al.* 2017: 11). Additionally, there is a need for a more in-depth understanding of the difficulties experienced with migraines and the impairments experienced in social activities or work, in a qualitative manner (D'Amico *et al.* 2015: S11; Banciu and Bouleanu 2018).

Connor *et al.* (2021: 2) conducted a qualitative study in Boston regarding the perceptions of chiropractic care amongst women with migraine and reported on the paucity of literature regarding patients' experiences and perceptions of migraine-related chiropractic treatment. Furthermore, Connor *et al.* (2021: 6) stated that there were no prior studies that qualitatively characterised migraineurs' encounters with chiropractic. The aforementioned study further reported that migraineurs expanded their knowledge of chiropractic and considered it as a multimodal intervention to treat their migraines, and to improve their posture, flexibility, strength and general well-being (Connor *et al.* 2021: 8). Moore *et al.* (2020: 2) also suggested the need for more information to understand the headache features within the migraine population and the role of chiropractic in their management. Therefore, greater empirical research is required on the approach to migraine management by chiropractors (Moore *et al.* 2017: 519). Furthermore, more research that addresses the CAM approaches that patients use to manage their migraines should be obtained, in order to guide patient-centred management of migraines (Rhee and Harris 2017: 106).

It was reported that the health-related quality of life of migraineurs is significantly poorer in Gauteng (South Africa), compared to those without migraines (Govender 2016: iv). Govender (2016: iv) stated that this raises concerns about the severe burden of disease amongst South African sufferers in terms of their mental and physical well-being. Hence, there is a need for a greater understanding of how people are affected by migraines in a South African context, in order to guide patient management. Migraine management is patient-specific, and knowledge of the other holistic or CAM treatments used by migraine patients in South Africa in conjunction with chiropractic and medical management may be beneficial to health care professionals. This would build on the body of knowledge of migraine management for clinical practice in South Africa. This adds further value to the current study.

1.9 DEFINITIONS OF CONCEPTS

Chiropractic: "A health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health. There is an emphasis on manual treatments including spinal adjustment and other joint and soft-tissue manipulation." (World Federation of Chiropractic 2001, cited in Hartvigsen and French 2020: 4).

Complementary and alternative medicine (CAM): Therapies that are considered alternative to conventional medicine, e.g. massage, acupuncture, homeopathy (Bauer *et al.* 2016: 403).

Migraineur: An individual that experiences migraine headaches.

1.10 THEORETICAL FRAMEWORK

A theoretical framework is a body of knowledge that guides the rationale and literature review of a study, and it provides the foundation for which the study is conducted. It supports the problem statement, significance of the study and the research questions (Osanloo and Grant 2014: 12). The theoretical framework that guided this study was the biopsychosocial model.

The biopsychosocial model was conceptualised by Engel in 1977. Engel (1997: 522) identified this model as an inclusive conceptual framework to guide the management of patients. Gliedt *et al.* (2017: 2) proposed that this model was a dominant model in explaining and managing pain. This interdisciplinary model is predicated on intertwining the biological, psychological and socio-economic factors and how it influences health and disease (Frazier 2020: 1). The biological domain includes the physical elements of the body which affect health (Frazier 2020: 2), such as physical or chemical alterations to the body (Gliedt *et al.* 2017: 2). The psychological domain includes the cognitive, emotional, motivational and behavioural systems that affect health (Frazier 2020: 2). This domain, through multiple inputs, can contribute to a continuous cycle of persistent pain, with consequences such as depression, anxiety, catastrophising thoughts, fear-avoidance beliefs or behaviour, low levels of self-efficacy, post-traumatic stress disorder, or unsupportive social and interpersonal relationships (Gliedt *et al.* 2017: 2). The sociological factors include the social determinants that affect health (Gliedt *et al.* 2017: 2).

Renjith *et al.* (2014: 120) determined that migraines affect the biological, psychological and social well-being of migraineurs, and that migraineurs have poor biopsychosocial well-being. Lumley *et al.* (2011: 960) reported that an empirical study of the biological, psychological, and social aspects of emotion may improve intervention approaches for pain management. Gliedt *et al.* (2017: 4) stated that the chiropractic profession has been a pioneer in pain management and adopts a biopsychosocial approach to health care. This makes this model relevant to this study.

This study was guided by the biopsychosocial model, and the physical and psychosocial effects of migraines were explored in adult females as well as their approaches to migraine management. This information builds on the body of knowledge of how health care professionals can treat adult females with migraines.

1.11 OVERVIEW OF THE RESEARCH METHODOLOGY

The research methodology used to guide this study is described in detail. The chapter includes the research design, study setting, study population, sampling strategy, sampling process, inclusion and exclusion criteria, and the data collection process and tools. The data analysis is described, and the rigour, ethical considerations and limitations are presented.

1.12 STRUCTURE OF THE DISSERTATION

Chapter 1 introduces the topic and context of the research and includes the problem statement, aim, objectives and the theoretical framework of the study.

Chapter 2 consists of the literature review, particularly a review of prior literature regarding the research problem and aims.

Chapter 3 focuses on the research methodology and the ethical considerations.

Chapter 4 analyses and discusses the results of the study.

Chapter 5 concludes the dissertation, by addressing recommendations for future research and the limitations of the current study.

1.13 CONCLUSION

There is a need to conduct more research on the impact of migraine on physical suffering and effective treatment approaches for migraine sufferers (Evers *et al.* 2019: 97). Migraine management will benefit from a holistic approach and knowledge related to other treatments that patients use in conjunction with chiropractic treatment, will be useful in developing a holistic approach to support and treatment. This chapter describes the background, context and significance of the study. The aim and objectives are presented as well as the theoretical framework used for this study. The chapter that follows focuses on the literature review.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

A literature review is an evidence-based analysis of the available literature as it pertains to a particular topic (Machi and McEvoy 2016: 5). It provides the background and context of the current knowledge related to a topic from a search of the literature and aims to provide a basis of further knowledge that needs to be explored (Machi and McEvoy 2016: 7). This chapter includes an overview of the literature pertaining to the aim and objectives of the study. This chapter also focuses on the burden of migraines, the description and classification of migraines, the physical, psychological and social effects of migraine, the triggering factors, and the interventions used for migraine management (medical, chiropractic, self-management approaches and complementary and alternative medicine treatment approaches).

From a search of the literature, the following databases were used: Academic Search Complete, Cochrane Library, EBSCO Open Dissertations, Sage Journals Online, and Wiley Online Library Journals.

The field of research keywords included: female, migraine, migraine headache, migraine disorders, migraine with aura, migraine without aura, primary headache disorder, psychosocial factors, manipulation, chiropractic, complementary therapies.

2.2 BURDEN OF MIGRAINE AND QUALITY OF LIFE

The burden of migraines is well known. Migraines present with substantial disability, and Wayne *et al.* (2020: 2) stated that in 2016 alone, female migraineurs from the ages of 15-49 had an estimated 20.3 million years lived with disability. Migraineurs have a high psychological burden (Malone, Bhowmick and Wachholtz 2015: 538) and a low biopsychosocial well-being (Renjith *et al.* 2014: 121). There

is a reduced quality of life, disrupted family relationships and lost work due to migraines (Takeshima *et al.* 2019: 1; Charles 2017: 553). Vo *et al.* (2018a: 7) discovered that migraineurs experience burden with every migraine episode, including a poorer quality of life, well-being, productivity, mental health and physical health. Slow recovery, lost time and poor sleep are the consequences of migraines reported by Persson *et al.* (2021: 8).

The health-related quality of life has been found to be more reduced in chronic migraine sufferers (Moriarty and Mallick-Searle 2016: 27). Vo *et al.* (2018b: 321) reported that in at least one migraine attack, more than 95% of migraineurs reported a negative impact on their activities of daily living. In addition to the impact on activities of daily living, Moriarty and Mallick-Searle (2016: 27) and Korolainen *et al.* (2019: 1) also stated that migraines negatively affect physical and emotional functioning and restrict or prevent social and work-related activities. The impact of migraine on the quality of life of South African students, the majority of which were 20-25 years of age, includes a reduced ability to complete tasks, requiring assistance for daily activities and cessation of work in order to manage the headache (Basdav, Haffejee and Puckree 2016: 1680). In South Africa, the burden of primary headaches is underestimated and has been documented to have a negative impact on a university student population's productivity and quality of life (Prangle 2010: iv).

Moreover, migraine is associated with an increased risk of comorbidities such as asthma, stroke, obesity, cardiovascular diseases, and psychiatric disorders (Charles 2017: 553; Korolainen *et al.* 2019: 1). There is risk for the development of anxiety, major depression and suicidal behaviour, amongst those with chronic migraine and migraine with aura (Dresler *et al.* 2019: 1). People who are predisposed to experience migraine are those who have a genetic predisposition or family history of migraine headaches (MacGregor 2017: ITC50). Lifestyle factors that increase the risk of migraine headaches are smoking, alcohol consumption and physical inactivity (Hagen *et al.* 2018: 1921). Furthermore,

migraine is three times more common in women than men, with the peak prevalence in the fifth decade (MacGregor 2017: ITC50).

2.3 DESCRIPTION OF A MIGRAINE

A migraine headache is a primary headache disorder that is characterised by a moderate to severe intensity of pain and reversible neurological or systemic symptoms (Dodick 2018: 1315). The first onset of migraine can occur during late childhood or adolescence and follows a variable course that is specific to each individual. The headache may remit after a few years, or occur in cycles for years or decades (MacGregor 2017: ITC50). The migraine headache occurs unilaterally and is throbbing in character. It is usually associated with neck pain involving the posterior cervical and trapezius regions. In some migraine patients, the headache can shift sides between or during attacks. In adults the duration of a migraine headache is between 4-72 hours, with an average of 24 hours duration per attack. Although migraine can occur at any time, studies have documented the occurrence of migraine more commonly during sleep or upon awakening (Dodick 2018: 1315).

2.4 PHYSICAL EFFECTS

The physical effects are the symptoms that migraineurs experience. The classification and diagnostic criteria for the types of migraines relevant to this study are described. Thereafter, the phases of the migraine headache and its symptoms are discussed.

2.4.1 Classification of Migraine

The diagnostic criteria for migraine without aura, migraine with aura, migraine with brainstem aura, hemiplegic migraine, menstrual migraine without and with aura, episodic and chronic migraine are presented. The International Classification of Headache Disorders, 3rd edition (ICHD-3) provides internationally accepted diagnostic criteria for the types of headaches, of which migraines are classified and diagnosed as follows:

2.4.1.1 Migraine Without Aura

Diagnostic criteria:

- A. At least five attacks fulfilling criteria B–D
- B. Headache attacks lasting 4–72 hours (when untreated or unsuccessfully treated)
- C. Headache has at least two of the following four characteristics:
 - 1. unilateral location
 - 2. pulsating quality
 - 3. moderate or severe pain intensity
 - 4. aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs)
- D. During headache at least one of the following:
 - 1. nausea and/ or vomiting
 - 2. photophobia and phonophobia
- E. Not better accounted for by another ICHD-3 diagnosis.

(Headache Classification Committee of the International Headache Society 2018: 19)

2.4.1.2 Migraine With Aura

Migraine with aura which precedes the headache occurs in 20% of people with migraines. The visual phenomena of the aura include visual symptoms such as scintillations, zig-zag patterns, floaters, flashes of light, blind spots, or loss of vision. Sensory aura symptoms include numbness, pins and needles, and tingling spreading unilaterally over the face, tongue, lips, arm, or hand. Rarely, dysphasia and weakness may occur, and the motor symptoms may last up to 72 hours (Weatherall 2015: 117; Headache Classification Committee of the International Headache Society 2018: 20).

Diagnostic criteria:

- A. At least two attacks fulfilling criteria B and C
- B. One or more of the following fully reversible aura symptoms:
 - 1. visual
 - 2. sensory
 - 3. speech and/or language
 - 4. motor
 - 5. brainstem
 - 6. retinal
- C. At least three of the following six characteristics:
 - 1. at least one aura symptom spreads gradually over 5 minutes
 - 2. two or more aura symptoms occur in succession
 - 3. each individual aura symptom lasts 5–60 minutes
 - 4. at least one aura symptom is unilateral
 - 5. at least one aura symptom is positive
 - 6. the aura is accompanied or followed, within 60 minutes, by headache
- D. Not better accounted for by another ICHD-3 diagnosis.

(Headache Classification Committee of the International Headache Society 2018: 20)

2.4.1.3 Migraine With Brainstem Aura

Diagnostic criteria:

- A. Attacks fulfilling criteria for *Migraine with aura* and criterion B below.
- B. Aura with both of the following:
 - 1. at least two of the following fully reversible brainstem symptoms:
 - a. dysarthria
 - b. vertigo
 - c. tinnitus
 - d. hyperacusis
 - e. diplopia
 - f. ataxia not attributable to sensory deficit

g. decreased level of consciousness (GCS ≥ 13)

2. No motor or retinal symptoms

(Headache Classification Committee of the International Headache Society 2018: 19)

2.4.1.4 Hemiplegic Migraine

Diagnostic criteria:

A. Attacks fulfilling criteria for *Migraine with aura* and criterion B below

B. Aura consisting of both of the following:

1. fully reversible motor weakness
2. fully reversible visual, sensory and/ or speech/ language symptoms

(Headache Classification Committee of the International Headache Society 2018: 22)

2.4.1.5 Menstrual Migraine

Less than 10% of women experience migraines associated with menstruation. Menstrual migraine without aura is most prevalent, and the duration of the migraines is longer with associated severe nausea (Headache Classification Committee of the International Headache Society 2018: 19). The evidence suggests that menstrual migraine can result from oestrogen withdrawal, other hormonal factors or the use of combined oral contraceptives or hormone replacement therapy (Headache Classification Committee of the International Headache Society 2018: 190). The diagnostic criteria for the types of menstrual migraine are presented below.

2.4.1.5.1 Pure Menstrual Migraine Without Aura

Diagnostic criteria:

- A. Attacks, in a menstruating woman, fulfilling criteria for *Migraine without aura* and criterion B below
- B. Occurring exclusively on day 1 ± 2 (i.e., days -2 to +3) of menstruation in at least two out of three menstrual cycles and at no other times of the cycle.

(Headache Classification Committee of the International Headache Society 2018: 190)

2.4.1.5.2 Pure Menstrual Migraine With Aura

Diagnostic criteria:

- A. Attacks, in a menstruating woman, fulfilling criteria for *Migraine with aura* and criterion B below
- B. Occurring exclusively on day 1 ± 2 (i.e., days -2 to +3) of menstruation in at least two out of three menstrual cycles and at no other times of the cycle.

(Headache Classification Committee of the International Headache Society 2018: 191)

2.4.1.5.3 Menstrually Related Migraine With Aura

Diagnostic criteria:

- A. Attacks, in a menstruating woman, fulfilling criteria for *Migraine without aura* and criterion B below
- B. Occurring on day 1 ± 2 (i.e., days -2 to +3) of menstruation in at least two out of three menstrual cycles, and additionally at other times of the cycle.

(Headache Classification Committee of the International Headache Society 2018: 191)

2.4.1.6 Episodic and Chronic Migraine

Episodic migraine refers to migraines occurring for less than 15 days per month. Chronic migraine occurs with at least five migraine attacks with or without aura for 15 or more days per month for more than three months. Chronic migraine may revert to episodic migraine after drug withdrawal (Headache Classification Committee of the International Headache Society 2018: 24).

Chronic migraine *Diagnostic criteria:*

- A. Headache (migraine-like or tension-type-like) on 15 days/ month for >3 months, and fulfilling criteria B and C
- B. Occurring in a patient who has had at least five attacks fulfilling criteria B–D for *Migraine without aura* and/ or criteria B and C for *Migraine with aura*
- C. On 8 days/month for >3 months, fulfilling any of the following:
 - 1. criteria C and D for *Migraine without aura*
 - 2. criteria B and C for *Migraine with aura*
 - 3. believed by the patient to be migraine at onset and relieved by a triptan or ergot derivative
- D. Not better accounted for by another ICHD-3 diagnosis

(Headache Classification Committee of the International Headache Society 2018: 24)

2.4.2 The Phases of Migraines

There are four phases of the migraine headache that are discussed below. These include the premonitory phase, the aura phase, the headache phase and the postdrome phase. The aura phase and headache phase are presented above in the diagnostic criteria.

The premonitory or prodromal phase occurs hours or days (a day or two) before the onset of migraine with aura (Headache Classification Committee of the International Headache Society 2018: 20). It occurs in 10-20% of people with migraines and may be experienced up to 48 hours preceding the migraine (Weatherall 2015: 117). The premonitory phase symptoms that migraineurs experience include physical symptoms such as fatigue, neck pain or stiffness and drowsiness (Weatherall 2015: 117; Dodick 2018: 1315). Photophobia, lacrimation, food cravings, yawning, pallor, polyuria, nausea or diarrhoea may also occur (Dodick 2018: 1315; Headache Classification Committee of the International Headache Society 2018: 19). In migraineurs from 31 countries, activities of daily living were very or extremely limited in the premonitory phase, especially with chronic migraine sufferers (Gibbs *et al.* 2020: 1356). The premonitory symptoms experienced by university students in South Africa, were documented in a quantitative study and included irritability, impaired concentration, tiredness, and being emotional (Basdav 2016: 61).

Lakhiar, Bughio and Arain (2019: 264) found that 65.3% of migraineurs (with the majority being female) suffered from migraine without aura and that was the most common primary headache. It was reported that migraineurs in 17 European countries experienced pain, changes in mood or anxiety, blurred vision, photophobia, phonophobia, nausea, confusion, giddiness, or tinnitus with their migraines (Vo *et al.* 2018b: 325). Fatigue and reduced vitality were also experienced by migraineurs (Raggi *et al.* 2012: 595). The symptoms experienced by university students in South Africa were photophobia, loss of appetite, nausea, dizziness, sleepiness, tingling, vomiting, tinnitus (Prangle 2010: iv), reduced concentration, lethargy and disrupted sleep patterns (Basdav, Haffejee and Puckree 2016: 1680).

The postdrome phase occurs after the headache phase and may persist for up to 48 hours (Headache Classification Committee of the International Headache Society 2018: 210). It occurs in 80% of migraineurs with the resolution of the headache. This phase usually lasts less than 12 hours. However, in 12% of people

with migraines it may persist for more than 24 hours (Dodick 2018: 1315). The postdrome phase symptoms that migraineurs experience are lethargy, irritability, nausea, photophobia, phonophobia, reduced concentration and somnolence. Some migraineurs report sensitivity to movement or recurrent head pain with head movement (Weatherall 2015: 117; Dodick 2018: 1315). Gibbs *et al.* (2020: 1356) reported that activities of daily living are very or extremely limited in the postdrome phase, especially with chronic migraine sufferers (Gibbs *et al.* 2020: 1356). The Headache Classification Committee of the International Headache Society (2018: 18) also stated that both prodromal and postdrome symptoms include depression, food cravings, fatigue, yawning repetitively, neck pain or stiffness, hyperactivity or hypoactivity.

2.5 PSYCHOLOGICAL EFFECTS

The mental and emotional health of migraineurs has been found to be affected during attacks (Raggi *et al.* 2012: 595). The psychological issues of female migraine patients with chronic migraine, in a headache clinic in Spain, included those of feeling misunderstood, isolated, and ashamed of suffering and frustration due to ineffective treatment (Palacios-Ceña *et al.* 2017: 9). These migraine patients accepted that pain is a normal part of their life, kept analgesic medication with them at all times, and displayed fear-avoidance behaviours. Hence, the migraineurs attempted to change their habits to prevent triggering a migraine (Palacios-Ceña *et al.* 2017: 9). This is consistent with the findings of other studies (Scaratti *et al.* 2018: 1379), where migraineurs avoided triggers, had anticipatory anxiety and always kept medication with them.

Patients also experience hopelessness about their inability to manage their migraines, withdraw from others and are reluctant to disclose or discuss their migraines with others for fear of judgement (Banciu and Bouleanu 2018: 29; Persson *et al.* 2021: 8; Rutberg and Öhrling 2012: 333). Women with chronic migraine who catastrophise their pain are more likely to experience psychosocial effects such as rumination, fear of movement and hopelessness (Gil-Martinez *et al.* 2016: 5). It was reported that chronic migraine patients decided to not have

children, chose to have fewer children or delayed having children due to their chronic disabling experience (Buse *et al.* 2019: 1289).

Persson *et al.* (2021: 8) indicated that the ability of functioning is correlated to the pain intensity, and reported that severe attacks elicited suicidal thoughts, anger and hopelessness about the migraine suffering, including the inability to manage the headaches and the frequent attacks experienced. Migraineurs were also found to experience negative emotions such as irritability, depression, and anxiety (Banciu and Bouleanu 2018: 27; Dindo *et al.* 2015: 109). The psychological impact of migraines on South African university students included mood swings, frustration and feelings of being a burden to others (Basdav, Haffejee and Puckree 2016: 1680).

2.6 SOCIAL EFFECTS

There is a substantial increase in social burden amongst those with chronic migraines (Korolainen *et al.* 2019: 1). The social issues experienced by females with chronic migraine, include encountering a lack of understanding on the severity of migraine by co-workers and managers who report not believing how strongly migraines affect patients. Many migraine patients stated that they hid their symptoms due to the fear of being discredited at work or losing their jobs, hence, they forced themselves to work or return early from sick leave (Palacios-Ceña *et al.* 2017: 9). Migraine patients reported that they sometimes encountered a degree of disbelief from their own families about the debilitating effect of the suffering experienced and were accused of exaggerating their pain. Social situations with the onset of migraine attacks created a significant amount of stress, with the inability to attend family events or school (Palacios-Ceña *et al.* 2017: 9). The disabling effect of chronic migraine resulted in lost work, reduced work productivity and missed days of work that negatively impacted activities of daily living (Stovner *et al.* 2006, cited in Gil-Martinez *et al.* 2016: 2).

Chronic migraines were found to negatively impact marital and personal relationships as it affects the migraineur's ability to establish and maintain these relationships (Buse *et al.* 2019: 1289). Persson *et al.* (2021: 8) stated that migraines consequently impact on patients emotionally, socially, with their families, and at work. The higher the disability level, the more severe the work problems that are encountered (D'Amico *et al.* 2015: S9). The disability associated with chronic migraines affected work productivity and relationships (especially with partners and children), resulting in cancelled or missed events and reduced participation in family events. Moriarty and Mallick-Searle (2016: 27) further stated that migraineurs perceived the severity of their migraines to be greater in impact than their partners did. Malone, Bhowmick and Wachholtz (2015: 539) highlighted that 71% of the participants in the study encountered disbelief with regard to the severity of their migraines from those in their social networks. Furthermore, migraineurs reported that their professional advancement was compromised, and only 54% of the migraineurs' employers were aware of their migraines. Vo *et al.* (2018b: 326) reported that 2.3 workdays per month were missed which led to absenteeism. Furthermore, one in four workdays led to absenteeism. Igarashi *et al.* (2020: 1) and Vo *et al.* (2018a: 6) reported higher levels of absenteeism compared to presenteeism (being present at work with a migraine), and presenteeism led to work productivity loss. However, Raggi *et al.* (2014: S25) stated that presenteeism was most often encountered among migraineurs.

Gibbs *et al.* (2020: 1356) stated that the impact of the burden associated with migraines extends to caregivers, family or friends, who assist migraineurs during their episodes. Migraineurs' employers are also affected by absenteeism, presenteeism, reduced individual productivity and consequently the burden of reduced economic productivity. Amongst South African university students, migraines were found to prevent socialisation with family or friends, and almost a third of the migraineurs in the study neglected family or social activities (Basdav 2016: 3). Furthermore, if migraines were encountered during social events, migraineurs left early, drank water, requested medication or isolated themselves (Basdav 2016: 3).

2.7 TRIGGERING FACTORS

Migraines are more prevalent amongst females and those that are sensitive to hormonal fluctuations (Ray *et al.* 2017: 1283). Women between the ages of 18 and 49 years were found to be the most affected by migraines (Odell *et al.* 2019: 2). Hormonal factors have been shown to trigger migraines. Migraines most frequently occur after menarche and before or during menstruation, then reduce in frequency during pregnancy and menopause. This may be triggered by the decline in oestrogen levels that occur before menarche, before menopause (perimenopause) or in the early postmenopausal period (Sacco 2012: 177, cited in Ripa *et al.* 2015: 774; Verhaak *et al.* 2021: 70; Charles 2017: 555). A South African study revealed that migraine is the most common headache type amongst university students with the majority of migraineurs being females (Prangle 2010: 49). Furthermore, Mustapha *et al.* (2019: 43) documented that 13% of Nigerian university migraineurs had menstrually related migraines and 2.2% had pure menstrual migraines.

Vo *et al.* (2018b: 325) found that common migraine triggers (in order of prevalence) include changes in sleep patterns, psychological factors, nutrition, menstruation, and environmental and weather-related factors. Connor *et al.* (2021: 4), Vo *et al.* (2018b: 325), Moore *et al.* (2017: 519) and Malone, Bhowmick and Wachholtz (2015: 538) also identified triggering factors such as stress, certain foods, caffeine, dehydration, weather changes, interrupted sleep, poor posture, and fluorescent lights amongst migraineurs. Nigerian university nursing students reported that sleep deprivation, physical fatigue and mental fatigue were common migraine triggers (Mustapha *et al.* 2019: 39).

Stress, anxiety, depression, and psychological disorders have a high comorbidity with migraine headaches (Minen *et al.* 2016: 742; Persson *et al.* 2021: 3; Estave *et al.* 2021: 1005; Dindo *et al.* 2015: 109; Banciu and Bouleanu 2018: 27; Farris *et al.* 2019: 1213; Malone, Bhowmick and Wachholtz 2015: 537; Baldacci *et al.* 2015: 4). Stress has also been shown to trigger migraines amongst menopausal women (Peltzer, Pengpid and Skaal 2012: 10). Dietary factors that trigger migraines

include inconsistent meals, skipped meals, fasting, inadequate water intake, caffeine, artificial sweeteners, monosodium glutamate, cheese, chocolate and alcohol (Charles 2017: 555; MacGregor 2017: ITC54; Ray *et al.* 2017: 1283). Sleep deprivation, irregular sleep or poor sleeping habits are also triggering factors (Charles 2017: 555; Ray *et al.* 2017: 1283). Environmental changes such as sun exposure or changes in weather, bright lights, or fluorescent lights have also been found to be migraine triggers (Ray *et al.* 2017: 1283; Malone, Bhowmick and Wachholtz 2015: 538). Photophobia, phonophobia, and travelling (especially long distance travel), have also been linked to triggering migraines (Pellegrino *et al.* 2018: 1193; Ray *et al.* 2017: 1283). Musculoskeletal complaints, such as neck pain, neck stiffness, muscle tension and jaw pain are also common triggering factors for migraines (Wayne *et al.* 2020: 2; Bernstein *et al.* 2019: 1; Connor *et al.* 2021: 7; Ray *et al.* 2017: 1283). Oral contraceptives and postmenopausal hormone replacement therapy have similarly been shown to trigger and exacerbate migraines (Charles 2017: 555; Wang *et al.* 2003, cited in Ripa *et al.* 2015: 780). Regular intake of analgesics can increase the severity and frequency of migraines, and other pharmacological agents can exacerbate migraine headaches. According to Charles (2017: 555), these include selective serotonin reuptake inhibitor antidepressants and proton pump inhibitors. Weekly or regular intake of analgesics can increase the migraine frequency and severity of the headache. As described above, there are various triggering factors that can precipitate a migraine attack, and each individual's triggers are different (Moore *et al.* 2017: 519).

2.8 MANAGEMENT

The management of migraines includes medical management, chiropractic management, alleviating factors for migraine self-management, and CAM therapies.

2.8.1 Medical Management

The pharmacological management of migraines can be determined by identifying the premonitory symptoms that occur (Dodick 2018: 1315). People who awaken with migraine, present with nausea or vomiting during the premonitory phase, or experience an acute peak in pain intensity (within the first 30 minutes). They may be given medication via a non-oral route of administration such as a nasal spray or injection (Dodick 2018: 1320).

Pharmacological therapy includes triptans, ergot alkaloids, non-steroidal anti-inflammatory drugs (NSAIDS) and prophylactic agents such as tricyclic antidepressants, anticonvulsants, beta blockers and calcium channel blockers (Lakhiar, Bughio and Arain 2019: 265). People with severe migraine who are unable to perform daily tasks are prescribed triptans or dihydroergotamine (MacGregor 2017: ITC56). Botox, topiramate and occipital nerve injections are pharmacological therapies used for chronic migraine treatment (Odell *et al.* 2019: 9). Antidepressants are commonly prescribed for episodic migraine prophylaxis (Sanderson *et al.* 2013: 1315). However, one third of people with episodic migraine report that their treatment for migraine is unsatisfactory (Lipton 2013, cited in Rist 2019: 533). Furthermore, many migraineurs reported to be reluctant to take prophylactic medications (Alcantara and Cossette 2009: 2).

Medication overuse headaches (MOH) can occur in conjunction with chronic migraine with a high degree of comorbidity (Gil-Martinez *et al.* 2016: 6). Fifty percent of people with chronic migraine are misdiagnosed due to MOH if they revert to episodic migraine after drug withdrawal. There are no specific therapies that are indicated for menopausal migraine, due to the variable results of the interventions. Hormonal replacement therapy is commonly prescribed to women to minimise hormonal fluctuations, but has a variable effect on migraine treatment due to the type of oestrogen, route and frequency of administration and dosages (MacGregor 2009, cited in Ripa *et al.* 2015: 780).

2.8.2 Chiropractic Management

Moore *et al.* (2017: 520) stated that migraines are likely to be one of the most common headaches that chiropractors treat. According to Sanderson *et al.* (2013: 1312), chiropractors were the second (in Australia) and third (in the United States) most common health care providers for migraineurs. Chiropractic in the United States was used by 13.9% people seeking migraine or severe headache treatment (Rhee and Harris 2017: 97). Chiropractic treatment showed favourable effects on migraine patients (Bryans *et al.* 2011: 282). There is evidence to support the effectiveness of chiropractic spinal manipulative therapy (SMT) or mobilisation in adults for migraines (Clar *et al.* 2014: 14).

The literature reveals that chiropractic includes a broad spectrum of techniques such as spinal manipulative therapy, spinal mobilisation and stabilisation exercises, soft tissue manipulation (myofascial release, massage, and trigger point therapies), stretching, strengthening and rehabilitative exercises, postural examinations, nutritional counselling, and lifestyle and ergonomic advice (Rist 2019: 541; Connor *et al.* 2021: 5; Bernstein *et al.* 2019: 2; Moore *et al.* 2017: 522). Chiropractors identified myofascial pain syndromes, temporomandibular joint dysfunction, and postural or mechanical spinal disorders in migraineurs (Rist *et al.* 2021: 324). Rist (2019: 532) concluded that spinal manipulation reduces migraine days and migraine intensity and can be regarded an effective therapeutic technique for those with migraines, including addressing the musculoskeletal components associated with migraines (Rist *et al.* 2021: 319). There is moderate evidence to suggest that SMT has a similar effect to amitriptyline and other first-line pharmacological migraine prophylactic treatments (Bronfort *et al.* 2001: 457). A multimodal chiropractic treatment approach is recommended to reduce migraine frequency and severity (Rist *et al.* 2021: 319).

A South African study found that there was a decrease in frequency of headaches with SMT (Whittle 1995: 61). With regard to the effectiveness of SMT on migraine patients' quality of life, improvements were found relating to general health, physical condition and daily activity, with a 30.8% decrease in medication

consumption in a South African clinical trial (Du Preez 2004: 132). Another South African study also documented that chiropractic SMT decreased the disability, severity and the duration of migraines (Chopdat 2015: vii). Chiropractic was considered by migraineurs to be a new approach to migraine management through improvement of posture, flexibility and strength (Connor *et al.* 2021: 5). The aforementioned study revealed that following chiropractic treatment, the “participants consistently stated that the treatment had increased their appreciation for the complex interaction between stress, muscular tension, posture, and migraine” (Connor *et al.* 2021: 5).

2.8.3 Alleviating Factors

Migraine with aura may be relieved by pharmacological therapy such as a triptan or ergot derivative (Headache Classification Committee of the International Headache Society 2018: 24). Migraine is also relieved by rest, lying down, sleep, changes in posture, therapeutic massage (Haque *et al.* 2012: 83), and complementary and alternative medicine therapies. Other relieving factors include sleep following caffeinated drinks such as tea or coffee, applied pressure to the temples, or topical treatments to the region of pain (Ray *et al.* 2017: 1283). In a South African study, relieving factors included medication, lying down and massage, and less commonly, exposure to heat or cold, and comforting food (Du Preez 2004: 112).

2.8.4 Complementary and Alternative Therapies

There are many allopathic and complementary treatment options available for migraineurs. Complementary and alternative medicine (CAM) therapies for the treatment of migraine or severe headaches resulted in a 27% decrease in moderate mental distress in women. CAM therapies are used more commonly by women for the treatment of migraine or severe headaches (Rhee and Harris 2017: 97). CAM therapies for migraine treatment include herbal supplements, massage, osteopathic treatment (Rhee and Harris 2017: 97), acupuncture, meditation, yoga, breathing exercises, physical exercise and vitamins (Moriarty and Mallick-Searle 2016: 30). SMT combined with multidisciplinary interventions are recommended

for migraine patients with episodic or chronic migraine (Bryans *et al.* 2011: 274). For pregnant women, magnesium supplementation, rest and the application of ice are the preferred non-pharmacological approaches to migraine treatment (MacGregor 2017: ITC60). Cognitive behavioural therapy and relaxation techniques such as deep breathing and muscle relaxation were shown to reduce migraine intensity (Campbell, Penzien and Wall 2000, cited in Cousins *et al.* 2015: 2771). Behavioural therapy for migraine management provides effective relief without the side effects of medication, and is indicated for migraineurs with significant stress and poor stress-coping mechanisms, poor response to medical treatment and excessive use of analgesics (MacGregor 2017: ITC54). Gil-Martinez *et al.* (2016: 6) stressed the importance of treatment strategies that focus on pain modulation and strategies to treat chronic migraine that combine psychological approaches to cognition or behaviour. An important factor in the consideration of migraine management is advice regarding the reduction of medication overuse, medication options, managing triggers, lifestyle choices, and a detailed headache diary which documents the migraine frequency, intensity and duration (Moriarty and Mallick-Searle 2016: 30).

2.9 CONCLUSION

Migraine headaches are often underdiagnosed and undertreated, and are perceived to have a minimal burden on society and the health care system as they may not cause life-long disability (Hazard *et. al.* 2009, cited in Truter 2015: 449). There is a need to understand the migraine experience in a more in-depth manner so that patients can be understood and treated accordingly. This chapter provides an overview of the literature pertaining to the physical and psychosocial effects of migraines, triggering factors and approaches to migraine management. The next chapter focuses on the methodology used in this study.

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the research methodology and design used for this study. The study setting, population and sampling strategy are included in the discussion. The data collection process, tools used, and the data analysis procedures are highlighted. Finally, the ethical considerations are also presented.

3.2 RESEARCH DESIGN

A descriptive study is concerned with the observation of specific characteristics of a population and the discovery of regularities through social phenomena (Bairagi and Munot 2019: 77; Mayer 2015: 58). This is a descriptive study as it seeks to describe the experience of migraine headaches. A qualitative research approach was used to guide this study. A qualitative approach is concerned with the subjective perceptions of participants' experiences of reality (De Vos 2011: 308). Qualitative research is descriptive and narrative; it explores ideas, attitudes, and perceptions in an in-depth, deductive, unstructured, flexible, and non-linear manner (Kumar 2014: 133). Qualitative descriptive studies, according to Colorafi and Evans (2016: 17), are amenable to health care environments as they describe participants' emotions and reasons for using health care services, including the factors that facilitate their use. Furthermore, qualitative descriptive studies "provide rich descriptive content from the subjects' perspective" (Sandelowski 2010, cited in Colorafi and Evens 2016: 24).

3.3 STUDY SETTING

The study took place in the eThekweni region in the Province of KwaZulu-Natal. Qualitative studies allow for the recruitment of participants in a convenient and accessible way, hence participants were recruited in close geographical proximity to the Durban University of Technology and the researcher's residence. According to South Africa, The Department of Cooperative Governance and Traditional

Affairs (2020: 11), 51% of the eThekweni population are females. Fifty-five percent of the population are between 20 - 59 years of age, and 8% are older than 60 years of age. The study setting was a location agreed upon by both the researcher and the participants for the interview, or through virtual video calls due to COVID-19 lockdown regulations.

3.4 STUDY POPULATION

The study population refers to the group of participants involved in the research process who meet the inclusion criteria for the study (Kumar 2014: 74). This study was conducted with female chiropractic patients between the ages of 18-65 that presented to chiropractic practices, for migraine treatment in the eThekweni region of KwaZulu-Natal.

3.5 SAMPLING STRATEGY

The study sample is a small portion or subgroup of the population that is representative of the population, and includes elements of the population that represent the inclusion criteria (De Vos 2011: 223). In qualitative research, the sample size depends on the quality of the information obtained. Information richness in qualitative research is enhanced by non-probability sampling. Seetharaman (2016: 41) further stated that the sample size is based on the principle of saturation during the sampling process. Saturation of data occurs with the repetition of collected data from participants until no new information about the topic is presented (De Vos 2011: 350). After data was collected from twelve participants, saturation was reached, and data collection stopped.

Permission to recruit participants from each chiropractic practice was obtained (Appendices 1b-7b), by asking for permission from the chiropractors to conduct research (Appendices 1a-7a). This request for permission was sent electronically to each chiropractor. Prior to sending these emails, telephonic contact with the chiropractors was made to explain the purpose and processes of the study.

3.6 SAMPLING PROCESS

Non-probability sampling is used when the elements of the study sample are unknown or cannot be identified individually (Kumar 2014: 376). Therefore, the individuals, groups and settings are chosen based on where information-rich data for the study most likely occurs. There is an unknown probability of selecting a particular individual of the population, and each unit in the sampling frame does not have an equal chance of being selected for a study (De Vos 2011: 391). Purposive sampling adopts a sample that is relevant to the study, from which the researcher can obtain specific information regarding the topics of the study (Marlow 2005, cited in De Vos 2011: 392). The participants that are selected for a study are often those that will be the most beneficial for the study in terms of their experiences about the topic researched (Seetharaman 2016: 42). Convenience sampling allows selecting a sample that is easily accessible to the researcher. Snowball sampling is a type of convenience sampling design, which is used for recruitment of participants with specific characteristics of interest to the researcher for the study. This is where the existing participants can recommend their acquaintances, that meet the inclusion criteria to be recruited as future participants (Ghaljaie, Naderifar and Goli 2017: 2; Seetharaman 2016: 41). Purposive sampling, convenience sampling and snowball sampling are types of non-probability sampling techniques that were used as the sampling strategies for this study.

The inclusion and exclusion criteria are detailed below:

3.6.1 Inclusion Criteria

1. Adult females between the ages of 18-65.
2. Females who had acute, episodic or chronic episodes of migraine headaches with or without aura.
3. Participants who were patients of chiropractors and had received chiropractic treatment for migraines.
4. Those who consented to participate in the study.

3.6.2 Exclusion Criteria

1. Adult females below the age of 18 and above 65 and did not experience migraines were excluded from the study.
2. Participants with other primary or secondary headaches were excluded from the study.
3. Participants who did not seek chiropractic treatment for migraine treatment were excluded from the study.
4. Participants who did not consent to participation were excluded from the study.

3.7 DATA COLLECTION PROCEDURE

Chiropractors in the eThekweni region of KwaZulu-Natal were selected by the researcher and contacted telephonically to enquire if they had treated potential participants that met the inclusion criteria. They were asked if they would be willing to trace and inform their patients of the proposed study. The chiropractors who confirmed assistance with recruitment of participants for the study were then each emailed a gatekeeper letter (Appendices 1a-7a) requesting for permission to recruit female patients who received chiropractic treatment for their migraines, and a flyer (Appendix 11) to place in the waiting room at their practice to enable recruitment of the participants. The chiropractors were required to respond to this via email to the researcher which granted the researcher permission to recruit their patients for the study (Appendices 1b-7b). Following submission of these gatekeeper and permission letters, the study received full approval from the Institutional Research Ethics Committee (IREC) at the Durban University of Technology (IREC no. 173/20) (Appendix 12).

Those participants willing to participate were given the researcher's contact details so that they could contact her. Additionally, those participants who consented to participate agreed to allow the researcher to obtain their name and number from their chiropractor. Once permission was secured and consent received from participants, the researcher facilitated contact with these participants to determine

if they met the inclusion criteria and if they would be willing to participate in the study. This process continued until the requisite number of participants was recruited for saturation to be reached. No coercion was used to recruit participants in the study.

3.7.1 The Interview Process

Once participants who met the inclusion criteria were successfully recruited through the aforementioned process, the researcher liaised with the participants to confirm the most accessible and convenient venues to conduct the interviews. The researcher and participants were required to wear a mask and maintain a safe distance, thereby ensuring that COVID-19 protocols were adhered to. Consent to participate in the study was then secured using a letter of information (Appendix 8) and informed consent form (Appendix 9), which were provided for each participant to read and sign before the commencement of each interview. Since the current COVID-19 pandemic influenced face-to-face interviews, video call interviews were also used for data collection. Prior to this type of virtual interview, participants were required to provide consent on the aforementioned forms via email ahead of the scheduled call. An offer to provide internet data to them for this was also made. Permission from the participants was obtained to voice record the virtual and face-to-face interviews.

The data was collected using in-depth semi-structured interviews. The interviews lasted approximately 45-60 minutes and were conducted by the researcher with an interview schedule (Appendix 10). Semi-structured one-to-one interviews are used to gain detailed information about participants' beliefs and perceptions of a topic (De Vos 2011: 352). This type of interview was considered best suited to receive personal information, where the researcher and participant could be flexible with regard to the topics being investigated. The researcher had pre-determined, open-ended questions which guided the interview (De Vos 2011: 342), and allowed the participants' maximum expression of their opinions regarding the topic in order to obtain information-rich data (De Vos 2011: 352; Seetharaman 2016: 44).

3.8 DATA COLLECTION TOOL

An interview schedule contains a list of questions in preparation for interviews and was the tool used for data collection in this study. The questions were open-ended to guide the interview and included the most appropriate questions that addressed the objectives of the study (Kumar 2014: 178, 374). Attached please find Appendix 10 which was the interview schedule used to guide the semi-structured interviews.

3.9 DATA ANALYSIS

The data was analysed using thematic analysis. This is “a method for identifying, analysing, organising, describing, and reporting themes found within a data set” (Braun and Clarke 2006, cited in Nowell *et al.* 2017: 2). The research questions included key information for analysing patterns in the data (Clarke and Braun 2013: 2). Thematic analysis allows for the identification of shared concepts, known as themes, within and across the data for the study (Clarke and Braun 2017: 297), and is a useful tool for capturing rich data (Nowell *et al.* 2017: 2).

The six phases of thematic analysis described below were adopted to analyse the data (Braun and Clarke 2006, cited in Clarke and Braun 2013: 3).

1. Familiarisation with the data:

The researcher was immersed in the data by repetitively listening to the audio recordings and re-reading the transcripts at least twice, to ensure accuracy of the capturing of information. Similar information from the transcripts was noted.

2. Coding:

The researcher generated codes from the transcripts using the questions from the interview schedule to guide the formation of labels for relevant information.

3. Searching for themes:

The researcher constructed themes by searching for patterns in the data. Thereafter, codes were assigned to the themes generated.

4. Reviewing themes:

The themes and sub-themes were reflected upon by the researcher to ensure they related to the research questions and objectives of the study. The researcher reviewed the codes under each theme and sub-theme to ensure they reflected relevant meaning to the study.

5. Defining and naming themes:

The researcher identified the essence of each theme, ensuring that each theme broadly related to the sub-themes, and constructed concise names for each theme.

6. Writing up:

The researcher extracted the relevant information from the transcripts for each theme and sub-theme and discussed it in relation to the existing literature.

3.10 RIGOUR

Nowell *et al.* (2017: 3) stated that “Lincoln and Guba refined the concept of trustworthiness by introducing the criteria of credibility, transferability, dependability, and confirmability to parallel the conventional quantitative assessment criteria of validity and reliability.”

3.10.1 Credibility

Credibility is similar to internal validity in quantitative research and is determined by the similarity between the results of the study and the participants’ congruence, validation and approval of the results of the study. The research accurately reflected the truthful opinions of the participants (Kumar 2014: 219). Credibility

ensures that the data is described accurately and in its complexity (De Vos 2011: 420). Credibility was attempted by endeavouring to reflect the views of participants as accurately as possible. Checking of participants statements with participants was also done for verification.

3.10.2 Transferability

“Transferability refers to the degree to which the results of qualitative research can be generalised or transferred to other contexts or settings” (Trochim and Donnelly 2007, cited in Kumar 2014: 219). The research process was thoroughly detailed and sufficient information about the study was provided for it to be replicated or transferable to another context.

3.10.3 Dependability

Dependability is similar to reliability in quantitative research and ensures that the results of the study are consistent, repeatable, and reproducible. If an observation is seen twice, the dependability is greater. This is also true if the results of two studies are similar. Although there is freedom of expression and flexibility in qualitative research, if there is a detailed record of a process of reproduction of the study, the dependability will be greater (Kumar 2014: 219). To ensure dependability, the research process should be logical, traceable, and clearly documented, as stated by Tobin and Begley (2004, cited in Nowell *et al.* 2017: 3). These protocols were observed to ensure dependability in this study.

3.10.4 Confirmability

Confirmability refers to the degree to which others agree or corroborate the findings (Trochim and Donnelly 2007, cited in Kumar 2014: 219). The research needs to clearly demonstrate how the researcher drew conclusions from the data (Nowell *et al.* 2017: 3). This study achieved confirmability by creating an audit trail that detailed the process of data collection, data analysis and interpretation of the data.

3.11 ETHICAL CONSIDERATIONS

3.11.1 Justice

Justice entails avoiding the exploitation of participants and ensuring that they are selected fairly (Orb, Eisenhauer and Wynaden 2001: 95). In this study, no discrimination was used in the recruitment of participants.

3.11.2 Non-Maleficence

This refers to the precautions taken to avoid physical or emotional harm or discomfort, so that participants are protected (De Vos 2011: 115). In this study, no insensitive questions were asked during the interviews. Hence, no emotional harm was caused to participants as the questions were respectful and ensured that no physical distress was created.

3.11.3 Beneficence

Beneficence is an obligation to ensure that benefits to the participants are maximised and harm is minimised (De Vos 2011: 116). This was upheld in the study.

3.11.4 Autonomy

Participants should have a basic understanding of what the research entails and should not be forced to participate or feel compelled to stay should they wish to withdraw from the study (De Vos 2011: 116). In this study, participation was voluntary, and participants were informed that they were free to withdraw from participating at any time.

3.11.5 Informed Consent

The participants were aware of the information that was required from them, their involvement in the study and how the study affected them. All pertinent information with regard to the study, and the credibility of the researcher was detailed in the

informed consent form (De Vos 2011: 117). Informed consent is voluntary and needs to include the necessary information about the study (Kumar 2014: 373). This was upheld in this study. Please see Appendix 8 for the letter of information, and Appendix 9 for the informed consent form as part of this process.

3.11.6 Deception of Subjects

The researcher should not deliberately mislead, withhold information or give incorrect information to participants (De Vos 2011: 118). Deception did not take place in this study and the participants were made aware of all necessary information before participating.

3.11.7 Confidentiality

Confidentiality is protection of all the participants' identities and those that are involved in the research, to ensure that information handling is confidential (De Vos 2011: 119). Participants must be informed of the steps to ensure that confidentiality is maintained throughout the study (De Vos 2011: 199). In this study, all data stored electronically was password protected on the researcher's laptop. All hard copies have been stored in a steel cabinet for five years at the researcher's residence. Five years after the study, both electronic and hard copies will be deleted/ shredded respectively.

3.11.8 Anonymity

Anonymity ensures that the information regarding each participant is not made available to third parties. Hence, pseudonyms were used in the final write up of the study.

3.12 LIMITATIONS

Most interviews were conducted virtually, due to the COVID-19 pandemic. Although rich information was captured through video calls, face-to-face interviews would have been preferred to extract rich data.

3.13 CONCLUSION

This chapter describes the research methodology used in this study. The next chapter discusses and analyses the findings of the study.

CHAPTER FOUR: ANALYSIS AND DISCUSSION OF FINDINGS

4.1 INTRODUCTION

This chapter focuses on the results, analysis and discussion of the findings. The purpose of this study was to explore physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management. The participants that were interviewed were females between the ages of 18 to 65 who visited chiropractic practices for treatment in the eThekwinini region of KwaZulu-Natal for migraine headaches. The data was collected using semi-structured interviews using an interview schedule. The data was analysed using thematic analysis. The data in this chapter is presented using themes and sub-themes that emerged from the raw data.

4.2 DEMOGRAPHIC PROFILE

The demographic data obtained from the interviews are presented in Table 1 below:

Table 1: Demographic profile of participants

Participant	Age	Occupation
1	32	Sales representative
2	31	Internal sales
3	27	Business development officer
4	30	Quantity surveyor
5	38	Police official
6	25	Electrical engineer
7	44	Operations manager
8	51	Housewife
9	62	Housewife
10	45	Personal trainer
11	40	Hairdresser, beautician, teacher
12	29	Merchandising manager

4.3 THE PROCESS OF DATA ANALYSIS

The data was analysed using thematic analysis. The latter is discussed in Chapter three. The process of data analysis began during the data collection phase, where the researcher became aware of the commonalities in the data during interviews. The interviews were recorded using an audio-recorder and were then transcribed verbatim by the researcher. The transcripts and recordings were cross checked multiple times to ensure accuracy of the data. The researcher then analysed the data by finding similarities in the transcripts, which led to the formation of sub-themes that emerged from the main themes.

4.4 DATA ANALYSIS AND FINDINGS

The migraine history of the participants is presented in Table 2 below:

Table 2: Migraine history of participants

Participant	Age of Onset of Migraines	Episodic/ Chronic Migraine
1	18	Chronic
2	20	Chronic
3	19	Chronic
4	18	Episodic. At age of onset – chronic
5	21	Chronic
6	22	Chronic
7	14	Chronic
8	19	Chronic
9	18	Episodic. From age of onset until menopause – chronic
10	Teenager	Chronic
11	Puberty	Episodic
12	10	Chronic

The themes and sub-themes that emerged from the data are presented in Table 3 below:

Table 3: Themes and sub-themes

Theme	Sub-themes
Theme One: Physical effects	Symptoms of migraine Impact on physical functioning and daily life
Theme Two: Psychological and cognitive effects	Depression and anxiety Feelings of hopelessness and withdrawal Fear-avoidance behaviour and lifestyle changes Acceptance of migraines
Theme Three: Effects on relationships	Impact on family and social networks: from strained to supportive relationships Impact on work life
Theme Four: Factors contributing to migraines	Stress Hormonal factors Oral contraceptives Dietary factors Weather-related factors and lighting Musculoskeletal factors Sleep deprivation
Theme Five: Chiropractic treatment for migraines	Experiences of chiropractic treatment for migraine pain management Perceptions of chiropractic treatment approaches to migraine management
Theme Six: Self-management of migraines	Resistance to medication Alleviating factors and alternative therapies

4.4.1 THEME ONE: PHYSICAL EFFECTS

Sub-themes:

- Symptoms of migraine
- Impact on physical functioning and daily life

The first main theme that emerged from the data was the physical effects that were experienced by the participants. The sub-themes that emerged from this are presented below. The excerpts below reflected the responses of the participants.

4.4.1.1 Symptoms of Migraine

The following excerpts reveal the location and character of the migraine pain:

“I get a throbbing sensation behind my eyes and behind my forehead. The pain runs from the front of my head all the way through to the back. Majority of the time it’s on one side.” (Pt 2)

“I can only explain it as pressure.” (Pt 3)

“It was the base of my skull, the top of my head, the temples and a lot around my eye area.” (Pt 4)

“It’s a pounding headache. I mostly get it on my right side.” (Pt 8)

The following excerpts reveal the associated symptoms experienced with migraine without aura:

“I’ve thrown up quite a few times while having a migraine... the sensitivity to light, sound and smell.” (Pt 4)

“I feel nauseous, very lightheaded, and extremely sensitive to light and noise. I can barely manage the days that I have it.” (Pt 8)

“It’s vomiting, you feel nauseous, neck pain, sensitivity to light and sound.” (Pt 11)

The following excerpts reveal the symptoms with migraine with aura:

“With the aura, I experience issues with my depth perception. The aura is maybe two to three hours before the onset of the tension. Light, noise and movement sensitivity is one of the three big warning triggers for me that a migraine’s going to hit. With the vestibular migraine, I usually have these dizzy episodes, with no nausea. I feel off-balanced. Then the pain will start. It will be noise sensitivity, light sensitivity, then nausea and then the throbbing pain. I couldn’t be in a room with anybody else because if they moved, it triggered the vertigo.” (Pt 3)

“It got hazy and black spots.” (Pt 7)

“I used to see a zigzag and stars. I used to get it a day before. Then I know I’m going to get a migraine.” (Pt 8)

Migraine without aura was the most common type of migraine experienced by the participants. The pain was experienced in the frontal, suboccipital and temporal regions with associated eye and neck pain. The symptoms experienced by the participants with migraine without aura were photophobia, phonophobia, sensitivity to smell, nausea, vomiting and loss of appetite. Most participants experienced unilateral pain. The pain was described as heavy, throbbing, and pounding in character. The following phrases were used by the participants to describe the intensity of the pain: “almost like someone’s putting a hammer at the back of your skull,” “you actually feel like you want to take a spoon and scoop your eye out from that pain,” and “the only release that I could get was actually pressing my head up against a wall.” The pain intensity was also described as severe and excruciating.

Migraineurs reported to experience moderate to severe unilateral throbbing, pounding or pulsating pain (Igarashi *et al.* 2020: 4). Prior literature revealed that migraineurs experienced associated photophobia, phonophobia, nausea, vomiting, allodynia, head and neck pain (Connor *et al.* 2021: 1; Peters *et al.* 2005: 43; Moore *et al.* 2017: 519; Malone, Bhowmick and Wachholtz 2015: 538; Vo *et al.* 2018: 538). The participants with migraine with aura experienced temporary changes in their vision, including photophobia, phonophobia, nausea, vomiting,

and vertigo. Migraineurs also reported seeing flashing lights or spots before the onset of the headache (Igarashi *et al.* 2020: 4).

4.4.1.2 Impact on Physical Functioning and Daily Life

“When I get the migraine, I have to stop what I’m doing. Everything comes to a standstill.” (Pt 11)

“It’s probably the worst thing I’ve ever experienced.” (Pt 12)

“I was incapacitated for at least a week. You force yourself to concentrate, to be present, because that blinding pain is all you can really concentrate on.” (Pt 3)

“I can’t concentrate.” (Pt 9)

“It’s exhausting.” (Pt 1)

“I’m feeling very drained. It really takes everything out of me. When I have an episode there’s nothing much I can do. I can’t even sit for long.” (Pt 5)

“I feel very groggy. I take medication and I’m not sure if it’s the medication that’s making me groggy or if it’s just the migraine that’s making me feel that way. There have been days that feel like my body’s been battered. I felt it was quite debilitating because I couldn’t do anything.” (Pt 4)

“I feel tired. It’s very hard to sleep when you’re in that kind of pain. You feel like your head’s going to explode.” (Pt 10)

Migraines often interfere with daily activities (Conner *et al.* 2019: 1). The quality of life and its associated burden with regard to individual functioning amongst those with migraines is substantially diminished (Dindo *et al.* 2015: 109). Estave *et al.* (2021: 1009) documented that migraines make life more difficult and result in a lack of control over life. Furthermore, those afflicted endure impaired concentration and communication. The impact of migraines on the physical functioning of 32 adult participants in the USA, the majority of whom were females, was documented empirically by Mannix *et al.* (2016: 5). The researchers reported an impact on more than 50% of the migraineurs, with regard to their ability to perform

activities and function during and after the migraine episodes (Mannix *et al.* 2016: 5).

Mannix *et al.* (2016: 5) reported the impact of migraines on daily activities, such as difficulty in performing daily chores, self-care tasks or errands, and the inability to perform activities in loud noises or bright lights. Migraineurs also reported having reduced ability to concentrate and think, with resultant reduction in performing school or work activities (Mannix *et al.* 2016: 5; Basdav, Haffejee and Puckree 2016: 1680). Participants in this study described their life as coming to a standstill when experiencing migraines, which resulted in them neglecting activities and rendering themselves unable to complete daily activities for the duration of their migraine episodes. Migraineurs were reported to have experienced impairment during all phases of the headache (Gibbs *et al.* 2020: 1352). The postdrome effects experienced by the participants were lethargy and feeling groggy. However, most participants did not experience postdrome effects after the headache phase of the migraine. Ng-Mak *et al.* (2011: 110) revealed that migraineurs described the postdrome phase as being wiped out, having a headache hangover, coming out of it, having a lingering dull pain, and wanting to be left alone.

The impact on the ability to physically function during migraines was reported by the majority of the migraineurs in a study conducted by Mannix *et al.* (2016: 5). This included the need to lie down or rest, difficulty with head movement, walking, forward flexing the body, arising from the bed, and any physical activities (Mannix *et al.* 2016: 5). The participants in this study stated that they felt incapacitated and debilitated during an episode. Rutberg and Öhrling (2012: 332) revealed that the feeling of incapacitation experienced by female migraineurs led to anxiety and fear. Rutberg and Öhrling (2012: 332) also revealed that women with migraines, felt as if their life was at a standstill, were unable to participate in daily activities, had hours of bed rest, and reduced concentration. Migraineurs were unable to function normally during attacks or communicate effectively (Rutberg and Öhrling 2012: 332). Migraines also resulted in impaired sleep patterns, slow recovery, lost

time, and cessation of activities (Nichols *et al.* 2017: 4). Furthermore, migraineurs perceived their limitations regarding daily activities, work, family, and social life as a disability (Peters *et al.* 2005: 44). The above findings cohered with the responses of the participants in the current study.

4.4.2 THEME TWO: PSYCHOLOGICAL AND COGNITIVE EFFECTS

Sub-themes:

- Depression and anxiety
- Feelings of hopelessness and withdrawal
- Fear-avoidance behaviour and lifestyle changes
- Acceptance of migraines

The second main theme that emerged from the data involved the psychological and cognitive effects of the migraine experience. Four sub-themes emerged from this theme. The sub-themes and the excerpts are presented below. The excerpts reflected the responses of the participants.

4.4.2.1 Depression and Anxiety

“You get really depressed. You have anxiety. You always feel like you’re a sickly person.” (Pt 1)

“It does make you very anxious. Your mind is constantly thinking because of the pain. It does get to you sometimes where you’ll get depressed, or worried because you’re constantly having these headaches. It becomes so frustrating. It becomes upsetting with everything else in life.” (Pt 2)

“I do have the anxiety because I think it’s going to develop into a vestibular migraine and I’m going to fall down. Whenever I have the onset of migraine, I do have anxiety medication that I take as well. Sometimes it gets so bad that you actually do want to die.” (Pt 3)

“Very sad... The pain is so bad you just want to pray and pray, just take this pain away. It’s really depressing. Lots of anger as well, like why do I have to go through this and why does it have to be so painful?” (Pt 8)

“When I have a migraine, often I’ll have a cry, even though that actually makes it worse but I’m in so much pain.” (Pt 12)

Several participants experienced a delay in their diagnosis of migraines which resulted in anxiety and depression. This is reflected in the excerpts below.

“The doctors didn’t know what it was. I went from doctor to doctor and eventually it got to a point where you just feel so depressed. It’s taken me about two and a half years now to get a diagnosis, to find the right doctor. You start to think, is there something wrong with me? Maybe it is in my head. But then I did get diagnosed. It’s very motivating to be on the right path. You got the right chiro helping you and the right doctors by your side. It’s an incredible feeling to have the right team motivating me to get better. There are treatments, holistic and modern medicine. I’ve definitely improved.” (Pt 1)

“Four years ago, they thought that I had a stroke, that I had a seizure. They didn’t know what was wrong... They said there’s a bone in my ear that moved from the inflammation in my ear, and my body thought that being on this side was the correct side. So when that inflammation went down I was finally able to slowly move to a normal position. And that’s when they said it was vestibular migraine.” (Pt 3)

“I went to a neurologist and they did my CT scan and she couldn’t get a reason as to why I was in so much of pain... My chiropractor was the only person that noticed my range of motion of my neck was what actually limited. And that’s how they found out what was causing my migraines.” (Pt 6)

“The headaches were very severe, but it wasn’t properly diagnosed.” (Pt 7)

“I went to a few doctors and at some point, they couldn’t figure out what was wrong with me and where the pain was coming from and they just resorted to antidepressants. The headache clinic was actually the only ones who figured my diagnosis out. I went to neurologists. I went around all the hospitals in Durban, just going to specialist after specialist. It actually got to a point where I went to a cardiologist, because of the auras. I’d obviously

feel my heart beating super fast because you don't know what's happening to you. It's super stressful.” (Pt 4)

Half of the participants experienced anxiety and depression. The literature reflects a high comorbidity between anxiety, depression, and migraines (Persson *et al.* 2021: 3, Estave *et al.* 2021: 1005; Dindo *et al.* 2015: 109; Banciu and Bouleanu 2018: 27; Farris *et al.* 2019: 1213; Malone, Bhowmick and Wachholtz 2015: 537; Baldacci *et al.* 2015: 4). Migraineurs are known to experience depression three times more commonly than those without migraines (Dindo *et al.* 2015: 109). A cross-sectional study undertaken in 17 European countries detected that anxiety and depression were common across all migraine frequency subgroups (Vo *et al.* 2018b: 326). According to Tassorelli *et al.* (2018: 816), patients with chronic pain constantly think about the pain, and commonly experience major depression and anxiety. Negative emotions and feelings of sadness were also experienced by migraineurs in a study done by Banciu and Bouleanu (2018: 27). In addition to sadness, other migraineurs also felt anger and irritability about the frequency of migraine attacks (Banciu and Bouleanu 2018: 28; Persson *et al.* 2021: 8). Feelings of sadness, worry, anger and frustration were also highlighted by the participants in the current study.

It is well known that migraines are not always diagnosed or treated, and most sufferers have experienced delays in diagnosis, inadequate treatment, and experience resultant feelings of helplessness and depression (Baksa, GonDa and Juhasz 2017: 41; Takeshima *et al.* 2019: 1). Belam *et al.* (2005: 91) reported that migraineurs experienced helplessness, anxiety, and depression due to their delayed diagnosis of migraines.

The comorbidity of depression and anxiety is highly significant as it has an increased risk for disability, medication overuse, and suicide (Dindo *et al.* 2015: 109). Persson *et al.* (2021: 8) and Belam *et al.* (2005: 90) reported that some migraineurs experienced suicidal thoughts during severe migraine episodes. One participant in this study reflected the same thoughts due to the pain severity.

Moreover, patients with chronic migraine and migraine with aura have been found to have an increased susceptibility to major depression, anxiety or suicidal thoughts (Dresler *et al.* 2019: 1; Minen *et al.* 2016: 741).

4.4.2.2 Feelings of Hopelessness and Withdrawal

“At some point I felt like such a liability. I bought a place of my own, I didn’t know if I’d manage and if ever I’d got one of these migraine attacks, what would I do on my own? The mood swings are intense for anyone to handle. I close off and I don’t really want to speak to anyone. I didn’t want to go out because of the light. In a work space, I’ve become very closed off and I ignore people.” (Pt 4)

“You become more introverted. It takes you longer to recover. You do generally withdraw, become more emotional, and very sensitive.” (Pt 1)

“I keep away. When I got a migraine, just leave me alone because I can get very irritated at the time. I tell everybody, you know that I got a migraine. I can’t do anything. Leave me alone for today. Don’t ask me to do anything.” (Pt 9)

“You don’t want to be around people that don’t understand you because at that moment you want to avoid stressful situations. I limited how much people I was in contact with just to eliminate the stress that it may have caused.” (Pt 6)

Helplessness, despair, and irritability have been documented amongst those with migraines (Banciu and Bouleanu 2018: 28). Estave *et al.* (2021: 1009), Basdav, Haffejee and Puckree (2016: 1680), and Palacios-Ceña *et al.* (2017: 9) documented that the emotional impact of migraines includes isolation, frustration, anger, guilt, mood changes, irritability and hopelessness. Migraineurs feel hopeless about their inability to manage their headaches (Persson *et al.* 2021: 8), and the unpredictability of a migraine also leads to a personal loss of control and feelings of frustration and helplessness (Banciu and Bouleanu 2018: 29; Palacios-Ceña *et al.* 2017: 9). Participants in the current study also felt hopeless, irritable,

were short-tempered, and emotional when experiencing migraines. They expressed a need to withdraw from people until the migraine passed. One participant said she was obligated to interact with family when experiencing migraines, which led to irritability. Some participants felt as if they were a burden and liability to those around them, especially to their families. Mannix *et al.* (2016: 6) discovered that more than half of the migraineurs in their study experienced emotional distress. This included worry, feelings of irritation or frustration, feeling like a burden or a disruption to others, disappointment or discouragement, a lack of control, embarrassment, and an impaired ability to be affectionate with others (Mannix *et al.* 2016: 6). Rutberg and Öhring (2012: 332) revealed that the impact of migraines on the lives of women resultantly led to feelings of anger, anxiety, and distress.

The experience of migraines also leads to feelings of vulnerability and insecurity about migraineurs' independence and ability to take care of their children (Rutberg and Öhring 2012: 332). Two participants reported feeling insecure about their independence due to a history of relying on others for assistance during their migraine attacks. However, participants with children did not report insecurity about their ability to take care of their children but did experience significant family burden as care-takers.

4.4.2.3 Fear-Avoidance Behaviour and Lifestyle Changes

"I went from a fully functional person to having to be worried about if something's going to happen, if this vestibular migraine's going to come on and I'm going to be driving and my balance is all off. I was an outgoing individual and that situation made me pull back. Now I have to be extra careful. It affects my daily life. It affects my work life. I don't watch 3D or 4D or 5D movies, no clubbing, and no driving at night because of the oncoming cars lights. You have to take precautions to not trigger it. Every time I'd get a migraine I'd have a fear that it would develop into a vestibular migraine and I'm going to lose a month of my life again because I'm going to be incapacitated." (Pt 3)

“I remember there was a day at work and I didn’t know what was causing the auras, and not being able to speak is a massive problem... I actually broke down to my boss at that point and I said please don’t send me on this training. It was a massive fear and it still is to this day when I have any public speaking or meetings with clients that this will happen. Just very scared when I’m meeting new people and should an aura happen with them. It’s impacted me in ways I don’t think I could have ever seen. The fear is the biggest thing for me, so no real way of living.” (Pt 4)

“I would avoid certain places like noises, and it limited me very drastically during that time. Work used to be so hard for me because the atmosphere didn’t allow it.” (Pt 6)

“If I know where there are too much bright lights like parties and functions, I stayed away because I know I’m going to get a migraine. Every time I had a migraine I thought, this was my last night, something’s going to happen to me and I’m not going to get up again. I had that fear in me that something’s going to happen to me all the time whenever I get a migraine headache.” (Pt 9)

“I have to keep in mind of not drinking certain things and not staying out too late because I don’t want to jeopardise not getting enough sleep and then waking up with a migraine. If I go out with friends, I can’t eat or drink certain things. I always have to be aware of everything like I can’t just do whatever, whenever. I always have to be careful that it’s going to come on.” (Pt 12)

The excerpts above revealed that the participants avoided triggering factors through fear-avoidance behaviours and were cautious about all their actions and activities. Although avoiding triggers may prevent the onset of migraines, it may result in a poorer quality of life and depression (Persson *et al.* 2021:3). It was discovered that migraineurs experience significant disability that interrupts work and daily activities, despite efforts taken to avoid their triggering factors (Connor *et al.* 2021: 4). Malone, Bhowmick and Wachholtz (2015: 540) reported that 88.3% of migraineurs actively avoid triggering factors.

Migraines changed the participants' personalities and daily activities. Work trips and events were declined due to fear of a potential onset of a migraine. Other women with migraines were also found to be unable to undertake a career change or embark on new opportunities to build their careers due to the fear of triggering their migraine attacks (Rutberg and or 2012: 332). Migraineurs were also found to be concerned about the frequency of migraine episodes experienced and feared a more sinister underlying condition that was potentially provoking them (Peters *et al.* 2005: 43). Migraineurs were found to be afraid of their attacks (Gibbs *et al.* 2020: 1352). This was also reported by some of the participants in this study. The participants feared the onset of migraines while driving, attending important work events, attending social activities and meeting new people. They also feared the development of a greater intensity of pain. One participant experienced two episodes of vestibular migraines in her life, which caused her to feel incapacitated and have anticipatory anxiety with every migraine episode. Balcı, Şenyuva and Akdal (2018: 11) documented that vestibular migraineurs had a significantly higher severity of dizziness and worse BEST-total score, which evaluates static and dynamic abilities, than migraineurs without a history of vertigo. Furthermore, Balcı and Akdal (2020: 747) documented that anxiety, disability, balance problems and motion sickness were more marked in vestibular migraineurs than migraineurs without a history of vertigo.

Most participants experienced anticipatory anxiety about their next migraine episode, which further impacted them psychologically and emotionally. In another study, more than half of the migraineurs experienced anticipatory anxiety and a need to be able to access their medication at all times (Scaratti *et al.* 2018: 1379). The need for access to medication always, in anticipation of a migraine attack was reported by most participants. Therefore, anticipatory anxiety was common amongst most participants, which leads them to display fear-avoidance behaviours, to avoid triggering factors and adopt drastic lifestyle changes since the onset of their migraines. Estave *et al.* (2021: 1009) and Palacios-Ceña *et al.* (2017: 9) also documented fear-avoidance behaviours with anticipatory anxiety, and pain catastrophising amongst those with migraines.

4.4.2.4 Acceptance of Migraines

“I’ve accepted it. There’s nothing I can do about it. There’s no point in stressing about it because it is what it is. I’ve come so far and I look at the bigger picture. I’ve accepted that there’s a lot I can do to change it.” (Pt 1)

“Life continues. My daily routine has to continue. I just push through, but I manage... Everyone’s accepted that this is the problem and I’m going to have it for the rest of my life. There’s nothing you can do about it.” (Pt 5)

“I get used to it. I just ignore whatever symptoms I’m having, and I just work through it. It’s there. It’s not going away. I can’t really let it affect me. It is affecting me, but I just have to carry on. I can’t just lie down and sleep. There are things to do and kids to see to. I don’t like to feel like a sick woman because it’s very debilitating.” (Pt 7)

Interestingly, one participant could not accept the disability associated with migraines. This was reflected in the excerpt below:

“I’ve got it for decades, from the age of nineteen. It is a norm, but it’s something that I just cannot accept, although it’s around for so long. It’s supposed to be part of my life. I’m supposed to be accepting it, but no. I cannot handle the drama, the nonsense it puts me through.” (Pt 8)

It was revealed that half of the participants did not let the migraines affect them personally or psychologically and accepted their migraines as a normal part of their lives. Some participants said that they could not allow their migraines to affect them personally because of their duties towards their families. Some participants stated that they took comfort in knowing what to expect with their migraines, which allowed them to accept the impact it has on their lives. One participant was unable to accept the disability that the migraine caused and felt as though she lost out on life with every day she was incapacitated due to bed rest associated with a migraine.

Pain acceptance amongst patients with chronic pain is associated with a greater pain tolerance, while the inability to accept pain can lead to depression, greater disability, and reduced quality of life (Dindo *et al.* 2015: 110). Female migraineurs perceived the pain of migraines to be a part of them since they had the chronic lived experience of it (Banciu and Bouleanu 2018: 28). Furthermore, there was familiarity in experiencing regular migraine episodes and an acceptance of it as a permanent part of their lives, even with active treatment and lifestyle changes (Banciu and Bouleanu 2018: 28; Palacios-Ceña *et al.* 2017: 9). Estave *et al.* (2021: 9) stated that patients also attempted to push through their migraine. These findings were paralleled in this study.

In another study by Peters *et al.* (2005: 44), it was found that the acceptance of migraine pain depended on the migraineurs' beliefs, and in their ability to cope with life, family and work commitments around their migraines. The study also revealed that migraineurs who were able to cope with obligations around their migraines, were more accepting towards their migraines. In contrast, participants in this study stated that although the migraines did affect all aspects of their lives, even if they could not deal with the migraines, they were obligated to fulfil their work and family duties. Hence, the participants had to accept migraines as a normal part of their lives, with the perception that migraines are a life-long disability. Half of the participants did not allow the migraines to affect them personally at the time of this study, although most participants reported having a history of associated anxiety and depression with their migraines.

4.4.3 THEME THREE: EFFECTS ON RELATIONSHIPS

Sub-themes:

- Impact on family and social life: from strained to supportive relationships
- Impact on work life

The third main theme that emerged from the data described the impact of migraines on family, social life, and work. Two sub-themes were derived from the

data. The sub-themes and the excerpts are presented below. The excerpts reflect the responses of the participants.

4.4.3.1 Impact on Family and Social Networks: From Strained to Supportive Relationships

The following excerpts reveal the impact of migraines on family life:

“I had to limit it to immediate family so that they knew how to handle me at that time. Anybody else who helped me, they didn’t know what to do.” (Pt 6)

“In the beginning it was very difficult for my family to understand, especially my mother. It took her a while to understand it wasn’t anything personal. It’s very difficult for your mum to understand that she can’t be there all the time and she needs to give you a bit of a break.” (Pt 1)

“It was such a fear for my parents to actually want to give me their blessings to go out and live on my own because they saw me at my worst, and they saw how bad it got.” (Pt 3)

“In the past if I’ve developed a migraine and we’ve been with family, my husband hasn’t been exactly very understanding. Sometimes it’s like you’re saying you have a headache because you don’t want to be there and you want to use that as an excuse to come home when you genuinely do have a headache, and it just comes up then unfortunately. It does trouble me all the time.” (Pt 7)

“If you’re living with other people you’ve got to get up and cater for them. You can’t even rest.” (Pt 9)

The following excerpts reveal the impact on social life:

“From a social point of view, there was never living your life and having any sort of social interactions after that. A couple of them actually had to drive me home on some days. Socially it’s still pretty difficult to explain why you’re not getting a second drink or why you’re not drinking at all. When

you're going out with work colleagues, you're drinking. So from that point of view, it was very difficult." (Pt 4)

"It interrupts my social life if I make commitments and I'm not well, I've had to cancel. I need to be around people that I can trust. I can't afford for people to judge me or get upset with me because I can't make a function because I'm not well." (Pt 1)

"To avoid answering questions, I used to stay away from social functions if I know I'm going to get a migraine." (Pt 9)

"My social life has taken a hit, but I found a new group of friends who also have migraines, so they understand." (Pt 3)

Some participants experienced a lack of understanding from others, as reflected in the excerpts below:

"Everybody is like, it's just a headache. They don't understand." (Pt 8)

"The only person who'd actually sympathise or know what you're going through is another migraine sufferer, and at home, sometimes you feel like you're just complaining, and they wouldn't understand. They're not going through it so they won't know how you're feeling. It's like you're complaining but you're complaining for the sake of complaining. Sometimes when I do have a headache I won't say I've got a headache. You want the family to feel you're not like a sick person all the time." (Pt 7)

"It was such an invisible illness that I've had people over the years say, just take a Panado, come out with us, you'll be fine. That's not how it works." (Pt 4)

"Nobody knows the pain that you go through unless they go through it themselves." (Pt 9)

According to Nichols *et al.* (2017: 5), migraineurs have strained relationships with close friends and family. The current study found that half of the participants experienced challenges with personal or family relationships. Some participants

initially experienced a lack of understanding from a parent's or husband's perspective about the extent of the suffering they experienced. However, over time their personal relationships improved due to their families witnessing their episodes of migraine attacks. Two participants had past experiences of being accused of malingering about their pain or making excuses to leave family events when experiencing migraines. Palacios-Ceña *et al.* (2017: 9) also documented that female migraineurs with chronic migraine were accused by their families of exaggerating their pain. Most participants isolated themselves from their families during their migraine attacks, and some participants experienced the increased burden of taking care of their children when experiencing migraines. Leonardi and Raggi (2019: 6) also stated that migraineurs who were caregivers also experienced family burden. There were only two participants that did not experience a history of strained relationships.

The social impact of migraines was discussed by Mannix *et al.* (2016: 6) and Moriarty and Mallick-Searle (2016: 27). They found that migraines affect participation in hobbies, with limitations in social interactions, social events or activities which especially involve loud noises and bright lights. Migraines also limit family activities and spending time with family. Vo *et al.* (2018b: 326) discovered that social and daily activities are also impaired regardless of migraine frequency. Migraines had a significant effect on all the participants' social lives in the current study. According to Rutberg and Öhrling (2012: 332), migraines were found to be more burdensome for females during weekends as it interrupted the time that was meant to be for resting and socialising with family and friends. At times where migraineurs could not perform tasks (Gibbs *et al.* 2020: 1351; Peters *et al.* 2005: 44), friends, family or colleagues had to assist them. Some participants in this study expanded their social circle to a supportive network that accepted them and assisted them when they experienced migraines. Two participants in the current study also found a support group who experienced migraines to share their migraine experiences.

A few participants had challenges with their social networks when cancelling social plans. This resulted in strained short-lived relationships. Some participants hid their experience of migraines from family, peers, and work colleagues to avoid being judged. Hence, participants made excuses to those in their social networks to avoid visiting certain places that triggered their migraines. Participants had difficulty meeting new people socially in anticipation of experiencing a migraine or explaining to people in social situations why they would not consume more alcohol, or why they would not consume alcohol at all. Most participants have since built more supportive relationships. Malone, Bhowmick and Wachholtz (2015: 538) highlighted that nearly three quarters of their study participants' social networks did not believe the participants about the severity of the migraines. This was paralleled in this study as participants described the lack of understanding they encountered in social interactions about the severity of their pain.

4.4.3.2 Impact on Work Life

The following excerpts reveal the impact of migraines on work life:

“Previous managers were not sympathetic. Not everybody at work understands that it's not just a bad headache. So that gets a bit difficult when I say need to not be at the office for a headache. There are some days when I just have to call in sick for a migraine.” (Pt 3)

“It has been tricky with clients. It's not always easy to say I'm not well again. It is a bit of a struggle.” (Pt 1)

“It creates more pressure on you because you constantly have that headache there. You're still getting all your work done and it does stress you out a bit more.” (Pt 2)

“I just work through it because it's part of everyday for me now. With work I can't afford to take time off because it's there. I ignore it.” (Pt 7)

“I keep Grandpa (a brand of analgesic tablets containing paracetamol and aspirin) in my bag, because that's the fastest working thing that I can do if I'm at work and I'm getting a migraine, otherwise I literally cannot function, and I can't afford for that to happen.” (Pt 10)

“Definitely it does negatively affect my work in terms of not being able to be at work all the time. At my work, there have been quite a few people who have had migraines before, so my bosses all understand, it’s not just a thing.” (Pt 12)

“They know it’s serious and they’re very understanding about it luckily.” (Pt 4)

As revealed in the above excerpts, migraines affected the participants’ ability to concentrate at work. Some participants needed to take leave from work, due to the inability to adequately function during a migraine attack. A few participants hid their migraines, were not willing to disclose that they have migraines to their co-workers, and would make excuses as to why they were ignoring them during a migraine attack. Those participants who did disclose their headaches were frequently met with co-workers who did not understand the severity of the headache. Palacios-Ceña *et al.* (2017: 9) also documented that female migraineurs with chronic migraine encountered a lack of understanding from co-workers and managers about their migraine severity. Rutberg and Öhrling (2012: 333) stated that migraineurs have a deep desire to be believed by others, struggle to hide their symptoms and, as much as possible, avoid situations in which they could be doubted by others. They tend to disclose their migraine history to relatives and friends, rather than work colleagues or non-migraineurs (Scaratti *et al.* 2018: 1379). Hiding or concealing migraines leads to the avoidance of others and isolation (Scaratti *et al.* 2018: 1379). Migraineurs were reported to be reluctant to discuss their feelings about their migraines due to their fear of being judged or considered to be weak or vulnerable (Banciu and Bouleanu 2018: 29). Belam *et al.* (2005: 90) also found that the impact of migraines is not understood by non-migraineurs, due to an implication that the patients are malingering and that migraines are not perceived as an illness.

Most participants did not have issues with taking leave from work for their migraines and stated that they were fortunate to have an understanding work environment. Although it caused functional disability, the participants continued to

work through their migraines because they could not afford to take days off work and still be able to meet work deadlines. Therefore, the participants felt obligated to work regardless of their health. Although it significantly affected them, most participants would ignore their headaches and continue to work through it. Some participants worked through a mild migraine, and only took leave from work if they felt obligated to or if the migraine was severe. Other participants continued to work through their migraines, despite the severity. The perception that the participants had was that if they did not fulfil work obligations, nobody would do their work for them. Participants worked through their migraines until they were able to rest.

Migraine is associated with decreased concentration, daily activity impairment, reduced productivity and missed workdays (Gibbs *et al.* 2020: 1352; Raggi *et al.* 2014: S23). Migraineurs were found to be distressed when a migraine developed at work, and had trouble coping with the pain, as they maintained their work obligations (Connor *et al.* 2021: 4). Gibbs *et al.* (2020: 1356) found that migraineurs had a 65% work productivity loss. Malone, Bhowmick and Wachholtz (2015: 539) discovered that the participants' migraines had an impact on career progression in the workplace. Similarly, a participant in this study declined a work trip due to the fear of the onset of her migraines. Migraineurs with a higher migraine disability were found to have more severe problems at work (D'Amico *et al.* 2015: S9). Vo *et al.* (2018b: 326) documented that on average 2.3 workdays per month were missed due to migraines, and one in four moderate to severe migraines (dependent on the disability) led to absenteeism. Absenteeism (absent from work due to a migraine) was significantly higher than presenteeism (at work with a migraine) (Vo *et al.* 2018: 326). Contrary to this common finding, it was revealed that presenteeism was encountered more often than absenteeism in the current study.

4.4.4 THEME FOUR: FACTORS CONTRIBUTING TO MIGRAINES

Sub-themes:

- Stress
- Hormonal factors
- Oral contraceptives
- Dietary factors
- Weather-related factors and lighting
- Musculoskeletal factors
- Lack of sleep

The fourth main theme that emerged from the data included the factors that contributed to migraines. There were seven sub-themes that emerged under theme four. The factors contributing to migraines were identified as stress, hormonal factors, oral contraceptives, dietary factors, weather-related factors and lighting, musculoskeletal factors, and lack of sleep. The excerpts are presented below.

4.4.4.1 Stress

Stress was seen as a huge triggering factor:

“It depends how much stress I’m under. Stress is a major factor.” (Pt 1)

“I have also noticed stress is a factor. When I stress a lot, the headaches come.” (Pt 5)

“I think stress is a big one.” (Pt 4)

Psychological factors, such as stress and anxiety, are one of the major triggering factors associated with migraines (Ray *et al.* 2017: 1283; MacGregor 2017: ITC64; Vo *et al.* 2018b: 325). Malone, Bhowmick and Wachholtz (2015: 537) reported that stress associated with migraines correlated with the number of migraine symptoms experienced per month, and with the length of time since the first onset of migraine symptoms. Furthermore, Malone, Bhowmick and Wachholtz (2015: 537)

highlighted that the associated stress experienced with migraines may contribute to psychological or medical comorbidities and are both a cause and effect of social and medical impairments brought on by migraines, thus having a cyclical relationship.

Chronic stress exacerbates the intensity of migraine pain and has been shown to lead to the development of major depressive disorder (Minen *et al.* 2016: 742). Moreover, Malone, Bhowmick and Wachholtz (2015: 537) found that depression and anxiety are associated with migraine stress. Connor *et al.* (2021: 40), Banciu and Bouleanu (2018: 28) and Pellegrino *et al.* (2018: 1194) revealed that migraineurs describe stress as a major contributing factor that triggers and intensifies their migraines. Pellegrino *et al.* (2018: 1194) stated that poor coping mechanisms due to stress, such as poor sleep or diet, may precipitate or exacerbate headaches. Vives-Mestres *et al.* (2021: 91) further noted that migraineurs experienced stress peaks during the pain phase of the migraine cycle, and 7.1% migraineurs stated that stress was a triggering factor in at least 50% of their attacks. Similarly in the excerpts above, all participants, except for one, described stress as a major contributing factor in triggering their migraines.

4.4.4.2 Hormonal Factors

The excerpts below reflect the contribution of hormonal factors as a triggering factor:

"I get them mostly just before my period." (Pt 10)

"It happens at least three days before (my period starts). It surprisingly stops just before the bleeding starts, then throughout the cycle there's no migraines." (Pt 3)

"I used to get it a week before and after I had my period." (Pt 7)

"When I'm on my period I get slight migraines for two days." (Pt 12)

"When it's a week before my period that will be the worst that I have the migraine." (Pt 5)

“It’s one-week heavy (menstrual) flow, and then the migraine, two weeks in a month.” (Pt 9)

“The aura was actually hormonal. It would start with this tingling sensation in my mouth, and I was completely unable to articulate what I wanted to say. It would affect the one side of my body, the nausea... I’d get really hot. Then for two or three hours you’d get this blinding headache. The vision would be blurry and cloudy. Everything would just sound amplified to me. I’ve become very sensitive to light and sound when I have a migraine.” (Pt 4)

The excerpts below reflect the responses of migraine during pregnancy:

“Throughout my pregnancy, every month I used to get it.” (Pt 9)

“I never had migraines when I was pregnant.” (Pt 5)

Menstrual migraine is the most prevalent subtype of migraine in women (Todd, Lagman-Bartolome and Lay 2018: 2). It occurs most frequently in the second decade of life, peaks around age 40 and declines as menopause approaches (Todd, Lagman-Bartolome and Lay 2018: 2). Women that are susceptible to experiencing migraines are those that are sensitive to hormonal changes and may experience migraine with menstruation or pregnancy (Wang *et al.* 2003, cited in Ripa *et al.* 2015: 780; Charles 2017: 555; Pellegrino *et al.* 2018: 1194). Allais *et al.* (2017: S85) reported that more than 50% of those with migraines without aura have an association with migraines and the menstrual cycle. Vo *et al.* (2018b: 325) reported that 81% of migraineurs in their study affirmed that menstruation was a triggering factor. Most participants noticed a hormonal relationship between their migraines and menstruation. In the current study, nine of the twelve participants experienced migraines during their menstrual cycle. Six participants had migraine attacks either before or after menstruation, and two participants had attacks during menstruation. Most participants had migraine without aura, and one participant had menstrually related migraine with aura.

Factors affecting migraine during pregnancy include stress, hormonal changes, nausea, disrupted sleep and dehydration. Todd, Lagman-Bartolome and Lay (2018: 4) further stated that migraines may worsen during the first trimester due to the rise in oestrogen levels, and improve in the second and third trimester, although attacks may persist beyond the first trimester. In migraines triggered by menstruation or in migraine without aura, migraineurs experienced an improvement in migraine frequency during pregnancy due to the hormonal fluctuations or high levels of oestrogen and endorphins. However, some women, especially with migraine with aura, experienced worsening of migraines (Alcantara and Cossette 2009: 194). One participant experienced severe migraines throughout her pregnancy and had a history of migraine with aura. The other two participants with children did not experience migraines during pregnancy. Menopause is characterised by a decline in oestrogen and progesterone with hormonal stability (Sacco 2012, cited in Ripa *et al.* 2015: 780). It was reported that menopausal women with hot flushes or night sweats had a higher migraine prevalence than those without (Wang *et al.* 2003, cited in Ripa *et al.* 2015: 780). The two post-menopausal participants in the current study experienced a decrease in migraine frequency during and after menopause.

4.4.4.3 Oral Contraceptives

The excerpts below reflect the contribution of oral contraceptives as a triggering factor:

“Mine would actually happen because I was on the pill. It would happen the Saturday after my placebo week. The auras were caused by the pill.” (Pt 4)

“It’s once I started with contraception; my migraines started. I was on the pill.” (Pt 5)

“I didn’t know it was the pill that was also aggravating or causing the problems further.” (Pt 7)

Oral contraceptive use has been shown to be associated with triggering and exacerbating migraines (Charles 2017: 555; Wang *et al.* 2003, cited in Ripa *et al.*

2015: 780; Alcantara and Cossette 2009: 194). Similarly, migraines were triggered by oral contraceptives amongst three participants. It is suggested that the drop in oestrogen levels during the first few days of the menstrual cycle, amongst those taking combined oral contraceptives (COC) may be a contributing factor in triggering migraines (Allais *et al.* 2017: S85). In addition, migraines may also be triggered during the hormone free interval in those on combined oral contraceptives (Allais *et al.* 2017: S85; Machado *et al.* 2010: 202), thus causing more disabling migraines (Todd, Lagman-Bartolome and Lay 2018: 3). Machado *et al.* (2010: 202) reported that migraines occurred during the hormone free interval in those on COC. However, in the current study, two participants experienced migraines after the hormone free interval (placebo week), and one participant had migraine attacks every week on the COC, including the hormone free interval.

4.4.4.4 Dietary Factors

The excerpts below reflect the contribution of dietary factors, inconsistent eating habits and dehydration as triggering factors:

“If I would have a glass of wine, if I didn’t eat it will (be triggered) and if I don’t have enough water.” (Pt 1)

“The food that triggered it was cheese. Caffeine would, but not as bad as cheese would trigger it.” (Pt 4)

“If I eat yellow cheese, if I eat too much chocolate, it’s a trigger as well. I’ve also noticed that if I eat spicy food like a curry, it triggers it.” (Pt 5)

“There are some triggers like coffee, and very salty foods.” (Pt 2)

“Chocolate, dairy and caffeine.” (Pt 12)

“I think when I drink less water that causes it.” (Pt 11)

Charles (2017: 555), MacGregor (2017: ITC54), Ray *et al.* (2017: 1283), Connor *et al.* (2021: 4), Vo *et al.* (2018b: 325), Moore *et al.* (2017: 519), MacGregor (2017: ITC64) and Malone, Bhowmick and Wachholtz (2015: 542) reported that cheese,

chocolate, alcohol, caffeine, inconsistent or missed meals, dehydration, and inadequate water intake triggers migraines. Participants stated that dairy products such as cheese, milk and chocolate triggered their migraines. Caffeine, pungent foods, and red wine also triggered their migraines. Other dietary triggering factors included inconsistent eating habits and dehydration. The current study is consistent with previous literature on dietary triggering factors in migraineurs.

4.4.4.5 Weather-Related Factors and Lighting

The excerpts below reflect the contribution of weather changes, sunlight, bright lights and fluorescent lights as triggering factors:

“Light is actually still a trigger for me. The sensitivity to light, like on overcast days I would not be able to go outside.” (Pt 4)

“Mine would be like bright light, like the sun.” (Pt 2)

“If I have to go out at night, bright lights from oncoming traffic used to give me headaches.” Pt 9)

“A trigger is like if I’m sitting under a really bright light I can almost feel it’s starting to bring on a migraine. So even at work I’ve had to get them to move the fluorescent lights out.” (Pt 12)

“It was the cold wind that used to start it, because I couldn’t go out in the cold. The first signs used to be there, a change of weather.” (Pt 9)

“When it’s very hot, it triggers (the migraine).” (Pt 5)

Most participants reported that changes in weather, sunlight or bright lights (photophobia) are migraine triggering factors. Fluorescent lights triggered migraines in one participant, who stated she required the removal of fluorescent lights in her work environment. Photophobia was reported to trigger migraines (Pellegrino *et al.* 2018: 1193; Ray *et al.* 2017: 1283). Humidity and heat triggered migraines in one participant. Ravat, Chaudhari and Chafekar (2018: 48) reported environmental triggering factors such as sunlight, humidity, heat, and pollution amongst other migraineurs. Connor *et al.* (2021: 4), Vo *et al.* (2018b: 325), Moore

et al. (2017: 519), Pellegrino *et al.* (2018: 1194), and Malone, Bhowmick and Wachholtz (2015: 538) also identified triggering factors such as weather changes and fluorescent lights amongst migraineurs.

4.4.4.6 Musculoskeletal Factors

The excerpts below reflect the contribution of musculoskeletal triggering factors:

“Posture definitely was one of the big reasons for my migraine, also my habit of looking down at my phone. That caused a massive problem with my migraines.” (Pt 4)

“I think the position I used to work in. I think that actually affected it and that actually caused it.” (Pt 6)

“It’s definitely my neck, so it would be from sitting at the computer a lot. So how I’m sitting at my desk or if I’m sitting at the bed working, it definitely affects it.” (Pt 12)

“Possibly strain from working out. My posture... a lot of the time I’d be sitting at my desk, and I’ll be sitting hunched all day and my neck is sore. Another thing I suffer with is TMJ (temporomandibular joint dysfunction). So definitely the jaw clenching is another thing that triggers it which is quite difficult to control when you’re asleep.” (Pt 1)

“There’s also a lot of tension that builds up on your neck. It adds to your migraines. So sometimes all the tension builds up on your shoulders and neck, it also aggravates a migraine.” (Pt 2)

“Travelling used to trigger it a lot. So it was a lot of muscular pain that would actually trigger it.” (Pt 4)

“I think its overworking.” (Pt 11)

Participants explained how musculoskeletal issues are triggering factors for their migraines. Most participants described how poor posture, working long hours on the computer, bruxism or jaw tension, muscular pain, neck tension and physical work triggered their migraines. According to Connor *et al.* (2021: 4), migraineurs

reported that neck and shoulder tightness was triggered by stress in the workplace, and poor posture was recognised as a factor that precipitated migraines. Furthermore, jaw pain and muscle tension were found to be related to their migraines (Connor *et al.* 2021: 2). Neck pain, neck stiffness, muscle tension and poor posture were reported to be triggering factors for migraines (Wayne *et al.* 2020: 2; Bernstein *et al.* 2019: 1; Connor *et al.* 7; Ray *et al.* 2017: 1283). Physical activity was also shown to trigger migraines (Malone, Bhowmick and Wachholtz 2015: 538). This was also stated by a few participants. Bernstein *et al.* (2019: 1) noted that musculoskeletal complaints, such as muscle tension, jaw dysfunction and neck stiffness, were commonly reported by migraineurs, and over 75% of patients reported the association of neck pain with migraines. The findings regarding the triggering factors in the current study are consistent with the triggering factors mentioned in the aforementioned studies.

4.4.4.7 Sleep Deprivation

The excerpts below reflect that lack of sleep or inconsistent sleeping habits trigger migraines. Participants stated:

“What also could be contributing, I’m a very bad sleeper. With only getting a couple hours of sleep your body’s not relaxing so it’s also adding to the stress and the tension that I’m under.” (Pt 7)

“I’ve noticed it does depend on whether I’m getting a lot of sleep or I’m not sleeping a lot.” (Pt 12)

A few participants reported sleep deprivation or inconsistent sleeping habits as migraine triggering factors. Ferini-Strambi, Galbiati and Combi (2019: S107) described a cycle linking sleep disorders and migraine. Migraines could be triggered by poor sleep quality or poor sleep duration, and it was revealed that migraineurs with poor sleep reported a higher frequency of migraines. Furthermore, Ferini-Strambi, Galbiati and Combi (2019: S107) stated that factors that can precipitate and exacerbate sleep disturbances could also be the coping behaviours adopted by migraineurs, such as sleeping early to relieve migraine episodes. Most participants slept early or during their migraine attacks in order to

cope with their pain. Interrupted sleep, sleep deprivation, irregular or poor sleeping habits were also identified as migraine triggering factors (Charles 2017: 555; Ray *et al.* 2017: 1283; MacGregor 2017: ITC64; Pellegrino *et al.* 2018: 1194; Connor *et al.* 2021: 4; Vo *et al.* 2018b: 325; Moore *et al.* 2017: 519; Malone, Bhowmick and Wachholtz 2015: 538).

4.4.5 THEME FIVE: CHIROPRACTIC TREATMENT FOR MIGRAINES

Sub-themes:

- Experiences of chiropractic treatment for migraine pain management.
- Perceptions of chiropractic treatment approaches to migraine management.

The fifth main theme that emerged from the data related to the experience of chiropractic treatment for migraines. The sub-themes and the excerpts are presented below. The excerpts reflected the responses of the participants.

4.4.5.1 Experiences of Chiropractic Treatment for Migraine Pain Management

“When it comes to pain relief, it has reduced significantly after going to a chiropractor. I know for a fact that it saves me from weeks of pain. I must say the quality of life, so much better now. It’s one of the only things that helped me. I try not to take medication and I just find that chiro itself has been such a good alternate to the standard stuff that you get prescribed.”
(Pt 4)

“If I feel the aura, where I know I’m going to get the headache, I’ll book an appointment. I find that if we can start treatment earlier, it reduced the need of medication, and the severity of the migraine. She sorts out the tension. If she releases that then the severity is greatly reduced. The recovery time is faster, or the suffering time is less, and I don’t need to take as many pharmaceutical drugs than required. I would go to the chiropractor first, before taking medication, because it’s that much fast a relief. If I have a migraine, then I will see her today and then maybe in two days. There’s like

a release of pressure and already the pain will be diminishing. I always tell people go to the chiro first.” (Pt 3)

“I would say it’s one of the best treatments compared to taking medication. I would say that the chiropractor is the best for me especially for my migraines, because that is what helps me. I’ll be suffering for days with the migraine; I’ll go see her and the next day I’m sorted. It’s quick. You can actually feel it release the pressure.” (Pt 5)

“I haven’t experienced as many severe headaches as I used to. It reduced drastically. I would say the only thing that helped me was going to the chiro. I think it was how quickly I felt the relief of the pain because by the second day I already felt the pain subsiding. I was able to go about a more normal life and not have such a heavy headache constantly.” (Pt 6)

“When I go to the chiro I don’t suffer with as much headaches as I used to and it’s not as bad as it used to be.” (Pt 2)

“The next day I do feel a lot better, because sometimes I can take as much medicine as I want to and it just doesn’t help, and as soon as I go to the chiro it definitely helps.” (Pt 12)

According to Connor *et al.* (2021: 2), Rist (2019: 533) and Wayne *et al.* (2020: 1), due to the comorbidity of musculoskeletal complaints and migraines, chiropractic is a potentially promising evidence-based non-pharmacological approach to migraine management, due to the concurrence of migraine and musculoskeletal tension and pain. Bernstein *et al.* (2019: 2) stated that chiropractic aims to reduce the overall burden of pain and optimises neuromusculoskeletal health by correcting postural strain and reducing muscle tension. Chiropractic treatment has been shown to reduce migraine frequency, duration, intensity and disability, and has had favourable effects in reducing migraine medication use and frequency (Rist 2019: 532; Tuchin, Pollard and Bonello 2000: 91; Cerritelli *et al.* 2015 and Chaibi *et al.* 2017, cited in Odell *et al.* 2019: 8; Bryans *et al.* 2011: 274; Bernstein *et al.* 2019: 4; Clar *et al.* 2014: 2). Similar findings were made in the current study.

Participants revealed that chiropractic treatment was their preferred approach to migraine management, as it proved to be the only beneficial and most effective treatment for their migraines compared to other treatments. Participants stated that chiropractic treatment reduced their need for medication and highly recommended chiropractic as a non-pharmacological approach to migraine management. Most participants stated that chiropractic reduced the severity of their migraines, disability, and the duration of suffering. They highlighted the quick recovery time of their migraines after seeking chiropractic treatment. One participant stated that chiropractic treatment saves her from weeks of pain with a migraine and improves her quality of life. Chiropractic also reduced the frequency of migraines amongst some participants. They described the effect of chiropractic treatment as a relief of muscular tension and release of migraine pressure. All participants had favourable experiences with chiropractic treatment for migraine management and pain reduction.

4.4.5.2 Perceptions of Chiropractic Treatment Approaches to Migraine Management

The excerpts below reveal the participants' responses to the most beneficial aspects of chiropractic treatment for managing migraine symptoms:

"My chiropractor has been amazing from the adjustments, from my pain management, also from the point of view that she listens. We chat about where the pain is, what's caused the pain, how I'm feeling, what's going on in my life. From a holistic point of view as well, just what may be causing it, and what's causing the muscle pain as well. I think it's nice that she puts two and two together before she does the adjustments and works on the muscles. I think that also helps, understanding what the patient is going through. I suffer a lot because I clench my jaw a lot. I have a lot of tension here so for me the adjustment of the head and neck – that releases a lot of the tension and pressure. I have a lot of knots, so she releases all of that. I can feel I've now got mobility again. I don't feel so stiff. She's introduced needling, which is fantastic for my jaw, which really helps. The tension in my neck is far less, which is where a lot of where it stems from." (Pt 1)

“On many occasions I’ve left the office and gone straight to my chiropractor. Normally she’ll do dry needling, she’ll do soft tissue work, she’ll put the electrode pads on me, she’ll do some more soft tissue, and then we’ll do the adjustment. She’ll ice me down, or she’ll strap me, and by the end of that, I won’t even realise that I’m actually sitting up, that I’m talking, and that pain has lessened. When she does the dry needling, I can actually feel the tension knots when she’s broken it down. The neck adjustments are my favourite thing, and that is what I feel releases that migraine.” (Pt 3)

“Dry needling definitely, I think I found the most relief out of that, but also the adjustments for me. I saw the greatest relief from the adjustments.” (Pt 4)

“Releasing the tension, and also the advice that they give you, like what to do when you feel stiff and so forth and how you should be sitting and your posture.” (Pt 12)

Wayne *et al.* (2020: 6) revealed that chiropractic evaluation for migraines prior to treatment includes a thorough headache and clinical history which consists of a screen for ergonomic factors and habits contributing to headaches, neck pain and musculoskeletal strains. Thereafter, a thorough physical examination will be performed with an assessment of the cervico-thoracic region for posture, range of motion, myofascial trigger points, tenderness, muscular imbalances or hypertonicity, and joint and movement restrictions in the cervical and temporomandibular regions (Wayne *et al.* 2020: 6). The clinical management plans in a national cross-sectional survey of Australian chiropractors with a high migraine caseload were shown to include advice on nutrition, nutritional supplements, smoking, alcohol intake, physical activity, pain counselling, occupational health and safety, medications (Moore *et al.* 2017: 521), headache triggers, stress management and non-thrust spinal mobilisation (Moore *et al.* 2018: 174). Moreover, chiropractors with a high migraine caseload reported to manage migraine most frequently with spinal manipulation, drop-piece techniques, sacro-occipital techniques, instrument adjusting, functional neurology, dry needling, heat or cryotherapy, orthotics, and extremity joint manipulation methods (Moore *et al.*

2017: 523). Rist *et al.* (2021: 319) documented that migraineurs experienced reductions in migraine days with multimodal chiropractic care, which includes spinal manipulation, mobilisation, soft tissue release therapy, postural correction, stretching and advice.

The most beneficial aspects of chiropractic treatment, according to participants in the current study for migraine management, included cervical spinal manipulative therapy, dry needling, soft tissue therapy, ischaemic compression, electro-modalities, cryotherapy, strapping, and the advice on posture, strengthening exercises or stretches. Participants expressed their appreciation for the chiropractor-patient relationship and considered it an important aspect to migraine management as it helped participants feel validated about their pain. Chiropractors in the greater Durban area reported on their treatment techniques for migraine patients (Kleingeld 2016: 198), which included spinal manipulative therapy, stretching exercises, massage therapy, cryotherapy, cervical traction, electro-modalities, patient advice and education on stress management, exercise programs and dietary advice. The majority of these chiropractors expected relief of their patients' migraine symptoms within two days following treatment (Kleingeld 2016: 198). Participants in the current study sought chiropractic treatment for their migraines, with the onset of their migraines, every two to three weeks, once a month, or every few months. Participants highly recommended chiropractic treatment for migraine management as it was the only treatment that proved beneficial in reducing migraine pain and suffering.

4.4.6 THEME SIX: SELF-MANAGEMENT OF MIGRAINES

Sub-themes:

- Resistance to medication
- Alleviating factors and alternative therapies

The sixth main theme focused on the approach to self-management of migraines. Two sub-themes emerged from the data. The subthemes and the excerpts from the participants are presented below.

4.4.6.1 Resistance to Medication

The following participants were resistant to pharmacological treatment:

“This medication has helped, but it’s not something I want to be on. It’s not good for you. I have no plans to stay on this medication for the rest of my life and if I can do things holistically and change my lifestyle as best as I can to improve my situation, then I will.” (Pt 1)

“I try not to take medication, because I feel it takes such a long time to get out of your system and then you’re just groggy for weeks after.” (Pt 4)

“The doctor did put me on chronic medication, but I stopped taking that years ago. I don’t like taking medication. I do not want to take it because it has side effects.” (Pt 5)

“I can’t be taking tablets every day and the pain is quite severe. I don’t really like being on medication and that’s why I’ve been putting off going to the neurologist because I know he’s going to be putting me on medication and I don’t want to be on medication. I rather have the migraine but it’s getting bad, so I need to go and see him. I said to the doctor, I rather use something naturally than taking medication.” (Pt 7)

Most participants experienced side effects with their prescribed migraine medication. The side effects experienced were fatigue, sleep disturbances, depression and drowsiness. The participants preferred to change their lifestyle and treat themselves holistically, as opposed to relying on pharmacological therapy for migraine management. The participants were also resistant to taking medication due to the side effects and preferred to use natural alternatives. According to Nichols *et al.* (2017: 5) and Rutberg and Öhring (2012: 333), migraineurs also had anxiety with the use of medication as it raised fears of the long-term effects on the body, and the risk of dependence. Although it did provide some relief, migraineurs were hesitant to take medication, and experienced side effects such as dizziness and decreased concentration (Rutberg and Öhring 2012: 333). Befus *et al.* (2019: 4) reported that migraineurs discontinued pharmacological treatment due to the side effects experienced, even though the medication was found to be effective. The recovery time was prolonged by the lingering side effects of the migraine and

the medications (Connor *et al.* 2021: 4). In this study, one participant stated that she was unable to ascertain whether the postdrome symptoms experienced were because of the migraine or the medication.

4.4.6.2 Alleviating Factors and Alternative Therapies

“Cold showers and ice packs. I’ve even tried Botox at the back of my neck. It does help but it’s very short-term relief. So, for me it’s a very expensive form of relief where acupuncture and seeing a chiropractor helps, and it’s definitely more manageable.” (Pt 1)

“I do stretches, I bought a pillow, I changed my bed. I change my posture so I’m not stressing out those muscles. I did buy a bite guard so I would stop grinding my teeth in my sleep. It’s chiropractor first, then supportive pharmaceutical medication that helps break the migraine.” (Pt 3)

“I have tried mainly medication and injections and the injections that worked very quickly to ease my headache, but it didn’t really help me. It helped me for that time only, or it came back full force after so I would say the only thing that helped me was going to the chiro.” (Pt 6)

“The thing that I found that has helped has been actual physical activity. I started doing more strength training and weight training than cardio, and I found that it’s helped me so much.” (Pt 4)

“I take a migraine pack and I just put something heavy on my head and cover my eyes.” (Pt 8)

“I take pain killers and I try to lie down. Vomiting helps with the migraine.” (Pt 11)

“I try and drink as much water and get some sleep.” (Pt 12)

The following excerpts reveal the alternative therapies that participants found beneficial:

“I go for massages. I do reflexology as well.” (Pt 1)

“Reflexology actually helped a little bit.” (Pt 4)

“I’ve done cupping. It was temporary relief.” (Pt 2)

“Apart from the massaging and exercise, I do yoga and meditation.” (Pt 7)

The participants used different alternative strategies to cope with migraines. When required, the participants used medication such as migraine packs, migraine medication, anti-inflammatories, or analgesics. Migraine packs are a combination of analgesics used to treat severe migraines and may comprise of NSAIDs, aspirin, ergotamines, triptans and anti-emetics. The alleviating factors that the participants used for their migraines were chiropractic treatment, sleep, cold showers, ice packs, heat, stretches, exercise, and physical activity. The alleviating factors used by migraineurs to cope with their pain included rest, sleep, relaxation (Banciu and Bouleanu 2018: 29) and altering posture (Connor *et al.* 2021: 4).

Natural, alternative, or holistic approaches to health are often sought by migraineurs (Connor *et al.* 2021: 2; Befus *et al.* 2019: 3). The excerpts above also revealed that the alternative therapies used by the participants included massage, reflexology, acupuncture, yoga, and cupping. Alternative or holistic therapies that were used by migraineurs also included herbal supplements, homeopathy, acupuncture, massage, yoga, meditation, and mindfulness (Rist *et al.* 2021: 319; Befus *et al.* 2019: 5; Scaratti *et al.* 2018: 1379; Wells *et al.* 2011: 1091; Isaza 2017: 153). The self-management of migraines was adopted because of dissatisfaction or poor experiences with pharmacological therapy (Belam *et al.* 2005: 91). According to Matthews and Kneipp (2020: e33), the importance of migraine self-management and awareness of the nature of migraines can improve overall health and lessen suffering.

4.5 CONCLUSION

This chapter contains the data that was analysed and a discussion thereof. Six main themes and 19 sub-themes emerged from the data. The data collectively reflects the physical, psychological and social consequences of migraines on females, factors contributing to migraines, migraineurs' experiences of chiropractic treatment for migraine management, and their strategies for migraine self-management. The chapter that follows, focuses on the conclusion, limitations of the study and recommendations for further research.

CHAPTER FIVE: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The previous chapter provides an analysis of the data and a discussion of the findings made. This is the final chapter of the dissertation and provides a summary of the findings made. It also includes the limitations of the present study and recommendations for further research. The purpose of this study was to explore the physical and psychosocial effects of migraines amongst female adults between the ages of 18-65 and their experiences of chiropractic treatment in pain management.

The main objectives of the study were:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

Six main themes emerged from the study, which are discussed in detail in the previous chapter.

- Theme one focused on the physical effects of migraines. The sub-themes that emerged were the symptoms of migraine, and the impact on physical functioning and daily life.
- Theme two related to the psychological and cognitive effects experienced by the participants. The sub-themes that emerged were depression,

anxiety, feelings of hopelessness and withdrawal, fear-avoidance behaviour and lifestyle changes, and acceptance of migraines.

- Theme three detailed the effects migraines had on relationships. The sub-themes that emerged were the impact on family and social networks, which included both strained and supportive relationships, and the impact on work life.
- Theme four explored the factors contributing to migraines. The sub-themes that emerged were hormonal factors, oral contraceptives, dietary factors, weather-related factors and lighting, musculoskeletal factors, and sleep deprivation.
- Theme five focused on chiropractic treatment for migraines. The sub-themes that emerged were the experiences of chiropractic treatment for migraine pain management, and perceptions of chiropractic treatment approaches to migraine management.
- Theme six discussed the self-management of migraines. The sub-themes that emerged were resistance to medication, alleviating factors and alternative therapies.

5.2 SUMMARY OF THE FINDINGS

Most participants experienced chronic migraines and migraines without aura. The pain was experienced in the frontal, suboccipital and temporal regions with associated eye and neck pain. The symptoms experienced by the participants with migraine without aura were photophobia, phonophobia, sensitivity to smell, nausea, vomiting and loss of appetite. The participants with migraine with aura experienced temporary changes in their vision, including photophobia, phonophobia, nausea, vomiting, and vertigo.

The participants felt incapacitated and debilitated during a migraine episode. The postdrome effects experienced by the participants were lethargy and feeling groggy. The participants further described their life as coming to a standstill when experiencing migraines, which resulted in them neglecting activities and rendering

themselves unable to complete daily activities for the duration of their migraine episodes.

Depression, anxiety, feelings of sadness, worry, anger and frustration were the primary psychological effects experienced by the participants. The participants felt hopeless, irritable, short-tempered, and emotional when experiencing migraines, and expressed a need to withdraw from people until the migraine had passed. Some participants felt as if they were a burden and liability to those around them, especially to their families. Migraines changed the participants' personalities and lifestyles as they displayed fear-avoidance behaviours to avoid triggering their migraines. Participants also displayed anticipatory anxiety and fear about their next migraine episode.

Participants initially experienced strained relationships and issues with personal or family relationships, such as a lack of understanding from a parent or husband about the extent of suffering experienced or malingering about the severity of their pain. A few participants had challenges with their social networks when cancelling social plans. Hence this resulted in short-lived relationships. Some participants hid their experience of migraines from family, peers, and work colleagues due to the fear of being judged. Participants were also found to make excuses to their friends who were part of their social networks to avoid visiting certain places that triggered their migraines. Some participants needed to take leave from work, due to the inability to adequately function with a migraine attack. Participants were also frequently met with co-workers who did not understand the severity of their headaches. Although the migraines caused functional disability, most participants continued to work through their migraines in order to fulfil work obligations and deadlines because they could not afford to take leave from work often.

Stress was a major triggering factor for their migraines. Participants noticed a hormonal relationship between their migraines and menstruation. Migraines were also triggered by oral contraceptives, cheese, milk, dairy, chocolates, caffeine, pungent foods, red wine, inconsistent eating habits, dehydration, sleep

deprivation, inconsistent sleeping habits, changes in weather, sunlight, bright lights, fluorescent lights, and musculoskeletal issues, such as poor posture, working long hours on the computer, bruxism or jaw tension, muscular pain, neck tension and physical activity.

Participants revealed that chiropractic treatment was their preferred approach to migraine management as it proved to be the only beneficial and most effective treatment for their migraines compared to other treatments. Chiropractic treatment reduced their need for medication, and they highly recommended chiropractic as a non-pharmacological approach to migraine management. Chiropractic reduced the severity of their migraines, disability, and the duration of suffering. The most beneficial aspects of chiropractic treatment, according to the participants, were cervical spinal manipulative therapy, dry needling, soft tissue therapy, electro-modalities, cryotherapy, strapping, and the advice on posture, strengthening exercises or stretches to manage the musculoskeletal complaints associated with their migraines.

Regarding self-management strategies, most participants were resistant to taking medication, and preferred alternative, holistic therapies to manage their migraines. The self-management strategies that participants used to cope with their migraines were sleep, cold showers, ice packs, heat, stretches, exercise, physical therapy, Botox, topical analgesics, and medication (migraine packs, migraine medication, anti-inflammatories, or analgesics) only if required. The alternative therapies used by the participants included massage, meditation, reflexology, yoga, cupping and acupuncture.

5.3 CONCLUSION

This is one of the first few qualitative studies in South Africa to highlight the severe burden of disease and psychosocial impact of migraines on female chiropractic patients. The study found that chiropractic treatment improved the quality of life, reduced the duration, severity and frequency of migraines, and the need for

pharmacological therapy. All participants had favourable experiences with chiropractic for migraine management, and some patients expressed that chiropractic treatment was the only effective treatment for their migraines, despite their experience with different alternative therapies. Furthermore, alternative and holistic therapies were sought wherever possible as a replacement for pharmacological therapy. This study builds on the body of knowledge for migraine management and supports the use of chiropractic treatment for migraine management.

5.4 LIMITATIONS

- The sample was restricted to only the participants residing in the eThekweni region of KwaZulu-Natal in South Africa.
- The recruitment of the participants was based on the permission of each chiropractor contacted to interview their patients, and not based on their migraine history (episodic, chronic, migraine without aura, migraine with aura).
- This study adopted purposive, convenience and snowball sampling, hence it did not investigate the efficacy of chiropractic treatment for migraines from all regions in the eThekweni Municipality District.

5.5 RECOMMENDATIONS

- Future studies should include more qualitative research studies on the psychosocial impact of migraines amongst the female population.
- The impact of menstruation, pregnancy and menopause on migraines should be further investigated in other qualitative studies.
- A more detailed study should be undertaken to ascertain the impact and efficacy of chiropractic treatment for migraines.

REFERENCE LIST

Albisser, A., Le Clec'h, Y. and Sprott, H. 2019. Neck pain and migraine: Association or cause?—A narrative review of the literature. *Clinical and Translational Neuroscience*, 3(1): 1-7.

Alcantara, J. and Cossette, M. 2009. Intractable migraine headaches during pregnancy under chiropractic care. *Complementary Therapies in Clinical Practice*, 15(4): 192-197.

Allais, G., Chiarle, G., Sinigaglia, S., Airola, G., Schiapparelli, P., Bergandi, F. and Benedetto, C. 2017. Treating migraine with contraceptives. *Neurological Sciences*, 38(1): 85-89.

Amoozegar, F. 2017. Depression comorbidity in migraine. *International Review of Psychiatry*, 29(5): 504-515.

Bairagi, V. and Munot, M. V. 2019. *Research methodology: A practical and scientific approach*. CRC Press.

Baksa, D., GonDa, X. and Juhasz, G. 2017. Why are migraineurs more depressed? A review of the factors contributing to the comorbidity of migraine and depression= Miért gyakoribb a depresszió migréneseiben? A migrén és a depresszió komorbiditásához járuló faktorok áttekintése. *Neuropsychopharmacologia Hungarica*, 19(1): 37-44.

Balci, B. and Akdal, G. 2020. Imbalance, motion sensitivity, anxiety and handicap in vestibular migraine and migraine only patients. *Auris Nasus Larynx*, 47(5): 747-751.

Balcı, B., Şenyuva, N. and Akdal, G. 2018. Definition of balance and cognition related to disability levels in vestibular migraine patients. *Archives of Neuropsychiatry*, 55(1): 9-14.

Baldacci, F., Lucchesi, C., Cafalli, M., Poletti, M., Ulivi, M., Vedovello, M., Giuntini, M., Mazzucchi, S., Del Prete, E. and Vergallo, A. 2015. Migraine features in migraineurs with and without anxiety–depression symptoms: A hospital-based study. *Clinical Neurology and Neurosurgery*, 132: 74-78.

Banciu, A. and Bouleanu, E. L. 2018. The experience of persons living with migraine. *Acta Medica Transilvanica*, 23(2): 27-29.

Basdav, J. 2016. The prevalence and impact of primary headaches on students at the Durban based campuses of the Durban University of Technology. MTech: Chiropractic, Durban University of Technology.

Basdav, J., Haffejee, F. and Puckree, T. 2016. Impact of headaches on university students in Durban, South Africa. *SpringerPlus*, 5(1): 1679-1683.

Bauer, B. A., Tilburt, J. C., Sood, A., Li, G. and Wang, S. 2016. Complementary and alternative medicine therapies for chronic pain. *Chinese Journal of Integrative Medicine*, 22(6): 403-411.

Befus, D. R., Hull, S., Strand de Oliveira, J., Schmidler, G. S., Weinberger, M. and Coeytaux, R. R. 2019. Nonpharmacological self-management of migraine across social locations: an equity-oriented, qualitative analysis. *Global Advances in Health and Medicine*, 8: 1-8.

Befus, D. R., Irby, M. B., Coeytaux, R. R. and Penzien, D. B. 2018. A critical exploration of migraine as a health disparity: the imperative of an equity-oriented, intersectional approach. *Current Pain and Headache Reports*, 22(12): 1-8.

Belam, J., Harris, G., Kernick, D., Kline, F., Lindley, K., McWatt, J., Mitchell, A. and Reinhold, D. 2005. A qualitative study of migraine involving patient researchers. *British Journal of General Practice*, 55(511): 87-93.

Bernstein, C., Wayne, P. M., Rist, P. M., Osypiuk, K., Hernandez, A. and Kowalski, M. 2019. Integrating chiropractic care into the treatment of migraine headaches in a tertiary care hospital: a case series. *Global Advances in Health and Medicine*, 8: 1-5.

Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2): 77-101.

Bronfort, G., Assendelft, W. J. J., Evans, R., Haas, M. and Bouter, L. 2001. Efficacy of spinal manipulation for chronic headache: a systematic review. *Journal of Manipulative and Physiological Therapeutics*, 24(7): 457-466.

Bryans, R., Descarreaux, M., Duranleau, M. and Marcoux, H. 2011. Evidence-based guidelines for the chiropractic treatment of adults with headache. *Journal of Manipulative and Physiological Therapeutics*, 34(5): 274-289.

Buse, D. C., Fanning, K. M., Reed, M. L., Murray, S., Dumas, P. K., Adams, A. M. and Lipton, R. B. 2019. Life with migraine: effects on relationships, career, and finances from the chronic migraine epidemiology and outcomes (CaMEO) study. *Headache: The Journal of Head and Face Pain*, 59(8): 1286-1299.

Campbell, J., Penzien, D. and Wall, E. M. 2000. Evidence-based guidelines for migraine headache: behavioral and physical treatments. *US Headache Consortium*, 1(1): 1-29.

Cerritelli, F., Ginevri, L., Messi, G., Caprari, E., Di Vincenzo, M., Renzetti, C., Cozzolino, V., Barlafante, G., Foschi, N. and Provinciali, L. 2015. Clinical effectiveness of osteopathic treatment in chronic migraine: three-armed randomized controlled trial. *Complementary Therapies in Medicine*, 23(2): 149-156.

Chaibi, A., Benth, J. Š., Tuchin, P. J. and Russell, M. B. 2017. Chiropractic spinal manipulative therapy for migraine: a three-armed, single-blinded, placebo, randomized controlled trial. *European Journal of Neurology*, 24(1): 143-153.

Charles, A. 2017. Migraine. *The New England Journal of Medicine*, 377(6): 553-561.

Chopdat, S. H. 2015. *The efficacy of chiropractic manipulation on headaches in migraine sufferers*. MTech: Chiropractic, University of Johannesburg.

Clar, C., Tsertsvadze, A., Hundt, G. L., Clarke, A. and Sutcliffe, P. 2014. Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. *Chiropractic & Manual Therapies*, 22(1): 12-36.

Clarke, V. and Braun, V. 2013. Teaching thematic analysis: overcoming challenges and developing strategies for effective learning. *The Psychologist*, 26(2): 1-13.

Clarke, V. and Braun, V. 2017. Thematic analysis. *The Journal of Positive Psychology*, 12(3): 297-298.

Colorafi, K. J. and Evans, B. 2016. Qualitative descriptive methods in health science research. *HERD: Health Environments Research & Design Journal*, 9(4): 16-25.

Connor, J. P., Bernstein, C., Kilgore, K., Rist, P. M., Osypiuk, 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 Manipulative and Physiological Therapeutics*: 1-10.

Cousins, S., Ridsdale, L., Goldstein, L. H., Noble, A. J., Moorey, S. and Seed, P. 2015. A pilot study of cognitive behavioural therapy and relaxation for migraine headache: a randomised controlled trial. *Journal of Neurology*, 262(12): 2764-2772.

D'Amico, D., Grazi, L., Curone, M., Di Fiore, P., Cecchini, A. P., Leonardi, M., Scaratti, C. and Raggi, A. 2015. Difficulties in work activities and the pervasive effect over disability in patients with episodic and chronic migraine. *Neurological Sciences*, 36(1): 9-11.

De Vos, A. S. 2011. *Research at grass roots: for the social sciences and human services professions*. 4th ed. Pretoria: Van Schaik.

Dindo, L., Recober, A., Marchman, J., O'Hara, M. and Turvey, C. 2015. Depression and disability in migraine: the role of pain acceptance and values-based action. *International Journal of Behavioral Medicine*, 22(1): 109-117.

Dodick, D. W. 2018. Migraine. *The Lancet*, 391(10127): 1315-1330.

Dowson, A. 2002. CPD-Headache: (1) Migraine. *Pharmaceutical Journal*, 268(7183): 141-143.

Dresler, T., Caratozzolo, S., Guldolf, K., Huhn, J.-I., Loiacono, C., Niiberg-Pikksööt, T., Puma, M., Sforza, G., Tobia, A. and Ornello, R. 2019. Understanding the nature of psychiatric comorbidity in migraine: a systematic review focused on interactions and treatment implications. *The Journal of Headache and Pain*, 20(1): 51-67.

Du Preez, L. 2004. A three way investigation of the relevant effectiveness of spinal manipulative therapy, a homeopathic migraine complex and a combination of the two interventions in the management of migraine headaches. MTech: Chiropractic, Durban University of Technology.

Engel, G. L. 1997. From biomedical to biopsychosocial: being scientific in the human domain. *Psychosomatics*, 38(6): 521-528.

Estave, P. M., Beeghly, S., Anderson, R., Margol, C., Shakir, M., George, G., Berger, A., O'Connell, N., Burch, R. and Haas, N. 2021. Learning the full impact of migraine through patient voices: a qualitative study. *Headache: The Journal of Head and Face Pain*: 1-17.

Evers, S., Brockmann, N., Summ, O., Husstedt, I. W. and Frese, A. 2019. Primary headache and migraine in headache specialists – does personal history of doctors matter? *Cephalalgia*: 96-106.

Farris, S. G., Burr, E. K., Abrantes, A. M., Thomas, J. G., Godley, F. A., Roth, J. L., Lipton, R. B., Pavlovic, J. M. and Bond, D. S. 2019. Anxiety sensitivity as a risk

indicator for anxiety, depression, and headache severity in women with migraine. *Headache: The Journal of Head and Face Pain*, 59(8): 1212-1220.

Ferini-Strambi, L., Galbiati, A. and Combi, R. 2019. Sleep disorder-related headaches. *Neurological Sciences*, 40(1): 107-113.

Frazier, L. D. 2020. The past, present, and future of the biopsychosocial model: a review of *The Biopsychosocial Model of Health and Disease: new philosophical and scientific developments* by Derek Bolton and Grant Gillett. *New Ideas in Psychology*, 57: 1-4.

Freeman, E. W., Sammel, M. D., Lin, H., Gracia, C. R. and Kapoor, S. 2008. Symptoms in the menopausal transition: hormone and behavioral correlates. *Obstetrics & Gynecology*, 111(1): 127-136.

Ghaljaie, F., Naderifar, M. and Goli, H. 2017. Snowball sampling: a purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, 14(3): 1-4.

Gibbs, S. N., Shah, S., Deshpande, C. G., Bensink, M. E., Broder, M. S., Dumas, P. K., Buse, D. C., Vo, P. and Schwedt, T. J. 2020. United States patients' perspective of living with migraine: country-specific results from the global "My Migraine Voice" Survey. *Headache: The Journal of Head and Face Pain*, 60(7): 1351-1364.

Gil-Martinez, A., Grande-Alonso, M., La Touche, R., Lara-Lara, M., Lopez-Lopez, A. and Fernandez-Carnero, J. 2016. Psychosocial and somatosensory factors in women with chronic migraine and painful temporomandibular disorders. *Pain Research and Management*, 2016: 1-9.

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(1): 16 - 25.

Govender, C. O. 2016. Biopsychosocial correlates of health-related quality of life in migraine without aura. PhD, University of South Africa.

Hagen, K., Åsberg, A. N., Stovner, L., Linde, M., Zwart, J.-A., Winsvold, B. S. and Heuch, I. 2018. Lifestyle factors and risk of migraine and tension-type headache. Follow-up data from the Nord-Trøndelag health surveys 1995–1997 and 2006–2008. *Cephalalgia*, 38(13): 1919-1926.

Haque, B., Rahman, K. M., Hoque, A., Hasan, A. H., Chowdhury, R. N., Khan, S. U., Alam, M. B., Habib, M. and Mohammad, Q. D. 2012. Precipitating and relieving factors of migraine versus tension type headache. *BMC Neurology*, 12(1): 1-4.

Hartvigsen, J. and French, S. D. 2020. So, what is chiropractic? Summary and reflections on a series of papers in *Chiropractic & Manual Therapies*. *Chiropractic & Manual Therapies*, 28(1): 4-9.

Hazard, E., Munakata, J., Bigal, M. E., Rupnow, M. F. T. and Lipton, R. B. 2009. The burden of migraine in the United States: current and emerging perspectives on disease management and economic analysis. *Value in Health*, 12(1): 55-64.

Headache Classification Committee of the International Headache Society. 2018. The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*, 38(1): 1-211.

Igarashi, H., Ueda, K., Jung, S., Cai, Z., Chen, Y. and Nakamura, T. 2020. Social burden of people with the migraine diagnosis in Japan: evidence from a population-based cross-sectional survey. *BMJ Open*, 10(11): 1-9.

Isaza, A. 2017. The role of chiropractors in the opioid abuse epidemic: should chiropractic be the first line of therapy for patients with low back pain and migraine headaches to reduce mortality from narcotic overdose? A commentary on the available research. *The Original Internist*, 24(4): 152-153.

Kleingeld, S. 2016. An investigation into the diagnosis and management of patients presenting with selected headaches by chiropractors in the greater Durban area. MTech: Chiropractic, Durban University of Technology.

Korolainen, M. A., Kurki, S., Lassenius, M. I., Toppila, I., Costa-Scharplatz, M., Purmonen, T. and Nissilä, M. 2019. Burden of migraine in Finland: health care resource use, sick-leaves and comorbidities in occupational health care. *The Journal of Headache and Pain*, 20(1): 1-16.

Kumar, R. 2014. *Research methodology: a step-by-step guide for beginners*. 4th ed. Los Angeles, California: SAGE.

Lakhiar, M. A., Bughio, A. H. and Arain, A. A. 2019. Migraine; The most common headache disorders a neurology clinical perspective. *Professional Medical Journal*, 26(2): 264-268.

Lay, C. L. and Broner, S. W. 2009. Migraine in women. *Neurologic Clinics*, 27(2): 503-511.

Leonardi, M. and Raggi, A. 2019. A narrative review on the burden of migraine: when the burden is the impact on people's lives. *The Journal of Headache and Pain*, 20(1): 1-11.

Lipton, R. B., Buse, D. C., Serrano, D., Holland, S. and Reed, M. L. 2013. Examination of unmet treatment needs among persons with episodic migraine: results of the American Migraine Prevalence and Prevention (AMPP) Study. *Headache: The Journal of Head and Face Pain*, 53(8): 1300-1311.

Lumley, M. A., Cohen, J. L., Borszcz, G. S., Cano, A., Radcliffe, A. M., Porter, L. S., Schubiner, H. and Keefe, F. J. 2011. Pain and emotion: a biopsychosocial review of recent research. *Journal of Clinical Psychology*, 67(9): 942-968.

MacGregor, E. A. 2009. Migraine headache in perimenopausal and menopausal women. *Current Pain and Headache Reports*, 13(5): 399-403.

MacGregor, E. A. 2017. Migraine. *Annals Of Internal Medicine*, 166(7): ITC49-ITC64.

Machado, R. B., Pereira, A. P., Coelho, G. P., Neri, L., Martins, L. and Luminoso, D. 2010. Epidemiological and clinical aspects of migraine in users of combined oral contraceptives. *Contraception*, 81(3): 202-208.

Machi, L. A. and McEvoy, B. T. 2016. *The literature review: six steps to success*. Corwin Press.

Mall, S., Lund, C., Vilagut, G., Alonso, J., Williams, D. R. and Stein, D. J. 2015. Days out of role due to mental and physical illness in the South African stress and health study. *Social Psychiatry and Psychiatric Epidemiology*, 50(3): 461-468.

Malone, C. D., Bhowmick, A. and Wachholtz, A. B. 2015. Migraine: treatments, comorbidities, and quality of life in the USA. *Journal of Pain Research*, 8: 537-547.

Mannix, S., Skalicky, A., Buse, D. C., Desai, P., Sapra, S., Ortmeier, B., Widnell, K. and Hareendran, A. 2016. Measuring the impact of migraine for evaluating outcomes of preventive treatments for migraine headaches. *Health and Quality of Life Outcomes*, 14(1): 1-11.

Marlow, C. 2005. *Research methods for generalist social work*. London: Thomson Brooks/ Cole.

Matthews, A. R. and Kneipp, S. 2020. Learning migraine self-management: the role of mothers and socioeconomic status. *The Journal for Nurse Practitioners*, 16(2): e31-e34.

Mattsson, P. 2003. Hormonal factors in migraine: a population-based study of women aged 40 to 74 years. *Headache: The Journal of Head and Face Pain*, 43(1): 27-35.

Mayer, I. 2015. Qualitative research with a focus on qualitative data analysis. *International Journal of Sales, Retailing & Marketing*, 4(9): 53-67.

Mier, R. W. and Dhadwal, S. 2018. Primary headaches. *Dental Clinics*, 62(4): 611-628.

Minen, M. T., De Dhaem, O. B., Van Diest, A. K., Powers, S., Schwedt, T. J., Lipton, R. and Silbersweig, D. 2016. Migraine and its psychiatric comorbidities. *Journal of Neurology, Neurosurgery & Psychiatry*, 87(7): 741-749.

Moore, C., Adams, J., Leaver, A., Lauche, R. and Sibbritt, D. 2017. The treatment of migraine patients within chiropractic: analysis of a nationally representative survey of 1869 chiropractors. *BMC Complementary and Alternative Medicine*, 17(1): 519-528.

Moore, C., Leaver, A., Sibbritt, D. and Adams, J. 2018. The management of common recurrent headaches by chiropractors: a descriptive analysis of a nationally representative survey. *BMC Neurology*, 18(1): 171-179.

Moore, C., Leaver, A., Sibbritt, D. and Adams, J. 2020. The features and burden of headaches within a chiropractic clinical population: a cross-sectional analysis. *Complementary Therapies in Medicine*, 48: 1-7.

Moriarty, M. and Mallick-Searle, T. 2016. Diagnosis and treatment for chronic migraine. *The Nurse Practitioner*, 41(6): 18-32.

Mustapha, A. F., Fawale, M. B., Adebajo, O. M. and Arawomo, A. 2019. A survey of headache among nursing students in a Nigerian university. *Research Journal of Health Sciences*, 7(1): 39-47.

Ng-Mak, D. S., Fitzgerald, K. A., Norquist, J. M., Banderas, B. F., Nelsen, L. M., Evans, C. J., Healy, C. G., Ho, T. W. and Bigal, M. 2011. Key concepts of migraine postdrome: a qualitative study to develop a post-migraine questionnaire. *Headache: The Journal of Head and Face Pain*, 51(1): 105-117.

Nichols, V. P., Ellard, D. R., Griffiths, F. E., Kamal, A., Underwood, M. and Taylor, S. J. C. 2017. The lived experience of chronic headache: a systematic review and synthesis of the qualitative literature. *BMJ Open*, 7(12): 1-11.

Nowell, L. S., Norris, J. M., White, D. E. and Moules, N. J. 2017. Thematic analysis: striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1): 1-13.

Odell, J., Clark, C., Hunnisett, A., Ahmed, O. H. and Branney, J. 2019. Manual therapy for chronic migraine: a pragmatic randomised controlled trial study protocol. *Chiropractic & Manual Therapies*, 27(1): 11-21.

Orb, A., Eisenhauer, L. and Wynaden, D. 2001. Ethics in qualitative research. *Journal of Nursing Scholarship*, 33(1): 93-96.

Osanloo, A. and Grant, C. 2016. Understanding, selecting, and integrating a theoretical framework in dissertation research: creating the blueprint for your "house". *Administrative Issues Journal: Connecting Education, Practice, and Research*, 4(2): 12-26.

Palacios-Ceña, D., Neira-Martín, B., Silva-Hernández, L., Mayo-Canalejo, D., Florencio, L. L., Fernández-de-Las-Peñas, C., García-Moreno, H., García-Azorín, D. and Cuadrado, M. L. 2017. Living with chronic migraine: a qualitative study on female patients' perspectives from a specialised headache clinic in Spain. *BMJ Open*, 7(8): 1-12.

Pellegrino, A. B. W., Davis-Martin, R. E., Houle, T. T., Turner, D. P. and Smitherman, T. A. 2018. Perceived triggers of primary headache disorders: a meta-analysis. *Cephalalgia*, 38(6): 1188-1198.

Peltzer, K., Pengpid, S. and Skaal, L. 2012. Prevalence of psychological distress and associated factors in urban hospital outpatients in South Africa. *South African Journal of Psychiatry*, 18(1): 10-15.

Persson, M. S., Weineland, S., Gunnarsson, R., Petersson, E. and Rembeck, G. 2021. *Reasons for delayed pain management in patients with chronic migraine: a qualitative study*. Research Gate. Available: <https://www.researchsquare.com/article/rs-168501/v1>

Peters, M., Abu-Saad, H. H., Vydelingum, V., Dowson, A. and Murphy, M. 2005. The patients' perceptions of migraine and chronic daily headache: a qualitative study. *The Journal of Headache and Pain*, 6(1): 40-47.

Prangley, J. 2010. The primary headaches in allied health students at the Durban University of Technology. MTech: Chiropractic, Durban University of Technology.

Raggi, A., Covelli, V., Leonardi, M., Grazi, L., Curone, M. and D'Amico, D. 2014. Difficulties in work-related activities among migraineurs are scarcely collected: results from a literature review. *Neurological Sciences*, 35(1): 23-26.

Raggi, A., Giovannetti, A. M., Quintas, R., D'Amico, D., Cieza, A., Sabariego, C., Bickenbach, J. E. and Leonardi, M. 2012. A systematic review of the psychosocial difficulties relevant to patients with migraine. *The Journal of Headache and Pain*, 13(8): 595-606.

Ravat, S., Chaudhari, S. and Chafekar, N. 2018. Clinical profile of primary headaches and awareness of trigger factors in migraine patients. *MVP Journal of Medical Sciences*: 145-150.

Ray, B. K., Paul, N., Hazra, A., Das, S., Ghosal, M. K., Misra, A. K., Banerjee, T. K., Chaudhuri, A. and Das, S. K. 2017. Prevalence, burden, and risk factors of migraine: a community-based study from Eastern India. *Neurology India*, 65(6): 1280-1288.

Renjith, V., Pai, S., Castalino, F. and George, A. 2014. Biopsychosocial well-being of patients with migraine. *Medical Science*, 3(11): 120-122.

Rhee, T. G. and Harris, I. M. 2017. Gender differences in the use of complementary and alternative medicine and their association with moderate mental distress in U.S. adults with migraines/severe headaches. *Headache*, 57(1): 97-108.

Ripa, P., Ornello, R., Degan, D., Tiseo, C., Stewart, J., Pistoia, F., Carolei, A. and Sacco, S. 2015. Migraine in menopausal women: a systematic review. *International journal of women's health*, 7: 773-782.

Rist, P. M. 2019. The impact of spinal manipulation on migraine pain and disability: a systematic review and meta-analysis. *Headache*, 59(4): 532-542.

Rist, P. M., Bernstein, C., Kowalski, M., Osypiuk, K., Connor, J. P., Vining, R., Long, C. R., Macklin, E. A. and Wayne, P. M. 2021. Multimodal chiropractic care for migraine: a pilot randomized controlled trial. *Cephalalgia*, 41(3): 318-328.

Rutberg, S. and Öhrling, K. 2012. Migraine—more than a headache: women's experiences of living with migraine. *Disability and Rehabilitation*, 34(4): 329-336.

Sacco, S., Ricci, S., Degan, D. and Carolei, A. 2012. Migraine in women: the role of hormones and their impact on vascular diseases. *The Journal of Headache and Pain*, 13(3): 177-189.

Sandelowski, M. 2010. What's in a name? Qualitative description revisited. *Research in Nursing & Health*, 33(1): 77-84.

Sanderson, J. C., Devine, E. B., Lipton, R. B., Bloudek, L. M., Varon, S. F., Blumenfeld, A. M., Goadsby, P. J., Buse, D. C. and Sullivan, S. D. 2013. Headache-related health resource utilisation in chronic and episodic migraine across six countries. *Journal of Neurology, Neurosurgery, and Psychiatry*, 84(12): 1309-1317.

Scaratti, C., Covelli, V., Guastafierro, E., Leonardi, M., Grazzi, L., Rizzoli, P. B., D'Amico, D. and Raggi, A. 2018. A qualitative study on patients with chronic migraine with medication overuse headache: comparing frequent and non-frequent relapsers. *Headache: The Journal of Head and Face Pain*, 58(9): 1373-1388.

Seetharaman, B. 2016. Sampling and methods of data collection in qualitative research. *Indian Journal of Continuing Nursing Education*, 17(2): 41-47.

South Africa, Department of Cooperative Governance and Traditional Affairs. 2020. *Profile and Analysis District Development Model*. Available: https://www.cogta.gov.za/ddm/wp-content/uploads/2020/07/Metro-Profile_Ethekwini.pdf (Accessed 7 October 2021).

Speck, R. M., Collins, E. M., Lombard, L. and Ayer, D. W. 2020. A qualitative study to assess the content validity of the 24-hour Migraine Quality of Life Questionnaire in patients with migraine. *Headache: The Journal of Head and Face Pain*, 60(9): 1982-1994.

Steiner, T. J., Stovner, L. J. and Vos, T. 2016. GBD 2015: migraine is the third cause of disability in under 50s. *The Journal of Headache and Pain*, 17(1): 104-107.

Stovner, L. J., Nichols, E., Steiner, T. J., Abd-Allah, F., Abdelalim, A., Al-Raddadi, R. M., Ansha, M. G., Barac, A., Bensenor, I. M. and Doan, L. P. 2018. Global, regional, and national burden of migraine and tension-type headache, 1990–2016:

a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology*, 17(11): 954-976.

Stovner, L. J., Zwart, J. A., Hagen, K., Terwindt, G. M. and Pascual, J. 2006. Epidemiology of headache in Europe. *European Journal of Neurology*, 13(4): 333-345.

Takeshima, T., Wan, Q., Zhang, Y., Komori, M., Stretton, S., Rajan, N., Treuer, T. and Ueda, K. 2019. Prevalence, burden, and clinical management of migraine in China, Japan, and South Korea: a comprehensive review of the literature. *The Journal of Headache and Pain*, 20(1): 1-15.

Tassorelli, C., Diener, H. C., Dodick, D. W., Silberstein, S. D., Lipton, R. B., Ashina, M., Becker, W. J., Ferrari, M. D., Goadsby, P. J. and Pozo-Rosich, P. 2018. Guidelines of the International Headache Society for controlled trials of preventive treatment of chronic migraine in adults. *Cephalalgia*, 38(5): 815-832.

Tobin, G. A. and Begley, C. M. 2004. Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*, 48(4): 388-396.

Todd, C., Lagman-Bartolome, A. M. and Lay, C. 2018. Women and migraine: the role of hormones. *Current Neurology and Neuroscience Reports*, 18(7): 1-6.

Trochim, W. M. and Donnelly, J. P. 2007. *The research methods knowledge base*. 3rd ed. Mason, Ohio: Thomson Custom Publishing.

Truter, I. 2015. Prescribing patterns of anti-migraine medicines in South Africa using a claims database. *International Journal of Clinical Pharmacy*, 37(3): 447-451.

Tuchin, P. J., Pollard, H. and Bonello, R. 2000. A randomized controlled trial of chiropractic spinal manipulative therapy for migraine. *Journal of Manipulative and Physiological Therapeutics*, 23(2): 91-95.

Vasileiou, K., Barnett, J., Thorpe, S. and Young, T. 2018. Characterising and justifying sample size sufficiency in interview-based studies: systematic analysis of qualitative health research over a 15-year period. *BMC Medical Research Methodology*, 18(1): 148-165.

Verhaak, A. M. S., Williamson, A., Johnson, A., Murphy, A., Saidel, M., Chua, A. L., Minen, M. and Grosberg, B. M. 2021. Migraine diagnosis and treatment: a knowledge and needs assessment of women's healthcare providers. *Headache: The Journal of Head and Face Pain*, 61(1): 69-79.

Vives-Mestres, M., Casanova, A., Buse, D. C., Donoghue, S., Houle, T. T., Lipton, R. B., Mian, A., Shulman, K. J. and Orr, S. L. 2021. Patterns of perceived stress throughout the migraine cycle: a longitudinal cohort study using daily prospective diary data. *Headache: The Journal of Head and Face Pain*, 61(1): 90-102.

Vo, P., Fang, J., Bilitou, A., Laflamme, A. K. and Gupta, S. 2018a. Patients' perspective on the burden of migraine in Europe: a cross-sectional analysis of survey data in France, Germany, Italy, Spain, and the United Kingdom. *The Journal of Headache and Pain*, 19(1): 1-11.

Vo, P., Paris, N., Bilitou, A., Valena, T., Fang, J., Naujoks, C., Cameron, A., de Vulpillieres, F. and Cadiou, F. 2018b. Burden of migraine in Europe using self-reported digital diary data from the migraine buddy© application. *Neurology and Therapy*, 7(2): 321-332.

Vos, T., Allen, C., Arora, M., Barber, R. M., Bhutta, Z. A., Brown, A., Carter, A., Casey, D. C., Charlson, F. J. and Chen, A. Z. 2016. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*, 388(10053): 1545-1602.

Wang, S. J., Fuh, J. L., Lu, S. R., Juang, K. D. and Wang, P. H. 2003. Migraine prevalence during menopausal transition. *Headache: The Journal of Head and Face Pain*, 43(5): 470-478.

Wayne, P. M., Bernstein, C., Kowalski, M., Connor, J. P., Osypiuk, K., Long, C., Vining, R., Macklin, E. and Rist, P. M. 2020. The integrative migraine pain alleviation through chiropractic therapy (IMPACT) trial: study rationale, design and intervention validation. *Contemporary Clinical Trials Communications*, 17: 1-11.

Weatherall, M. W. 2015. The diagnosis and treatment of chronic migraine. *Therapeutic Advances in Chronic Disease*, 6(3): 115-123.

Whittle, M. S. 1995. An assessment of two chiropractic management programmes with respect to frequency of treatment of migraine headaches. MTech: Chiropractic, Durban University of Technology.

Wilderman, I., Tallarigo, D. and Pugacheva-Zingerman, O. 2021. A qualitative study to explore patient perspectives of prophylactic treatment with onabotulinumtoxinA for chronic migraine. *Pain and Therapy*: 1-14.

Woldeamanuel, Y. W., Andreou, A. P. and Cowan, R. P. 2014. Prevalence of migraine headache and its weight on neurological burden in Africa: a 43-year systematic review and meta-analysis of community-based studies. *Journal of the Neurological Sciences*, 342(1-2): 1-15.

World Federation of Chiropractic. 2001. *Definition of chiropractic*. Available: https://www.wfc.org/website/index.php?option=com_content&view=article&id=90&Itemid=110&lang=en (Accessed 28 March 2021).

APPENDICES

Appendix 1a: Gatekeeper Letter

08/02/2021

106 Avondale Rd, Greyville, Durban, 4001

Request for Permission to Conduct Research

Dear Dr Sarvesh Maharajh

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice for migraine headaches. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 1b: Letter of Permission to Conduct Research



DR S.R. MAHARAJH

M.Tech: Chiro(DUT)

Reg No: A10949

Cell: 084 888 8308

P.R No: 0395129

Email: dr.srmaharajh@gmail.com

Re: Permission to place flyers at my waiting room

Dear Ashalya Pirthiraj

I hereby grant permission for you to place flyers with regards to your research study on migraine headaches.

03/03/2021

Dr. S.R Maharajh

Date

Appendix 2a: Gatekeeper Letter

16/02/2021

34 Keal Road, Sydenham, Durban, 4091

Request for Permission to Conduct Research

Dear Dr Mandy Laing

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice for migraine headaches. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 2b: Letter of Permission to Conduct Research



To whom it may concern.

RE: Consent for Ms Ashalya Pirithiraj

I Dr Mandy Laing hereby give Ms Ashalya Pirithiraj consent to place a flyer in my waiting room to recruit female adult patients between ages 18-65, whom I have treated at my practice. I am willing to allow her to recruit and interview my patients without compelling them to participate.

This is for her study on

The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management

Kind Regards,

Dr. Mandy Laing
(signed)

Appendix 3a: Gatekeeper Letter

16/02/2021

312 Effingham Road, Effingham, Durban, 4051

Request for Permission to Conduct Research

Dear Dr Nivida Ganesh

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore what other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice. These are for who have had migraines. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 3b: Letter of Permission to Conduct Research

16/02/2021
312 Effingham Road, Effingham, Durban, 4051

Request for Permission to Conduct Research

Dear Dr Nivida Ganesh

Warm greetings. My name is Ashalya Pirithiraj, a Chiropractic student intern at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is "The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management" and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore what other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice. These are for who have had migraines. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirithiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirithiraj

Durban University of Technology
Student Number: 21504210



I, Dr Nivida Ganesh, hereby acknowledge and grant permission to Ashalya Pirithiraj to conduct above mentioned study at my practice.

25 February 2021

Appendix 4a: Gatekeeper Letter

17/02/2021

107 Klaar Water Road, Shallcross, Queensburgh, 4093

Request for Permission to Conduct Research

Dear Dr Pillay

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice for migraine headaches. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 4b: Letter of Permission to Conduct Research

Attention : Ashalya Pirthiraj

Durban University of Technology

Student number : 21504210

Date :22/02/2021

Re :Response to request for patient recruitment for research study

Dear Ashalya,

I trust you are well.

Your email dated 17/02/2020 refers. I am willing to assist you with recruitment of patients for your research study. However, kindly note that I am currently not in private practice due to my recent development of Rheumatoid Arthritis. I am currently recuperating so I have taken time off private practice.

However, I was in private practice for approximately 15 years & still have a database of patients that could be potential participants in your study.

I am willing to assist you by facilitating contact with these patients should I comply with the inclusion criteria of your study.

I wish you all the best going forward in your research study.

Yours sincerely,

Dr Vanessa Pillay (M.Tech.:Chiropractic)

Practice No.: 004 000 0071269

Appendix 5a: Gatekeeper Letter

22/12/2020

100 Jan Hofmeyr Rd, Dawncrest, Westville, 3630

Request for Permission to Conduct Research

Dear Dr Caileen Walker

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore what other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice. These are for who have had migraines. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 5b: Letter of Permission to Conduct Research

22/12/2020
20a Avonwold Drive, Cavies Hill
100 Jan Hofmeyr Rd, Downcrest, Westville, 3630 3610

Request for Permission to Conduct Research

Dear Dr Caileen Walker

Warm greetings. My name is Ashalya Pirithiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is "The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management" and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore what other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice. These are for who have had migraines. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment through the flyer can be acceded to.

I will provide you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) when I receive permission to conduct the research in the upcoming months.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirithiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirithiraj

Durban University of Technology
Student Number: 21504210

Ashalee Dr. Walker
Permission granted.
23/12/20

Appendix 6a: Gatekeeper Letter

02/06/2021

237 Kenyon Howden Rd, Montclair, Durban, 4004

Request for Permission to Conduct Research

Dear Dr Prasanthi Nayager

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

1. To explore the physical symptoms that female patients with migraines present with.
2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice for migraine headaches. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I have provided you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) for permission to conduct the research.

If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 6b: Letter of Permission to Conduct Research

RE: Migraine research participants required

From: Prasanthi Nayager (drpnayager@hotmail.com)

To: ashalyapirthiraj@yahoo.com

Date: Tuesday, June 8, 2021, 09:21 AM GMT+2

Hi

Hope you are well.

I will definitely contact patients and inform them about this. I am sure they would not mind doing this.

Kind Regards

Prasanthi

/ /
Sent from [Mail](#) for Windows 10

From: [Ashalya Pirthiraj](#)

Sent: Wednesday, 02 June 2021 4:43 PM

To: [drpnayager@hotmail.com](#)

Subject: Fw: Migraine research participants required

Appendix 7a: Gatekeeper Letter

25/05/2021

366 Tara Rd, Bluff, Durban, 4052

Request for Permission to Conduct Research

Dear Dr Jacquire-Landy

Warm greetings. My name is Ashalya Pirthiraj, a Chiropractic student at the Durban University of Technology. As discussed telephonically, I am registered for a Masters in Technology degree in Chiropractic. Part of the requirements for the programme is that I complete a research study. The title of the proposed study is “The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management” and the aim and objectives are as follows:

Aim: The aim of this study is to explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management.

Objectives:

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2. To understand how migraines affect female adults psychologically and socially.
3. To understand how chiropractic treatment enabled their management of migraines.
4. To explore which other complementary and alternative treatments are used by patients for their migraines.

I am hereby seeking your consent to place a flyer in your waiting room to recruit female adult patients between ages 18-65, who you have treated at your practice for migraine headaches. Should you be willing to recruit patients without compelling them to participate, you may also forward my details to them.

Please advise in writing if my request regarding recruitment can be acceded to.

I have provided you with a copy of the approval letter from the Institutional Research Ethics Committee (IREC) for permission to conduct the research.


If you require any further information, please do not hesitate to contact me at 074 081 6944 or ashalyapirthiraj@yahoo.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Ashalya Pirthiraj

Durban University of Technology
Student Number: 21504210

Appendix 7b: Letter of Permission to Conduct Research



**JACQUIRE-LANDY
CHIROPRACTIC**

Dr. Jolene Jacquire
Registered Chiropractor
M.Tech: Chiropractic
PR. No 073 0270
Reg. No. A11845

366 Tara Road, Bluff, 4052
Cell: 082 738 2118
Email: dr.jolenelandy@icloud.com

6 August 2021

Dear Mrs. Ashalya Pirthiraj

I, Dr. Jolene Jacquire do hereby
grant permission for recruitment of
my patients to your research project.
You also have my consent to place
flyers to inform patients of your
study.

Wishing you All of the best!

Kind Regards
Dr. Jolene Jacquire

Dr. Jolene Jacquire
Registered Chiropractor
Pr No: 0730270

[Redacted Signature]

Appendix 8: Letter of Information



LETTER OF INFORMATION

Title of the Research Study: The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management

Principal Investigator/s/researcher: Ashalya Pirithiraj, M.Tech: Chiropractic

Co-Investigator/s/supervisor/s: Prof. Raisuyah Bhagwan, PhD: Community and Development Disciplines

Brief Introduction and Purpose of the Study:

Warm greetings,

I am a 5th year student at the Durban University of Technology conducting a research study for my Master's degree in Chiropractic. This study will explore the physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management. I would like to invite you to participate in this study. I will be interviewing female adults that present to chiropractors for migraine treatment. Migraine has a high burden of illness and there is minimal research on this in South Africa. There is a need for more evidence to support how chiropractors help improve migraine symptoms. I will be asking you questions about the physical symptoms that you experience with migraines, how migraines affect you psychologically and socially, and if there are alternative or holistic treatments that you use in conjunction with chiropractic treatment. You will also be asked how chiropractic helps you with your migraine headaches. You are entitled to discuss the study with your family and friends and are under no obligation to commit at this stage. For this purpose, this Letter of Information document is given to you to take home.

Outline of the Procedures: You will be required to read the Letter of Information document and sign the Informed Consent form. For this study, I will be interviewing you and other females who seek chiropractic treatment for migraine treatment in eThekweni, KwaZulu-Natal. The interviews will be voice-recorded and it should take approximately 45-60 minutes. The interview can be held at your chiropractor's practice, or alternatively, a location that is convenient and accessible to you. Video call interviews may also be arranged if face-to-face interviews are not possible.

Risks or Discomforts to the Participant: There are no anticipated risks or discomfort to you.

Reason/s why the Participant May Be Withdrawn from the Study: You are welcome to withdraw from this study at any given point in time if you do not want to participate, and there will be no consequences should you choose to withdraw from this study.

Benefits: The information obtained from this study will be published as a hard copy dissertation.

Remuneration: There will be no remuneration to you for participating in this study.

Costs of the Study: There will be no costs entailed for your participation in this study.

Confidentiality: Your identity will be confidential in this study. The location that the interviews take place will also be confidential. All voice recordings will be used for research purposes only and will only be accessed by my supervisor and I.

Results: The results of this study upon completion will be published as a hard copy dissertation.

Research-related Injury: There will be no research-related injuries associated with your participation in this study.

Storage of all electronic and hard copies including tape recordings: All voice recordings will be stored on a password protected laptop. After the study is published, all electronic and hard copies of your information will be stored in a steel cabinet for 5 years at the researcher's residence or Chiropractic Department at the Durban University of Technology. Thereafter, all copies of your information will be deleted or shredded.

Persons to contact in the Event of Any Problems or Queries: Please contact the researcher on 074 081 6944, my supervisor on 031 373 2197 or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L. Langaniso on 031 373 2577 or researchdirector@dut.ac.za.

Appendix 9: Informed Consent Form



CONSENT

Full Title of the Study: The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management

Names of Researcher/s: Ashalya Pirthiraj, M.Tech: Chiropractic

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Ashalya Pirthiraj, about the nature, conduct, benefits and risks of this study – Research Ethics Clearance Number: 173/20,
- 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, Ashalya Pirthiraj herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

ASHALYA PIRTHIRAJ

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

Appendix 10: Interview Schedule

1. Can you share with me when you began experiencing migraines? How often do you experience migraines and how many days per month?
2. What are some of the factors that precipitate your migraines? What triggers your migraines? Probes: Diet, stress, hormonal changes.
3. Can you share with me what your experience of a migraine is with regard to the physical symptoms and effects? Can you describe how you experience the migraine personally?
4. How does this experience affect your relationships with others? How do you feel during a migraine episode? Probes: Family life, work, impact on life.
5. Can you describe some of the social consequences of getting migraines? Probes: Social events.
6. What is your experience of chiropractic treatment for your migraines? How has chiropractic treatment helped you with managing your symptoms and pain?
7. What do you like most about chiropractic treatment in managing your symptoms and pain? What was most beneficial or helpful in your opinion?
8. What do you do to cope with the pain? What other alternative therapies have you used to help you cope with your migraines, aside from medication and chiropractic treatment?

Do you suffer from migraines?

A research study is being conducted through interviews to understand:

How migraines affect you physically, psychologically and socially

The impact migraines have on your daily life and

Your experience of chiropractic treatment in the pain management of migraines

Participants must:

- ❖ Be female
- ❖ Be between the ages 18-65
- ❖ Use Chiropractic to manage migraines

Should you wish to participate in this study, please contact the researcher, Ashalya Pirthiraj at: 0740816944 or ashalyapirthiraj@yahoo.com

Appendix 12: Institutional Research Ethics Committee Clearance Certificate



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: irec@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics
www.dut.ac.za

29 March 2021

Ms A Pirithiraj
11 Richmond Gardens
Reservoir Hills
Durban

Dear Ms Pirithiraj

The physical and psychosocial effects of migraines on female adults and their experience of chiropractic treatment in pain management
Ethical Clearance number IREC 173/20

The Institutional Research Ethics Committee 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 IREC according to the IREC Standard Operating Procedures (SOP's).

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

Yours Sincerely

Dr K Padayachy
Deputy Chairperson: IREC

Appendix 13: Editor's Certificate



Helen Bond
IMPELA EDITING SERVICES
impelaediting@gmail.com
079 395 5873

23 February 2022

CERTIFICATE

Ashalya Pirthiraj
ashalyapirthiraj@yahoo.com

Dear Ashalya

Thank you for using Impela Editing Services to review your Master's dissertation entitled "THE PHYSICAL AND PSYCHOSOCIAL EFFECTS OF MIGRAINES ON FEMALE ADULTS AND THEIR EXPERIENCE OF CHIROPRACTIC TREATMENT IN PAIN MANAGEMENT".

I have proofread for errors of grammar, punctuation, spelling, syntax and typing mistakes. I have formatted your work and checked the references (this means checking the formatting). I believe your work to be error free.

PLEASE NOTE: Impela Editing accepts no fault if an author makes changes to a document after a certificate has been issued.

I wish you the very best in your submission and in your career.

Kind regards

Helen Bond (Bachelor of Arts, HDE)