A repertorial analysis of the homoeopathic remedies indicated in pica in pregnancy

Dissertation submitted in fulfilment of the requirements for the degree of Master of Technology in Homoeopathy in the Faculty of Health Sciences at the Durban University of Technology

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August 2022

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DECLARATION

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is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources).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

17 August 2022

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Approved for final submission

18 August 2022

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Dr M. Maharaj Date

M Tech: Homoeopathy

ABSTRACT

Introduction

Pica refers to the consumption of non-food items or items with no nutritional value. This phenomenon is often seen among children, individuals with developmental disabilities and pregnant women. Pica has been extensively studied in children, but is understudied in pregnant women. This study focused on pica occurring during pregnancy, seeking to determine homoeopathic remedies that can be used in treating pica occurring during pregnancy.

Aim of the study

The aim of this study was to determine by repertorial analysis and explore the homoeopathic remedies indicated for treating pica during pregnancy.

Methodology

The study design of this study was two-fold: a qualitative investigation on pica experiences during pregnancy was carried out through interviews with 12 women who have experienced pica in their pregnancy. These women were sampled using the purposive sampling method. The analysis of this qualitative aspect followed Tesch's eight step qualitative data analysis method.

The experiences described by the participants were then subjected to a repertorial analysis using a homoeopathic repertory book called "Synthesis" of Dr. Frederick Schroyens. Remedies emerging from this repertorisation were then reviewed by use of materia medicas.

Results

Findings showed that for the majority of the participants, cravings for non-food items started in their first trimester and worsened in their third trimester as labour got closer. The results also revealed that geophagia was the most common form of pica practiced during pregnancy, followed by pagophagia. It was also revealed that iron deficiency or anaemia of some sort, as well as the smell, taste, texture and appearance of the craved substances, were highly linked to pica habits

during pregnancy. The study also revealed that pica during pregnancy occurred with other pregnancy symptoms such as nausea, vomiting, headache, backache, etc, and that apart from non-food items, participants also craved food items, mostly sweet, sour and spicy food. Findings also showed that constipation (especially for those consuming geophagic items) and a sense of satisfaction, were the most common physical and emotional effects associated with pica practice during pregnancy. Still on the emotional plane, findings were that the most common emotional response that participants had with regards to the experience of pica during pregnancy was guilt and worry over their health and of their unborn children. The study also revealed that the majority of participants responded with anger to their loved ones who advised them against their pica habits.

Finally, the repertorisation of the above experiences as described by the participants and the review of the emerging remedies revealed that *Nux vomica* and *Alumina* were the most suited remedies for pica occurring in pregnancy, followed by *Sepia officinalis, Natrum muriaticum* and *Pulsatilla pratensis. Conium maculatum* and *Silicea terra* were also shown to be good differential remedies for pica during pregnancy.

Conclusion

Of the homoeopathic remedies already in use for treating pica, some remedies such as *Alumina, Nux vomica* and *Silicea terra*, may also be used to treat pica specifically occurring in pregnancy.

The study showed that there is a need to educate pregnant women about pica practice and raise awareness among pregnant women and their families regarding the harmful consequences that pica practice might have on both mother and baby.

DEDICATIONS

This dissertation is dedicated to God, my Father in Heaven, I am who I am today thanks to your grace through Christ Jesus my Lord, you have been my guide, my confidant and counsellor. I am proud to be your child, you have never forsaken me and for that your name and praise will forever be on my lips.

I dedicate this piece of work to my parents, Felix Ntahomvukiye and Jocelyne Nibizi, the pillar of our family. I have never lacked anything thanks to you both, you are and have always been role models in my life. Thank you for all the sacrifices you have made for my benefit and for teaching me to respect myself and others. I will carry the values and principles you have instilled in me for the rest of my life.

This dissertation is also dedicated to my siblings: Ketty, Kevin, Joana, Gloria and Ciella, my best friends. You are the best siblings one can have, thank you for your unconditional love, for bringing laughter in my life and a smile on my face, I love you all.

ACKNOWLEDGEMENTS

To God, The Great I AM, thank you for your faithfulness and for answering my prayers. Ur' Imana idahemuka, honneur et gloire a ton nom pour des siècles et des siècles.

To my family, thank you for your support, for always being there for me and for your prayers, you are a true blessing from Heaven. Que Dieu vous benisse abondamment.

To Goodman Dlamini, thank you for your encouragements, support and prayers. I am grateful to God for having put you on my path. Inkosi ikubusise.

To my supervisor Dr Maharaj, thank you for your availability, dedication, guidance and directions towards this study. Thank you for sharing your knowledge with me as a supervisor, clinician and lecturer. I have learnt a lot from you throughout these past years in so many ways, and through your wisdom.

To Dr Alwar, thank you for your initial contribution towards my research as my formal co-supervisor, and for sharing your diagnostics knowledge and skills with me as a clinician and lecturer.

To Dr Couchman and Dr Hall, thank you for availing yourselves whenever I needed you and for all the knowledge you have given me as clinicians and lecturers.

To the participants in this study, thank you for willing to take the time and participate in this study, your help is highly appreciated.

And finally, to all my friends, thank you for your endless support and prayers. I am grateful for having met you all in this journey called life.

God bless you all.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

DEFINITION OF TERMS

Homoeopathy- An effective and scientific form of healing which helps the natural tendency of the body to heal itself.

Lithophagia- Repetitive consumption of stones.

Materia medica- The homoeopathic materia medica is a book that lists the symptom pictures of each remedy.

Miasms- The tendencies and predispositions to certain diseases either inherited or acquired.

Pagophagia- Repetitive consumption of ice in the form of ice cubes, freezer frost and ice beverages.

Pica- The repetitive consumption of non-food items such as soil, charcoal, etc.

Geophagia- The repetitive consumption of earth in the form of soil, sand, mud and clay.

Repertorisation- A method of quickly and easily cross-referencing symptoms to verify which remedies run through each of the symptoms chosen.

LIST OF ACRONYMS

WHO	World Health Organization
DUT	Durban University of Technology
HCHC	Homoeopathic Community Health Centre
IREC	Institutional Research Ethics Committee

CHAPTER 1: INTRODUCTION

1.1 Background

During pregnancy, women often experience new food aversions and cravings (McKerracher, Collard and Henrich 2016). Some of these women also develop cravings for and consume non-food items, a phenomenon known as pica. Pica refers to the repeated consumption of non-edible items or itemswith no nutritional value (Timlin and Burden 2017). Pica is frequently observed in children, individuals with development disabilities, and pregnant women (Mensah *et al*. 2010). In children, pica has been studied extensively, but pica occurring during pregnancy remains under-studied and under-reported (Simpson *et al*. 2000).

Homoeopathy is an effective and scientific form of healing which helps the natural tendency of the body to heal itself (Castro 1999). It is a very popular alternative way of managing gynaecological and obstetrics ailments (Hilal and Manzoor 2013). Homoeopathic remedies have become popular among midwives and other healthcare professionals who are involved in pregnancy and labour due to their speed of action, safety and lack of interaction with other drugs (Hilal and Manzoor 2013). According to Hilal and Manzoor (2013), homoeopathic remedies are ideal for women in their child-bearing years because they are a gentle yet highly effective system of healing and safe for a growing foetus as only a minute amount of the active ingredient is used in their preparation.

There are a number of homoeopathic remedies that may address pica behavioural tendency and prevent its recurrence (Madan 2019). These, however, are not specific to pica occurring in pregnancy, they are rather generalised to any age and gender. This research focused on pica occurring during pregnancy and the possible homoeopathic remedies that could be used in treating such patients.

1.2 Research problem

Due to side effects and contra-indications of allopathic medication prescribed in pregnancy, patients often seek homoeopathic medicine to alleviate troublesome symptoms such as nausea and pica. There are remedies already known and in use for the treatment of pica generally occurring at any age and any gender, such as *Alumina, Antimonium crudum, Calcarea carbonica, Calcarea phosphorica, Cicuta virosa, Nitricum aidum, Nux vomica and Silicae terra* (Madan 2019). However, there are no documented remedies or protocols established to manage and homoeopathically treat pica in pregnancy. The purpose of this study was to providehomoeopathic practitioners with information to enhance the understanding andpossible management of pica occurring in pregnancy and to educate and inform the public about homoeopathy as a safe treatment option for pregnant women experiencing pica.

1.3 Aim and objectives of the study

The aim of this study was to determine by repertorial analysis and explore the homoeopathic remedies indicated in treating pica during pregnancy.

The study design had two aspects:

1. A qualitative study was conducted where participants were interviewed regarding their pica experience as a phenomenon they have experienced.

   The qualitative aspect of the study had a grand tour question and sub-questions as reflected in the question guide (Appendix D). The grand tour question was: **Have you experienced unnatural cravings or pica in your pregnancy/pregnancies**? This was followed by sub-questions (Appendix D).

2. Thereafter the experiences described by the participants were converted into homoeopathic symptoms and rubrics which were subjected to a

repertorial analysis and the set of remedies that emerge from the repertorial analysis was explored.

The homoeopathic exploration and analysis had objectives that were required to be fulfilled for the homoeopathic research aspect of the study and are listed below:

a. To determine the symptoms of pica experienced during pregnancy through in-depth interviews.
b. To analyse and repertorise the symptomatology arising from the interviews.
c. To determine the remedies with the highest ranking in relation to the symptomatology repertorised.
d. To conduct a materia medica review of five of the most represented remedies arising from the repertorisation.

1.4 Limitations of the study

The research was limited to and included:

- Women who had experienced pica during their pregnancy/ies;
- Women who were 18 years old and above at the time of the study;
- Women who were not pregnant at the time of the study;
- Students and staff from the Durban University of Technology (DUT) community; and
- Twelve willing participants.

The interviews were conducted following a question guide that had been pre-tested prior to the study. The outcome of the interviews was analysed using a homoeopathic repertory book and the emerging remedies were analysed by use of materia medica.

1.5 Overview of the other chapters

Chapter 2. In this chapter, the literature on pica as a symptom experienced during pregnancy and homoeopathy as an alternative medicine for pica treatment, is reviewed.

Chapter 3. In this chapter, the methodology used in this study is explained.

Chapter 4. The results of this study and analysis of these results are presented.

Chapter 5. The findings presented in chapter 4 are discussed.

Chapter 6. In this chapter, some key conclusions of this research are provided together with recommendations.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews the available literature of pica as a phenomenon experienced during pregnancy, including: pica background, changes experienced in pregnancy, prevalence of pica in pregnancy, the types of pica, the causes of pica, the effects of pica on the pregnant woman and her unborn child, pica diagnosis and tests, and the available allopathic treatment of pica. This chapter goes further and discusses homoeopathy asan alternative medicine in terms of its history, principles, the manufacture of its remedies, homoeopathic case management, its role in treating pregnant women and finally, the homoeopathic case management of pica.

2.1 Pica in pregnancy

2.1.1 Background

Pica is the craving and purposive consumption of substances that the consumer does not define as food, for more than a month (Young 2010). Although pica refers generally to the act of eating non-food items, the consumption of food items that are deemed inappropriate for ingestion is also referred to as pica (Hommey 2016). According to Hommey (2016), a food item is deemed inappropriate for consumption if it is undergoing decomposition, lacks preparation, or may not have the right nutritional value to maintain health.

Pica is the Latin nomenclature for the common Magpie, a bird notorious for having an indiscriminate appetite for food and non-food items (Kelly 2010, Young 2010). The name ‘pica’ emerged around the 5th century CE (Young 2010). In 400 BCE, pica was firstly described by Hippocrates and has been observed for more than 2000 years after that (Johnson and Gretton 2017).

After its discovery, pica stirred much interest between the 16th and 18th centuries where it was considered a medical condition; there was numerous international

medical interest and intensive scientific research on this old phenomenon of pica (Zedlitz 2010). In the17th century, the literature on pica increased as a result of dissertations or treatises written in Latin, their authors being the Western European scholars of medicine (Young 2010). The literature on pica expanded again in the 19th and 20th centuries with descriptions of pica by explorers, missionaries and colonialists (Young 2010).

Contrary to the former times, today the medical interest in strange cravings is almost insignificant and it is considered a rare symptom found mainly in patients with psychological problems and nutritional deficiencies (Zedlitz 2010). According to Mishori and McHale (2014), pica often occurs in people with developmental disabilities (e.g., autism), and is considered a psychiatric condition in that context. Pica is also known to occur frequently in young children (Santos *et al*. 2015), and its occurrence during pregnancy is commonly known all over the world (Handiso 2015). In children, pica has been studied extensively, but pica during pregnancy remains under-studied and under-reported (Simpson *et al*. 2000).

2.1.2 Pregnancy

Pregnancy is the nine-month period in which a mother carries an embryo in her womb which later develops into a foetus (Hommey 2016). It is a specific and complex period in the life of a woman, in which changes in physiological, psychological planes and social functioning are observed (Bjelica *et al*. 2018).
According to Shagana *et al*. (2018), the physiological changes follow the conception and involve every organ system in the body. This is to aid the mother to adapt to the pregnant state and growth of the foetus. According to Shagana *et al*. (2018) the physiological changes include the following:

- The uterus increases in size to accommodate the foetus from conception to full-term.
- There is a continuous increase in the body weight during pregnancy which is considered a favourable indication of the foetal growth and maternal adaptation.

- Throughout a normal pregnancy the plasma volume increases progressively resulting in physiological anaemia of pregnancy and later on there is an increase in iron demands with iron supplementation being needed to avoid iron deficiency.
- The hormone responsible for breast development and production of milk, prolactin, increases significantly together with oestrogen and progesterone levels.
- There is an increase in maternal appetite and nutritional requirement experienced during pregnancy alongside with morning sickness.

As stated above, the amount of nutrients required during pregnancy is increased to meet the demands of the growing foetus and the mother as she also goes through a period of growth to carry the foetus and prepare for lactation (Brown 2011). According to Williamson (2006), the embryo is most vulnerable to the effects of poor maternal diet in the first weeks of development even before confirmation of the pregnancy. Because abnormalities in cell division cannot be corrected at a later stage, improving nutritional status in women should begin before pregnancy whenever possible, as it is beneficial to the pregnancy outcome. The general dietary recommendation for pregnant women or those intending to get pregnant is to follow a healthy, varied, balanced diet together with consuming plenty of iron-and folate-rich foods and an adequate intake of energy and nutrients (Williamson 2006).

Pregnancy may be accompanied with food cravings and aversions, as well as non-food item cravings (Kariuki *et al*. 2016). Though this is thought to be common in pregnancy, not all pregnant women experience cravings and food aversions (Brown 2011). Many explanations have been given to explain the reason behind the development of cravings and food aversions during pregnancy and include: changes in smell and taste (increased sensitivity), and the thought of pregnancy being a time for pregnant women to treat themselves to foods and indulge themselves. Cravings are thought to be another way of helping the mother meet her nutritional needs (for example, a woman may crave salty food because her

body needs sodium to help her manage her increased fluid volume) (Brown 2011).

2.1.3 Prevalence of pica in pregnancy

Pica is a phenomenon that has been documented in almost every culture (Young *et al*. 2010), and is frequently observed in children, individuals with developmental disabilities, and pregnant women (Mensah *et al*. 2010). Globally, 25% to 33% of all pica cases involve small children, 20% are pregnant women, and 10% to 15% are individuals with learning disabilities (Khan and Tisman 2010). Although this pica phenomenon in pregnancy is known worldwide, Jyothi (2015) explains that many people are still unfamiliar with this condition and that this phenomenon is still not well understood, mainly due to the fact that no prevalence, social and biological correlates have been characterised. According to Jyothi (2015), the prevalence of pica in pregnant women is poorly documented as pregnant women do not recognise the disorder when they have it and, if they do recognise it, they do not report it due to fear of embarrassment, being ridiculed or judged.

The globally available literature shows that the prevalence rate of pica varies from place to place and has been reported to range from 0% to 68% depending on the characteristics of the population studied (Ngozi 2008). Fawcett, Fawcett and Mazmanian (2016) conducted a meta-analysis of the worldwide prevalence of pica during pregnancy and post-partum period. Seventy studies estimating pica prevalence during pregnancy and/or postpartum period using a self-report questionnaire or interview were included, and these were found on PSYCARTICLES, PSYCINFO, PubMed and Google Scholar. As a result, the prevalence was estimated to be of 27,8% with it being higher in Africa compared to other continents (Africa 44,8%, North and South America 23% and Eurasia 17,5%).

In a cross-sectional study conducted by Ezzeddin *et al*. (2015), the prevalence of pica during pregnancy was studied in the Health Care Centres in West of Tehran, Iran. Three hundred women were selected from the population by the stratified sampling method. The characteristics of pica during pregnancy such as the kind of pica, the onset, duration, frequency and reasons were collected via interview and questionnaire. The result showed the prevalence of pica among the studied samples to be 8,33%, and 64% of the women reported practicing pica regularly on a daily basis.

The prevalence of geophagia (ingestion of earth or clay) and its contributing factors among pregnant women was studied by Macheka *et al*. (2016) at Dr George Mukhari Academic Hospital in Pretoria, South Africa. A quantitative survey was conducted on a convenience sample of 597 pregnant women and structured interviews were conducted. The prevalence of geophagia in the studied population was 54%. More than half of the studied sample engaged in geophagia practice.

In a cross-sectional analytical study of geophagia practices and blood metal concentrations in pregnant women conducted by Mathee *et al*. (2014) in Johannesburg, South Africa, the prevalence of geophagia in women attending an antenatal clinic was determined. A convenience sample of 307 pregnant women was selected andstructured interviews conducted. Pica prevalence among the sampled pregnant women was estimated to be 22,8%.

2.1.4 Pica related substances ingested

The substances ingested vary in type and extent in different parts of the world. These patterns of ingestion are called “phagias” (Ngozi 2008).

2.1.4.1 Geophagia

Geophagia is one of the most common form of pica reported in pregnant women. The term refers to the consumption of earth in the form of soil/sand, clay, or mud

(Figure 2.1). Metals and metalloids such as arsenic and lead can sometimes be found in the soil consumed (Mathee *et al*. 2014). The ingested earth is found from gardens, mountains, river banks, termite mounts, mole hills and earthworm casts (Macheka *et al*. 2016).

Figure 2.1: Soil on the left and mole hills in a yard on the right

2.1.4.2 Amylophagia

Amylophagia is another common form of pica characterised by the ingestion of large quantities of starch such as laundry starch and raw starch such as uncooked rice, cassava, wheat, corn-starch, and rice flour (Young 2010) (Figure 2.2).

Figure 2.2: Raw rice, one of amylophagic items ingested

2.1.4.3 Pagophagia

This is another form of pica where the patient consumes ice, freezer frost or iced drinks (Bhatia and Kaur 2014). The ice ingested is found in the deep freeze, from ice trays, scratching the deep freeze, or from bought bags of crushed ice (Osman, Wali and Osman 2005) (Figure 2.3).

Figure 2.3: Freezer frost, one of the pagophaphic items

2.2.4.4 Other substances

1. Plumbophagia: the ingestion lead paint, chips.
2. Hyalophagia: the ingestion or chewing of glass particles.
3. Lithophagia: the ingestion of stones.
4. Trichophagia: the eating of hair.
5. Cautopyreiophagia: the eating of burnt matches.
6. Coprophagia: the eating of dung (Lavanya and Chandrasekharan 2019)
7. Not labelled substances: ashes, cigarette butts, soap, baking soda, baking powder, coffee ground, charcoal, pieces of papers, etc. (Ezzeddin et al. 2015).

2.1.5 Aetiology of pica

The aetiology of pica has challenged researchers for centuries (Hommey 2016). According to Hommey (2016), eating disorders (including pica) are not linked to only one factor, but to internal and external factors including social, biological, psychological and familial influences.

Chung *et al*. (2019) have suggested some hypotheses regarding the aetiology of pica. These include:

- Hunger hypothesis, where hunger motivates individuals to engage in pica to replace nutrients not found in their diet (this is more specific to geophagic substances such as clay, dirt);
- Nutritional hypothesis which is a biological response to micronutrient deficiencies like iron, calcium or zinc;
- Protective hypothesis in which they explained that pica relieves short-term illnesses like nausea and/or long-term effects of chemicals, pathogens or toxins; and
- Cultural hypothesis in which cultural and societal norms may contribute to the development of pica.

Cultural pica is recorded in the histories of many countries and remains a common practice in communities all over the world (Stiegler 2005). According to Rose, Porcerelli and Neale (2000) even in some modern cultures, pica still occurs ritualistically. For example, a study of perceptions of soil eating and anaemia among pregnant women on the Kenyan coast was conducted by Geissler *et al*. (1999). In the study, 52 pregnant women from Kilifi District Hospital and 4 traditional healers from the surroundings of Kilifi were interviewed on soil eating and its perceived causes. Seventy-three percent of the pregnant women reported eating soil regularly and explained it was culturally believed that soil-eating has strong connections to fertility, reproduction and blood. In this study, the findings showed that soil-eating is more than just a physiologically induced behaviour; it is a rich cultural practice.

According to Rose, Porcerelli and Neale (2000), pica has also been practiced as part of religious ceremonies, magical beliefs and healing ceremonies. For example, Simpson *et al*. (2000) conducted a study on pica during pregnancy in low-income Mexican-born women in Mexico and the United States. A convenience sample of 225 Mexican-born women was selected and interviewed. Seventy-five of the 225 women were interviewed in Ensenada, Mexico and 150 in Southern California, USA. One of the reasons for practicing pica provided by participants was religion. One participant reported to consume, under the influence of her mother, a figure of the Virgin of Guadelope made from holy clay

(gathered in San Juan de Los Lagos, Mexico) as it was believed that this would bring her blessings.

Placek and Hagen (2013) have linked pica to psychological factors, where pica is associated with high levels of stress, anxiety, depression, and developmental disorders. Pregnancy is a moment of great changes and may come with emotional state of anguish, fears and insecurities; and to cope with these stressful times, the body might adopt eating disorders such as pica (Cunha *et al*. 2017). It was therefore hypothesised that pica behaviour is a method of alleviating stress (Rose, Porcerelli and Neale 2000). In these instances, cravings for pica substances are comparable to the cravings for alcohol and opium with consumption alleviating the psychological discomfort (Placek and Hagen 2013). An example of stress induced pica is provided in a study of pica in an urban environment conducted in Washington, DC by Edwards *et al*. (1994 cited in Rose, Porcerelli and Neale 2000). Many pregnant women reported practicing pica and ingesting ice freezer frost because it helped during stressful times.

According to Rose, Porcerelli and Neale (2000), pica is linked to sensory and psychological factors. They have explained that this is based on the finding that many patients with pica say that they just enjoy the taste, texture, or smell of the item they are eating. They have also linked the pica phenomenon to neuro-psychiatric factors, where it has been postulated that pica might be associated with certain patterns of brain disorders. Ogallo (2008) explained that pica is often seen in those with lower psychological functioning such as developmental disorders, autism, mental retardation, and other brain abnormalities. Although scientific studies have failed to validate this theory, some people with developmental disabilities cannot tell the difference between food and non-food items resulting in them eating non-food items when hungry or when food is not available.

Barker (2005) has explained that apart from psychological and cultural hypotheses as the cause of pica, there are numerous links to nutritional deficiencies such as iron, zinc, calcium, nicotinic acid, vitamins B, C and D, with iron being the most common associated deficiency to pica. According to Hommey

(2016), red clay, stone and soil may be ingested because they contain high levels of natural iron. At the same time, researchers have shown that clay displaces iron in the body and this can worsen the problem if a deficiency is the cause of pica practice (Hommey 2016). For that reason, the relationship of pica and iron deficiency has never been fully understood, and it has been proposed that pica may be either a cause or an effect of iron deficiency anaemia (Barker 2005).

2.1.6 Pica effects on the mother and her unborn child

According to Young (2010), pica has been regularly associated with bothnegative and positive effects on health. Among the positive effects, Young lists the provision of micronutrients, soothing of gastro-intestinal distress such as nausea and vomiting, and prevention of harmful chemicals or pathogens from entering the bloodstream. According to Chung *et al*. (2019), studies have identified certain pica substances such as clay that can bind directly to pathogens, toxins or chemicals; or that can reduce the intestinal wall's permeability by forming a barrier, preventing absorption of harmful pathogens. However, although some substances ingested may be harmless, there are some items which, when ingested, can cause serious health problems, as stated by Mortazavi and Mohammadi (2010). Such problems include toxicity like lead poisoning; bowel obstruction; intestinal pain; parasitic infections; dental injury; iron deficiency anaemia; and in rare cases even death.

Possible effects on the foetus, as described by Lavanya and Chandrasekharan (2019), include prematurity, perinatal mortality, low birth weight, irritability, decreased head circumference, and exposure to chemicals such as lead, herbicides, and pesticides.

The medical consequences of pica on mother and foetus vary and depend on the nature of the substances ingested (Simpson *et al*. 2010). For example, lead mainly has effects on the peripheral nervous system in adults and the central nervous system in children and infants (Chandramouli *et al*. 2009). Chronic exposure to lead has irreversible effects on cognition, behaviour and neuro-

psychological function. Lead poisoning also affects the gut, kidneys, haematological and reproductive system.

Geophagia can be a cause of parasitic infections from ingestion of soil,clay, mud leading to fever, hepatomegaly, malaise, cough, myocarditis,encephalitis, retinal lesions and loss of vision (Ogallo 2008). According to Ogallo, pregnant women practicing geophagia are particularly at risk of infection from *Ascaris*, *Lumbricodes* and *Trichuris trichuria*, which may contribute to severe morbidity.

Mortazavi and Mohammadi (2010) state that eating clay can cause too much or too little potassium and excessive phosphorus. The authors explain that clay can bind potassium in the intestines leading to severe hypokalemic myopathy.

According to Mensah *et al*. (2010), not only pica substances can have serious implication on health, but also when ingested in large quantities, can interfere with the gut's capacity and absorption of nutrients during pregnancy. They compete for space with nutrients in the gut, therefore resulting in malnutrition, anaemia, and micronutrient imbalances. The micronutrient deficiencies as described by Kelkitli *et al.* (2016) are associated with health risks such as abnormal mental and motor development in infants, impaired work capacity, risk of premature birth, increased maternal and infant mortality, and more.

2.1.7 Diagnosis and tests of pica

According to Rose, Porcerelli and Neale (2000), the discovery of pica behaviour in a particular patient can be difficult in the absence ofcomplications that might signal such eating patterns. They explained that the diagnosis depends on self-reporting, which becomes hard as patients are likely to not report the pica behaviour as they fear embarrassment, or they are not aware that such behaviour might be worth reporting. Therefore, the diagnosisis usually made when the patient has complications like anaemia, lead poisoning, intestinal obstruction, etc. When they do report it, many individuals practicing pica display a compulsion to eat particular substances and may describe a craving or strong urge or desire to

ingest the substance due to its taste, texture or consistency, as stated by Hartmann *et al*. (2012).

There is no specific screening test for pica (Jyothi 2015). When evaluating pregnant women, health practitioners should interview them about dietary habits and favourite food, followed by specific questions about ingestion of non-food substances and pica behaviour (Ogallo 2008). A thorough physical examination should be conducted on patients suspected to practice pica, looking for pica complications, and order blood tests including full blood count (FBC), iron levels, lead levels, ferritin level, electrolytes and liver function test (Ogallo 2008). Abdominal radiographies such as abdominal ultrasound and barium studies as required, should also be ordered as they will help visualise foreign objects, intestinal obstruction from parasites, radiopaque particles of clay or soil, intestinal perforation, etc. (Blinder, Goodman and Henderson 1988).

2.1.8 Treatment of pica

As described previously, there are no specific screening tests to facilitate the diagnosis of pica (Jyothi 2015). When the diagnosis is made, there is poor documentation of treatments for pica that are clinically proven (Rose, Porcerelli and Neale 2000). In a pica clinical review of different database sources from MEDLINE and PSYCH-Lit, the authors Rose, Porcerelli and Neale (2000) concluded that the treatment of pica must be individualised and must first involve screening for comorbid conditions and complications. When these are found, they need to be addressed. In the case of lead poisoning from ingestion of paint chips, chelation therapy may be prescribed (Holm 2019). In this procedure, patients are given medication (orally or intravenously) that binds with lead allowing the excretion of the lead in the urine (Holm 2019). Surgical procedures may be necessary to remove metal objects from a patient's digestive tract or to repair other injuries such as gastric perforation, intestinal obstruction and blockage, etc. (Newport Academy 2018).

According to Jyothi (2015), the only mainstream treatments for pica are behavioural modification and counselling. In addition to those two lines of treatment, listed by Jyothi, Munir and Qadir (2010) have cited the use of medication in managing pica. Munir and Qadir (2010) listed psychological therapy and medicines as common strategies used in pica management.

2.1.8.1 Psychological management

2.1.8.1.1 Counselling or psychotherapy

This is the initial and most effective way of treating pica patients. Family care, group counselling or marital counselling, guidance, overcorrection and teaching can help in controlling pica in all kinds of patients experiencing pica (Munir and Qadir 2010). According to Carter, Mayton and Wheeler (2004), pica is related to anxiety and/or frustrations, so self-monitoring together with progressive relaxation have long term effectiveness due to skills taught to reduce anxiety.

2.1.8.1.2 Cognitive behaviour therapy

This treatment is behaviour-based. For instance, creating a negative image of the harmful substances in the mind of the pica sufferer, and discrimination training between edible and non-edible items, can reduce consumption of pica substances (Munir and Qadir 2010). In the same behavioural approach, associating a pica patient's behaviour with consequences such as reward or punishment, depending on whether the patient abstains from pica substances or not, can be helpful in pica treatment (Hommey 2016).

Other psychological interventions have been used to address pica, namely, responsive blocking and redirection. According to Carter *et al*. (2004), redirecting the pica patient to their preferred food (when the craving surges) inconjunction with response blocking is effective in producing reduction in pica rates. Response blocking can be achieved, for example, by placing a hand between the hand of

the patient and their lips to prevent them from eating the pica substance when they are about to do so (Hagopian and Adelinis 2001).

2.1.8.2 Medication

For pica patients of psychotic aetiology such as anxiety and depression, medications like antidepressants in the form of serotonin-specific reuptake inhibitors (SSRIs) have been used very successfully (Munir and Qadir 2010). Such medications are helpful in reducing abnormal eating urges by enhancing dopaminergic functioning. However, though information about potential risks of the use of such drugs in pregnancy remains varied and inconsistent across sources, several poor outcomes have been observed and associated with maternal use of anti-depressants including gestational adversities, congenital anomalies, neonatal adaptation syndrome and neonatal persistent pulmonary hypertension (Du Toit *et al.* 2015).

For Rose, Porcerelli and Neale (2000), education about nutrition along with iron therapy (supplementation) or transfusion might be the first wave of intervention in the treatment of pica. Iron supplementation has been found to dramatically reverse pica in patients whose clinical symptoms are moreclearly coincident with iron deficiency from nutritional causes (Blinder and Salama 2008). Khan and Tisman (2010) conducted a case study on three patients presenting with pica. The first patient ingested ice, the second drank partially frozen bottled water, and the third patient chewed rubber bands. All three patients presented with haemoglobin parameters diagnostic for iron deficiency anaemia. At the time this report was published, two of the patients were still under treatment while the other patient's pica symptoms had abated upon use of iron supplementation. This happened within two months of iron replacement therapy.

Other vitamin and mineral supplements such as zinc may be prescribed to correct the nutritional deficiency that is causing pica (Krishna 2020). Buckler (1973) reported a case of pica with rapid improvement after dietary zinc supplementation. It was a case of a two years old female patient. The mother of the patient reported that her appetite had reduced and soon after this she began eating metallic objects (keys, aluminium foil) and her own hair. At age of 24 months, the patient's hair was analysed and the zinc concentration was found to be low. The patient was then put on dietary zinc supplementation and within

three days of starting therapy, her bizarre manifestation of pica had completely disappeared.

2.2 Homoeopathy

2.2.1 Background

2.2.1.1 History of homoeopathy

According to Castro (1999), homoeopathy is an effective and scientific form of healing which helps the natural tendency of the body to heal itself. It treats symptoms with minute quantities of natural substances that would normally bring on those same symptoms if taken in significantly large quantities (Bruno 2009). Homoeopathy was founded by Samuel Christian Hahnemann (1755-1843), a German physician, at the end of the 18th century (Jonas, Kaptchuk and Linde 2003).

Early in his career, Hahnemann became very disillusioned with the practice of medicine and abandoned it, and instead earned his living as a translator (Fisher 2012). While translating a "Treatise of Materia Medica" in 1790 Hahnemann made his first crucial observation (Fisher 2012). He disagreed with the explanation given by the author of that work, William Cullen, about the effects of the bark of *Cinchona officinalis* or *China officinalis* (the source of quinine) on malaria being due to its bitterness (Jonas, Kaptchuk and Linde 2003). Hahnemann then took repeated doses of *Cinchona* to personally determine its effects, which he found to be similar to the symptomsof malaria but to a milder degree (Jonas, Kaptchuk and Linde 2003). This led Hahnemann to the belief that if a patient had an illness, it could be cured by giving a medicine which, if given to a healthy person, would produce similar symptoms of that same illness but to a lesser degree (Loudon 2006). Hahnemann then continued to experiment with many other substances to determine what symptoms of illness they could produce in healthy individuals, recording individual reactions and common themes or patterns of illness produced by each substance, including sensations and feelings. He called this

new system of healing “homoeopathy”, a term from the Greek words “homeos” meaning “similar” and “pathos” meaning “disease” (Castro 1999).

After its discovery, homoeopathy became popular in Europe in the 1st half of the 19th century and this was mainly due to its success in treating epidemics, particularly cholera which swept Europe during the 19th century (Fisher 2012). Homoeopathy then spread widely around the world. It was introduced to the United State of America by Dr Constantine Hering in 1833, and first practiced in India by John Martin Honigberger in 1839. It was introduced to Brazil by Benoit Mure in 1843, who later introduced it to Egypt (Fisher 2012).

Today, homoeopathy has blended well into the roots and traditions of many countries and plays an important role in providing health care to a large number of people (Das 2019). Homoeopathy has been integrated in the national health care system of many countries including India, Mexico, Pakistan, Sri Lanka, and the United Kingdom (World Health Organization [WHO] 2001), and is regulated in 43 countries including seven African countries including South Africa (Mazaherinezhad 2004). It is widely used as a first line of treatment in many minor illnesses on a self-medication basis, it is also a primary care option for several serious illnesses through expert medical consultation (Das 2019).

2.2.2 Principles of homoeopathy

2.2.2.1 Law of similars

After homoeopathic clinical trials (also known as provings) that were conducted with other medicinal substances in use at the time, Hahnemann proposed the law of similars or “Like cures like” (Similia similibus curentur in Latin) (Smith 2012). The law of similars is based on the principle that illness can be treated by giving small doses of substances which, if given to healthy individuals in larger doses, would provoke symptoms similar to those of the illness being treated (Bruno 2009). For example, if a patient is suffering from severe nausea, he/she is

given a medicine which, in a healthy person, would provoke mild nausea (Loudon 2006). This medicine (remedy) is known as the similimum.

2.2.2.2 Infinitesimal doses

In homoeopathy, remedies are used at extremely low doses (Vigano, Nannei and Bellavite 2015). Hahnemann found a way of preserving healing properties of substances while eliminating the potential side effects, through a serial dilution of the substances, a pharmaceutical procedure now known as “potentization” (Bruno 2009). In this process, the “spirit-like” power hidden in the inner essence of the homoeopathic remedy is released through the serial dilution and repetitive shaking also known as “succussion” (Cukaci *et al.* 2020).

2.2.2.3 Treating holistically

According to WHO (2009), homoeopathy works in a holistic manner with an approach focused on the totality of the patient’s symptoms. Homoeopathy recognises that symptoms of ill health are expressions of disharmony within the whole person and that it is the individual person who needs treatment, not the disease (Castro 1999).

2.2.3 Manufacture of homoeopathic medicines

Homoeopathic medicines (known as remedies), as described by WHO (2009), are prepared from natural or synthetic sources that are referenced in pharmacopoedic monographs or other recognised documents and include:

- Plant material such as roots, stems, leaves, flowers, bark, pollen, lichen, moss ferns and algae.
- Microorganism such as fungi, bacteria, viruses and plant parasites.
- Animal materials such as whole animals, animal organs, tissues, secretions, cell lines, toxins, blood products.
- Human materials such as tissues, secretions, cell lines and endogenous molecules such as hormones.

- Minerals and chemicals.

According to WHO (2009), homoeopathic remedy manufacturing follows guidelines covering the manufacturing process, premises, personnel, packaging and labelling known as good manufacturing practice (GMP).

2.2.4 Case management in homoeopathy

During treatment, homoeopathy individualises the patient, meaning that the homoeopathic remedies prescribed to patients not only are tailored to the patient's symptoms, but also their personality types. The causes for their illness are taken into consideration and form a part of the analysis when formulating an individual prescription (De Schepper 2001). The steps followed in managing a homoeopathic case are enumerated below.

2.2.4.1 Case taking

According to Gafoor (2012), case taking is a unique art of observation of, conversation with, and collecting information from the patient, to define the patient as an individual and the disease. When the patient enters the consultation room, the homoeopath observes and takes into account the patient's appearance, demeanour and body language (Sarmah 2015). Once the patient starts describing the complaint(s), the homoeopath should remain attentive without interfering, he/she should be involved in active listening so that disclosure is received properly (Gafoor 2012). When the patient has finished explaining his/her complaint, the homoeopath can fill in the gaps by asking questions to get peculiar symptoms (symptoms specific to thepatient) and the totality of symptoms, and later perform the necessary clinical examinations (Gafoor 2012). The following question guide as described by Mavela (2016) can be used to detail a symptom and is abbreviated as CLAMSIT:

- Concomitant: is there any other symptom occurring together with themain complaint?

- Location: at which specific area is the main complaint or concomitant experienced?
- Aetiology: this refers to the cause or source of the complaint being experienced by the patient.
- Modalities: what makes your complaint better or worse?
- Sensation: this refers to the specific feeling brought on by the complaint (what does it feel like?)
- Intensity: refers to the degree of discomfort brought on by the complaint.
- Time: refers to the specific time of complaint onset or recurrence.

In addition to this, the homoeopath wants to know about the patient's emotions, personal interactions, work life, stress, dreams and anything else of importance in their life (Sarmah 2015).

All this information is considered important and aids in the identification of the individualised remedy needed by the patient. According to Khadim and Shail (2020), understanding the patient is the cornerstone of homoeopathic health care.

2.2.4.2 Repertorisation of the case

After case taking, the homoeopath repertorises the symptoms provided by the patient or observed during clinical examination. Repertorisation is a method of quickly and easily cross-referencing symptoms to verify which remedies run through each of the symptoms chosen (Castro 1999). Repertorisation involves the use of a repertory.

There are many types of repertory used in homoeopathy. The Kent repertory first systemised the vast amount of data from the materia medica (see next section) and is still in use, despite the fact that computer programs are replacing books as a faster and easier way of accessing this information (Castro 1999).

2.2.4.3 Use of the materia medica

The homoeopath uses the materia medica to confirm the symptom pictures of the remedies resulting from the repertorisation. The homoeopathic materia medica is a book that lists the symptom pictures of each remedy as elicited in the provings and then confirmed through clinical experience (Castro 1999). The symptoms of a remedy presented in the materia medica are the symptoms that a patient needing that remedy will present with.

There are many homoeopathic materia medicas among which are the materia medica by Kent, Mure, Boericke, Clarke, Phatak, and many more. These materia medicas are compiled by different homoeopaths, each grounded in the provings with additions that reflect their own personal experience (Castro 1999).

2.2.5 Homoeopathic prescribing

This refers to the prescription of the chosen homoeopathic remedy individualised to the patient. As mentioned previously, the choice of a specific remedy is guided by the patient's total symptom profile rather than by the illness (Das 2015). According to Das (2015), there are several types of homoeopathic prescribing techniques according to the different types of clinical presentation of the case such as constitutional and miasmatic.

2.2.5.1 Constitutional prescription

The constitution of an individual incorporates that individual's combined physical body type (including the nervous system and metabolism), mental thinking style and emotional reactivity. These three aspects are inherited and because of this, the constitution has no ability to alter itself (Poole 2019). Given the above definition of constitution, a constitutional remedy is, therefore, one that combines the body type, thinking style and emotional reactivity of the individual and because it reflects the genetic inheritance, it will remain consistent throughout the life of that individual (Poole 2019). For example: an individual presents with the

following constitutional characteristics: he/she is fair in complexion, overweight, sensitive to cold, slow at everything, sweats easily especially on the head and chest during sleep and has clammy feet. This individual will most likely be prescribed the homoeopathic remedy *Calcarea carbonica* because his/her characteristics match those of this remedy (McGregor n.d.); this then is his/her constitutional remedy.

2.2.5.2 Miasmatic prescription

Miasms are the tendencies and predisposition to certain diseases either inherited or acquired, and they can be dormant or active (Das 2015). According to Kaur, Mahajan and Jadhav (2020), miasms are the fundamental cause of all sickness and create obstacles in the process of cure. Three miasms were recognised by the father of Homoeopathy, Hahnemann, which he named psora, sycosis and syphilis (Kaur, Mahajan and Jadhav 2020). It is important to accept the fact that each human being is characterised by a miasmatic modulation through which its individuality tries to emerge; it is therefore important that a homoeopath knows about the miasm of an underlying disease condition, as it will help in determining the true picture of that individual and the evolution and prognosis of that condition (Kaur, Mahajan and Jadhav 2020). According to Das (2015), if an effective anti-miasmatic treatment is not given, the miasm will persist through the life of the person and will be transmitted to the next generation. The respective miasm can be diagnosed and treated with an appropriate anti-miasmatic remedy, depending on the expression in a particular individual (Das 2015). For example, a patient with the predisposition of a Syphilitic miasm may have one or more of the following diseases states suggestive of the syphilitic miasm: congenital abnormalities like microcephaly, hydrocephalus, syphilis, degenerative changes, ulcerations, repeated abortions, still births, extra-uterine pregnancy, endometriosis, auto-immune diseases, cancer and precancerous conditions like leukoplakia, dysplasia, metaplasia, intraepithelial neoplasm, HIV/AIDS, premature senility, vesicular moles etc. This predisposition is obtained from family and past medical history of the patient (Jagose 2016). To treat the disease predisposition in the

above patient, an anti-syphilitic remedy such as *Mercurius sollubilis* will be prescribed.

2.2.6 Homoeopathy in pregnancy

Homoeopathic remedies have been used to assist with child-bearing and pregnancy for centuries (Boltman-Binkowski 2016). According to Castro (1999), many health care practitioners, including midwives, have learnt to use a select number of homoeopathic remedies effectively within the perimeters of their own specialty. Homoeopathy is ideally suited to women in their childbearing years and for midwives; it provides a safe and convenient tool for helping women during pregnancy, labour and the post-natal period for a wide variety of complaints (Castro 1999).

Allopathic (Western) medicine is traditionally avoided during pregnancy due to limited drug trials and the suspected teratogenic effects of these medications. This has led to the use of homoeopathic remedies as they are viewed as having no teratogenic effects on the developing foetus (Boltman-Binkowski 2016). Homoeopathy is viewed as a safe and effective treatment option for pregnancy-related symptoms, and homoeopathic remedies are viewed as having no toxic effects due to the extremely low doses used in their preparation (Katz 1995). Additionally, if the foetus is genetically diseased or received some hereditary dyscrasia from its parents, no amount of antenatal care and nutrition to the expected mother or hygienic precaution can make the child be born healthy, unless the hereditary dyscrasia is removed by constitutional or anti-miasmatic treatment of the mother during pregnancy (Priyanka 2021).

2.2.7 Homoeopathic management of pica

As a chief complaint, pica is one of the least reported problems (Srivastava 2016). It is usually identified as a concomitant of other medical complaints like

constipation, anaemia, diarrhoea, etc. In managing pica, the homoeopath will follow the four steps of homoeopathic case management that we have already discussed, i.e., case taking, case repertorisation, use of Materia medica and finally prescription of the chosen remedy.

Homoeopathic remedies for pica are selected individually for every case depending on the type of craving and the concomitant symptoms that are present (Sharma 2021a). The homoeopath not only works on the symptoms caused by the ingestion of non-food items, but also helps to correct the basic cause of pica (Madan 2019).

There are a number of homoeopathic remedies that may address a pica behavioural tendency and prevent its recurrence (Madan 2019), as discussed below.

2.2.7.1 *Alumina*

This remedy is prepared from Oxide of Aluminium (Figure 2.4), pure clay, by trituration process. The medicinal properties of pure clay are extracted leaving behind any of its poisonous, toxic effect (Sharma 2021b).

Generally, this remedy is suitable for old people with lack of vital heat (body heat) or premature old age with debility; it is also useful in children that are delicate as a result of having been fed artificial baby foods (Phatak 1999). The patient in need of this remedy is thin and inactive with fatigue that is worsened by lying down. In the mental sphere, the consciousness of reality and judgement is disturbed (Phatak 1999). *Alumina* is one of the chief antidotes for lead poisoning (a complication of pica) and is indicated for individuals with cravings for starch, chalk, charcoal, cloves, coffee or tea grounds, raw rice, and acids, with an aversion to potatoes (Mulla 2012). The *Alumina* patient often experiences dryness of mucus membranes and of the skin; they suffer greatly from constipation with no desire for passing stools for a number of days, and soft stools require great straining (Mulla 2012).

Figure 2.4 Oxide of aluminium
By Carlson n.d

2.2.7.2 *Antimonium crudum*

The *Antimonium crudum* remedy is prepared from the sulphide of antimony (Sankaran 2018) (Figure 2.5). This remedy is suitable for infants and children, but also for elderly and young individuals who have a tendency to grow fat (Phatak 1999). The patient in need of this remedy is peevish, cannot bear being looked at or touched (they start crying) and is a gross feeder, which means that they eat beyond the capacity of their digestion or without discrimination. This leads to gastro-intestinal disturbances with mental and skin symptoms (Phatak 1999). *Antimonium crudum* is also indicated for individuals with no appetite, with cravings for raw food and vegetables, and desire for acids and pickles (Mulla 2012). The individual requiring this remedy is thirstless and experiences bloating after eating (Mulla 2012).This individual is unable to bear the heat of the sun and radiated heat, but also cold bathing, cold water on the head and cold dampness (Phatak 1999).

Figure 2.5: Antimony crudum
By Consciente. 2016

2.2.7.3 *Calcarea carbonica*

This remedy is obtained from trituration of the soft snow-white calcareous substance found between the outer and inner harder shell of the oyster (McGregor n.d.) (Figure 2.6). It is the chief representative of all calcium compounds (Phatak 1999). This remedy is suitable for individuals that have become fat but not strong, and for emaciated children with a big head and a big belly (Phatak 1999). The individual needing this remedy is susceptible to cold, takes cold easily especially in the chest, sweats easily on the head and chest especially during sleep; and all his/her discharges smell sour (Phatak 1999). The *Calcarea carbonica* patient is flabby, pale, weak, easily tired, fearful, shy, timid, slow and sluggish (Mulla 2012). *Calcarea carbonica* is indicated for individuals experiencing cravings for indigestible things like chalk, charcoal, slate pencil, eggs, ice-cream, and salt and sweet. On the other hand, they cannot tolerate milk, meat, boiled things and fatty foods (Phatak 1999).

Figure 2.6: Oyster shell
By Crippa n.d.

2.2.7.4 *Calcarea phosphorica*

Also known as *Calcium phosphate,* this remedy is made from phosphate of lime (Boericke 1906) (Figure 2.7). This remedy is suitable for individuals, especially children, that are delicate, tall, thin or scrawny with dirty brownish skin, anaemic, peevish, flabby and have cold extremities (Phatak 1999). The individual in need of this remedy is restless, fretful, forgetful and is worse for mental exertion

(Phatak 1999). The *Calcarea phosphorica* patient is slow in learning how to walk, unable to walk, and rickety (Mulla 2012). *Calcarea phosphorica* is indicated for individuals that crave lime, slate, pencil, earth, chalk and clay, and who desire raw salt and smoked things (Mulla 2012). These individuals suffer from colicky pain in the abdomen while eating, have distended abdomens and feeble digestion (Mulla 2012).

Figure 2.7: Calcium phosphate
By Homeopathy Plus 2021

2.2.7.5 *Cicuta virosa*

This remedy is prepared from the *Cicuta virosa* also known as the cowbane or water hemlock, a plant from the Umbelliferae family; the fresh roots of this plant are gathered as soon as the plant starts blossoming and a tincture is prepared (Broussalian 2015) (Figure 2.8).

This remedy has a chief influence on the brain and the nervous system in general (Phatak 1999). The individual in need of this remedy suffers from violent spasmodic conditions like epilepsy, convulsions, tetanus, hiccough, twitching of various parts of the body, frightful facial distortion, spasm of the diaphragm. The spasms get renewed by touch, noise and loud talking (Phatak 1999). The *Cicuta virosa* patient grinds their teeth, is chilly, behaves like a child, dances and makes strange gestures (Mulla 2012). *Cicuta virosa* is indicated for individuals with an abnormal appetite for chalk, charcoal, coal and cabbage, which are relished (Mulla 2012).

Figure 2.8: Cicuta virosa plant
By Cattlin 2018

2.2.7.6 *Nitricum acidum*

This remedy is prepared from Nitric acid or “aqua fortis”, through potentization (Sharma 2021c) (Figure 2.9).

This remedy is suitable for individuals that are lean, have dark complexion, black hair and eyes (Sharma 2021c). This remedy has a great affinity for the margins of the outlets especially of the throat, mouth and anus (Phatak 1999). These individuals are chilly, take cold easily, greatly debilitated, suffer from chronic diseases, and have a tendency to suffer from diarrhoea (Phatak 1999). The *Nitricum acidum* patient is head-strong, irritable, fearful, vindictive and sensitive to noise and light (Mulla 2012). *Nitricum acidum* is indicated in individuals that crave indigestible items such as lime, slate, pencil, paper and charcoal; and desire fat and salt (Mulla 2012).

Figure 2.9 Nitric acid
By Alibaba.com 2021

2.2.7.7 *Nux vomica*

This remedy is prepared from the *Strychnos nux-vomica* tree, also known as poison nut, belonging to the Loganiaceae family; the seeds of this tree are used to make the remedy through trituration (Sharma 2021d) (Figure 2.10).

This remedy is suitable for individuals who lead a sedentary life, doing much mental work, or remain under stress and strain of prolonged office work, business cares and worries (Phatak 1999). The typical *Nux vomica* patient has dark hair, is thin, active, energetic, nervous, impatient, ardent, zealous, malicious, spiteful, and is disposed to getting offended, irritable often, angry easily and being

quarrelsome (Sharma 2021d). The *Nux vomica* patient suffers from digestive disturbances, such as dyspepsia, as a result of eating food that is poorly digested (Phatak 1999). This remedy is indicated for individuals that crave charcoal, chalk, fats, spicy food, pepper and have a tongue coated yellowish on the posterior part (Mulla 2012).

Figure 2.10: *Nux vomica* tree seeds
By Hoover n.d.

2.2.7.8 *Silicea terra*

The remedy *Silicea terra* is prepared from pure flint through the trituration method (Phatak 1999) (Figure 2.11).

This remedy is suitable for individuals with defective nutrition, especially in children, due to imperfect assimilation (Phatak 1999).

These are rachitic children with large head, open fontanelles, distended hot and hard abdomen, who are slow in learning how to walk, and wasted in body, especially the legs (Phatak 1999). The *Silicea* patient is extremely chilly, all their symptoms are worse for cold except stomach complaints that are better for cold. They sweat profusely especially on feet and all their discharges have an offensive smell (Mulla 2012). The *Silicea* patient is prone to stubborn suppurative processes, abscesses; slow, incomplete inflammation of glands, cellular tissue and skin; and induration (Phatak 1999). This remedy is indicated for individuals that are nervous, apprehensive, oversensitive, irritable, fearful; and have cravings for lime, sand and raw foods (Mulla 2012)

Figure 2.11: *Silicea terra*
By ilovehomeopathy 2013

Figure2.11*:Silicea terra*
By Ilovehomeopathy 2013

CHAPTER 3: RESEARCH METHODOLOGY

This chapter discusses the methodology used in this research in terms of the research design, sample size, sampling method and research setting used. It also describes the participants' recruitment, interviews, data analysis and pilot study procedures as well as the ethical issues and trustworthiness principles that were taken into consideration in this research.

3.1 Research design

The design of this study was twofold:

1. A qualitative study was conducted where participants were interviewed on their pica practice as a phenomenon they have experienced. A qualitative study is an investigation that is primarily concerned with understanding a human being's experiences in a humanistic and interpretive approach (Jackson, Drummond and Camara 2007).

2. Thereafter the experiences described by the participants were converted into homoeopathic symptoms called rubrics which were subjected to a repertorial analysis. The set of remedies emerging from the repertorial analysis were then explored.

3.2 Sample size and sampling

Purposive sampling was used in this study. Purposive sampling is a tool used in the selection of participants, consisting of deliberately choosing a participant to participate in a study due to the quality of information the participant possesses (Tongco 2007). This method was most indicated for this study as only a specific population group was targeted in this study and it helped the researcher select

participants whose information on pica during pregnancy was of quality because it was a phenomenon that they had experienced.

The study planned for a minimum of 12 participants until data saturation. According to Fusch and Ness (2015), data saturation is achieved when there is enough information to conduct the study, when the ability to obtain new information has been reached and no further data collection is this study, 17 participants were recruited using purposive sampling. Of the 17, 3 dropped out of the research and 2 were not willing to complete the interviews. The final sample size was therefore 12. Data saturation was reached after interviewing the 9th participant of the 12 that agreed to participate.

3.2.1 Inclusion criteria

- Women who have pregnant and have experienced pica during their pregnancy.
- Women that agree to participate in the study and have signed the informed consent form.

3.2.2 Exclusion criteria

- Women below 18 years old at the time of the study as they would have required permission from their parents or legal guardian to participate in this study.
- Pregnant women at the time of the study.
- Women who participated in the pilot study.

3.3 Recruitment of participants

The researcher directly approached female students and staff from the Durban University of Technology community. These women were asked if they had been pregnant before and if they have, they were subsequently asked if during any of their pregnancies they had experienced pica. Women that reported having

experienced pica during pregnancy were then requested to voluntarily participate in the study. The willing participants then agreed with the researcher on the date and time at which they would like to have their interviews scheduled. On approaching the potential participants, the researcher was wearing a face mask and kept the recommended physical distance of at least one metre following the Covid 19 public health requirements. The researcher also contacted potential participants via email and invited them to participate electronically. This was to keep the social distance between participants.

3.4 Research setting

Half of the willing participants were interviewed in one of the consulting rooms of the Homoeopathic Community Health Centre (HCHC), situated in the DUT Ritson Campus. This centre is operated by the senior students in Homoeopathy at DUT (4^{th} and 5^{th} year students), who consult with patients andprescribe homoeopathic remedies under the supervision of a qualified homoeopathic clinician. Due to the COVID-19 pandemic, the other half of the interviews were conducted via the Zoom platform; this method allowed for social distancing and safety.

3.5 Interview procedure

Before the interviews, the researcher received gatekeeper permission (Appendix A) from the DUT Director of Research and Postgraduate Support, Dr Linganiso, to use one of the DUT HCHC rooms for the interviews. On the date and time agreed upon for the interview, on entering the HCHC building, both participant and researcher were screened and made use of the hand sanitiser present at the entrance. There was no physical contact between researcher and participant (hand shaking, hugging, etc.) and a physical distancing of at least one metre between researcher and participant was observed, and both parties had a face mask on at all times. Each participant received a letter of information (Appendix B) and an informed consent form (Appendix C) which they signed prior to the interview. For participants whose interviews were conducted on Zoom, informed consent forms and the information letters were emailed to them prior to the interview date. They read the information letter and signed the informed consent

form voluntarily and emailed it back to the researcher. Upon starting the interviews, both groups of participants were asked if they have read and understood the information letter and if they offered consent. At this stage the participants were also given the opportunity to ask questions for clarity.

After signing the consent form, each participant was interviewed. Each interview was digitally recorded and lasted for about 20 to 45 minutes depending on how fast and on point participants' answers to questions were. The researcher asked questions to the participants one on one, in one of the DUT HCHC consulting rooms, or via the online Zoom platform. The questions were from the question guide that was tested prior to the real interviews. The answers given by the participants were handwritten and recordings were also transcribed verbatim by the researcher.

The interviews were conducted in English as it was a common language for the researcher and the participants who were staff and students at DUT.

3.6 Ethical considerations

Before conducting this research, the researcher sought and received ethical clearance (Appendix E) from the Institutional Research Ethics Committee (IREC) of DUT to interview women in the DUT community about pica they experienced during pregnancy. The following other ethical issues were considered and implemented in this research.

3.6.1 Informed consent and letter of information

Each participant was given a letter of information (Appendix B) explaining to them what the study was about and all the requirements before being interviewed, and signed the informed consent form (Appendix C) and then gave permission to the researcher to interview them and record the interview.

3.6.2 Anonymity and confidentiality

Each participant was allocated a code number (e.g., the 1st participant was renamed P1) for reference preserving their anonymity. To ensure confidentiality, no name and physical address of the participants were asked or recorded. The signed consent forms were kept separate to the handwritten and transcribed documents.

3.6.3 Voluntary participation

No pressure was put on the participants to participate in this study. Their participation was fully dependent on their willingness and availability.

3.6.4 Withdrawal from the study

Participants who wished to withdraw from the study for any reason were able to freely do so, with no adverse consequences.

3.6.5 Beneficence, non-maleficence and justice

Beneficence, non-maleficence and justice are very important in research ethics. Beneficence is a core tenet of any research that involves human participants; it requires that the researcher maximises the benefits to the participants while minimising harm to them (Weinbaum et al. 2019). In this study, to avoid the possibility of participants losing time from their studies or employment, the interviews were dependent on their availability (the time at which they preferred or were willing to have the interview) and the duration was kept within the timeframe agreed (30-45 minutes). Participants were given the opportunity to discontinue the interview should they have felt uncomfortable during the interview. To ensure the participants privacy, the interviews took place in a room in which only the participant and researcher were present. For the interviews conducted on Zoom, the researcher made sure to send the joining details of the

zoom meeting only to the specific research participant so that the researcher and participant would be the only participants of that Zoom meeting.

Non-maleficence refers to the responsibility of researchers to not intentionally cause or expose participants to harm (Singh and Ivory 2015). In this study, participants were not harmed or exposed to harm in any way. They were not given any sort of drugs or medications, and no physical examinations or procedures were performed on them.

All participants were treated equally and fairly. There was no exploitation, physical or verbal abuse whatsoever of participants. They freely exercised their continued involvement in the study and the information shared by the participants was kept in confidence as all participants were allocated a code for further reference. The identity of the participants and the information offered were anonymous and confidential respectively. Participation in this study was only allowed by informed consent. There was no bias, prejudice or coercion, as the participation was voluntary and snowball sampling was used.

3.7 Trustworthiness

Four principles were followed to ensure the trustworthiness of this study, as discussed below.

3.7.1 Credibility

To ensure the credibility of the study, only participants who reported having experienced pica in pregnancy were interviewed. Also, at the end of interviews, each participant was asked to review the answers given during the interview so as to clarify their answers, correct errors or provide additional information. After the interviews, the researcher sent the data collection results and the transcribed interviews to the supervisor to ensure proper interpretation of information given by participants.

3.7.2 Dependability

To ensure the credibility of the study, only participants who reported having experienced pica in pregnancy were interviewed. At the end of each interview, participants were asked to review the answers given during the interview so to clarify their answers, correct errors or provide additional information. After the interviews, the researcher sent the data collection results and the transcribed interviews to the supervisor to ensure proper interpretation of information given by participants.

3.7.3 Transferability

The methodology of the study was well documented and detailed steps were followed so that should the study be repeated, an established methodology can be followed. The experiences of the participants and their context were described to allow for transfer and verification of results.

3.7.4 Confirmability

All source documents and audio recordings were kept safely and shall the need arise, they will be made available to the relevant ethical audit committee if results and methods require verification. External examiners were appointed to examine and confirm accuracy of the findings, interpretations andconclusions to determine whether they were supported by the data collected.

3.8 Data analysis

The study design followed two stages.

1) Analysis of the qualitative aspect followed Tesch's eight step qualitative data analysis method (Creswell 2014), as follows:
    a. After interviews, the researcher read all data log sheets and listenedto the voice recordings to get a general sense of symptoms and reflect on their overall meaning.

b. Each document (data log sheet or voice record) was analysed in regards to its meaning and some notes taken as ideas came in the mind of the researcher.
c. A list of all topics arising from the analysis was then made. Similar topics were grouped together. These topics reflected for example the substances ingested (e.g.: Geophagias a topic for earth ingestion).
d. The topics were given a code in form of a theme name and these themes were written next to the appropriate text on the data log sheets. This was to verify if new topics or themes would arise.
e. The themes were then turned into sub-themes. To reduce the total list of sub-themes, topics that related to each other were grouped together. For example, all food items craved for were put in one sub-theme and all non-food items consumed were put in another sub-theme.
f. A final decision on the name for each sub-theme then made.
g. The symptoms belonging to each sub-theme were assembled in one place and an analysis was made.
h. If the need arose, the researcher went back to the symptoms on the log sheets and recoded them to allow for further analysis to occur.

2) The homoeopathic repertorial data analysis was conducted in the following manner:

Once the pica symptomatology picture was gathered from all the participants, the symptoms given by each participant were transformed into repertory rubrics then entered into a repertory sheet. The repertorisation was then conducted for each participant using the homoeopathic repertory Synthesis, edition 9.1 by Dr. Frederik Schroyens (2012). Using this same repertory, a repertorisation of the six most common rubrics to participants was also conducted. These two sets of repertorisations determined the remedies that best suited the symptomatology picture of the participants. The researcher then chose the five most represented remedies in both sets of repertorisations and conducted a materia medica review of those remedies.

3.9 Pilot study

A pilot study is a mini-version of a full-scale study, consisting of the pre-testing of a particular research instrument (Van Teijlingen and Hundley 2002), which in this case was the interview guide. Prior to this study, the interview guide was tested on a group of three women that had expreinced pica during their pregnancy. These three participants were not part of the main study. Together with the group, the interview guide was discussed in terms of its problems, reliability, and ability to provide the intended results. Queries and problems arising from the question guide were then shared with the supervisor and the question guide was modified accordingly.

CHAPTER 4: RESULTS

This chapter reports and discusses the results obtained from the deep interviews. It also provides the remedies that emerged from the repertorisation of data gathered from participants.

4.1 Demographic data

4.1.1 Age

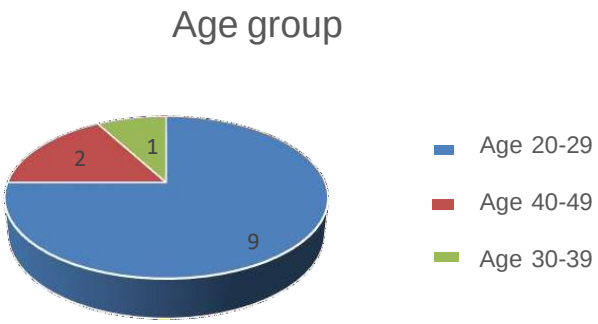

Figure 4.1: Age group

Figure 4.1 shows that participants were aged 20 to 49 years old, with the majority being in their twenties.

4.1.2 First pregnancy

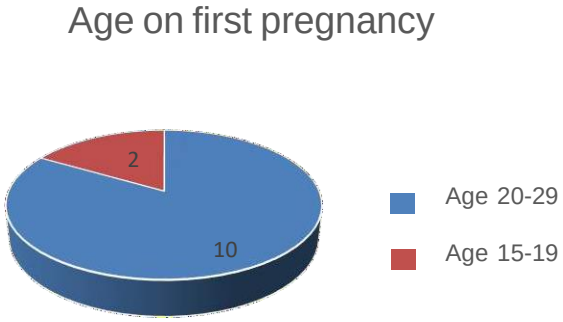

Figure 4.2: Age on first pregnancy

Figure 4.2 shows that participants were aged 15 to 29 years old on their first pregnancy with the majority being in their twenties.

4.1.3 Number of pregnancies

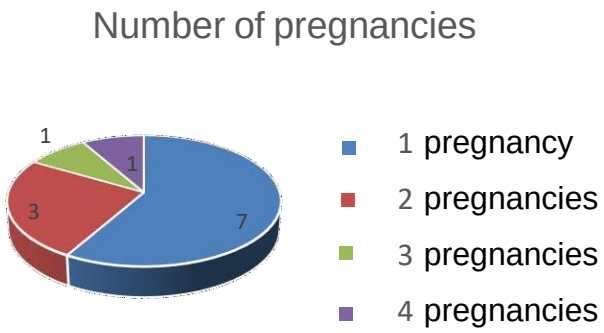

Figure 4.3: Number of pregnancies

Figure 4.3 shows how many pregnancies participants had at the time of the study, with the majority having had one pregnancy.

4.1.4 Pregnancy with pica experience

Figure 4.4: Pregnancy with pica experience

Figure 4.4 shows in which pregnancy/ies pica was experienced by participants, with the majority having experienced it in their first pregnancy.

4.2 Themes and subthemes emerging from the deep interviews with participants

Participants were interviewed on pica they experienced during pregnancy. Table 4.1 shows the themes and subthemes that emerged from the deep interviews.

Table 4.1: Identification of themes and subthemes

Themes	Subthemes
Pica course during pregnancy	- Craving onset - Frequency and recurrence of craving - Pica progression in pregnancy
Craved pregnancy substances during pregnancy	- Pica substances - Digestible substances
Aetiology pregnancy of pica during pregnancy	- Iron deficiency and anaemia - Smell, taste, texture and appearance of substance - -Baby's/pregnancy's desire and therapeutic use
Modalities and concomitants ofpica during pregnancy	- Modalities of pica during pregnancy - Concomitants of pica during pregnancy
Pica management during pregnancy	- Supplementation - Substitution - Ignoring the craving - Ejection of substance from the stomach
Effects of and emotional responses associated with pica during pregnancy	- Physical effects - Emotional effects - Emotional responses

These themes and subthemes were the results of the sub-questions answered by participants after they answered the grand tour question: **Have you experienced unnatural cravings or pica in your pregnancy/pregnancies?** The themes and subthemes listed in Table 4.1 are explored below.

4.2.1 Theme 1: Pica course during pregnancy

This theme groups information given by the participants regarding the onset of pica during their pregnancy, how frequently the craving re-occurred, and the progression of the craving throughout the pregnancy.

4.2.1.1 Subtheme 1: Craving onset

This subtheme was identified in line with answers given the following question**:** **When did you first notice the craving during pregnancy**?

Although participants could not pinpoint when exactly their cravings for non-food items started during pregnancy, they were able to recall and estimate which month or trimester of their pregnancy they first noticed the craving.

According to Iftikhar (2020), pica can occur at any stage of thepregnancy but often appears in the 1st trimester. The 1st trimester of pregnancy refers to the first 3 months or first 12 weeks of pregnancy.

In this study, more than half of the participants described having first noticed the cravings for non-food items in their 1st trimester. To the question previously stated, interviewees responded as follows:

> *In the first trimester. (P2)*
>
> *In the first trimester, maybe at 3 months, I think. (P4)*
>
> *In my 3rd month. (P6)*
>
> *Towards the later portion of my 1st trimester, towards the3rd month, actually, can we say 2nd month, 2nd month yeah. (P12)*

P8, P11 and P3 also explained that they noticed their cravings in the 1st trimester even though they had no clue they were pregnant at the time. They expressed themselves as follows:

> *For the pregnancy in 2011, I think I was 3 weeks, I didn't even know I was pregnant at that time but when I recall it was 3 weeks, my cravings started at 3 weeks. (P8)*

I started craving for 'umcako' I think in my 1st trimester, just that I wasn't noticing what's going on, I only noticed on my 2nd trimester but the cravings were there even in the 1st trimester, in the 1st month. (P11)

For the ectopic pregnancy I had in 2014, at first I didn't know I was pregnant; I was eating ice like normal, I only noticed after 3 months that I was pregnant, so I'm not sure when exactly. (P3)

According to P3, by the time she found out she was pregnant the pregnancy was already 3 months and she had already started eating ice by then, which means that her cravings for ice started in the 1st trimester.

As organisms differ and what one individual experiences is not necessarily what another with the same condition will experience, pica may also appear in other stages of pregnancy such as the 2nd trimester. The 2nd trimester of pregnancy is the 2nd phase of pregnancy and refers to months 4, 5 and 6 or week 13 to week 28 of pregnancy. The excerpts below are from interviewees who noticed their cravings in the 2nd trimester.

I first noticed it I think in the 2nd trimester because it was not the normal pica cravings I used to have. (P1)

I think I was only 4 months pregnant, that's when I started to notice that there's something I like. (P5)

I think it was after 3 months, 3 to 4 months, I think in the 2nd trimester. (P7)

I think I was 5 months pregnant. (P9)

When I was 4 months pregnant, that was the beginning of 2nd trimester. (P10)

For the pregnancy I had in 2004, I first noticed it I think after 3 months, in the 2nd trimester. (P3)

Not only do organisms differ but also pregnancies in the same individual can produce different experiences. Therefore, pica onset during pregnancy can differ in different pregnancies carried by the same individual. This was the case with P3 who noticed the cravings in the 1st trimester in one pregnancy and in the 2nd trimester in a different pregnancy.

In some cases, the onset of cravings do not occur with immediate ingestion of the craved substance. For P2, the cravings started in the 1st trimester but only later in the pregnancy did she act on the cravings and decide to satisfy them. She expressed herself as follows:

In the 1st and 2nd trimester I would want to eat it but I knew deep down that I was not supposed to be taking those things but during the last trimester I couldn't hold it anymore; in the 1st and 2nd trimester I wanted to eat but I didn't. (P2)

4.2.1.2 Subtheme 2: Frequency and recurrence of cravings

This refers to how often the cravings resurfaced in a day and the specific time at which they recurred. This subtheme was obtained in line with answers the following questions: **How frequent were these cravings experienced ina day? Was there a particular time when you craved for a substance?**

For some women the cravings occur many times in a day and other women it will be only a few times a day. More than half of the participants in this study reported that their cravings were felt many times a day and countless times for some of them. They expressed themselves as follows:

I won't say exactly because I used to eat them whenever I feel like it, so I won't know exactly because it's not like food that you eat 3 or 4 times a day; even when I was cleaning I would open the fridge and put it in the

mouth and carry on cleaning, then I'd go back again, it was many times. (P3)

If I'm not doing anything or going anywhere I felt like I can use the soil,or, if I finished the food I used to take this soil; I used it like 6 times a day. (P5)

You can't count it, it was many times; every morning I started with it, I couldn't eat anything before it; it was morning, during the day, as I've said even in the middle of night when I woke up I'd go straight to it, I'd put it near my bed. (P6)

I would have the cravings during the day … whenever I'm not busy I would feel it and give in to it and then eat the sand. (P7)

May be 4 times a day, that's eating it, for the craving what can I say, every time I see it on the street, every time I think of it, every time I think of going to eat; it happened frequently even when I'm walking in town I would just look around, I would see it then start craving, it was most of the time. (P8)

I would eat the soil the whole day, I always felt like eating it, the craving was always there, you just have to control yourself, it was always there.(P9)

Like P9, P11 and P12 experienced a constant craving for pica substances, and for P12 it had become a lifestyle. They explained themselves as follows:

For 'umcako', it was like every minute there should be 'umcako' on my tongue; there was no particular time where I craved 'umcako' but whenever there was 'umcako' I would want to have it on my tongue. (P11)

I know this is wrong, I generally don't drink a lot of water, but during my pregnancy, I would probably have 2 litres of cold water, the craving was there all the time, so much so that you don't consider it a craving anymore, it becomes like your lifestyle. (P12)

For the remainder of the participants, the cravings were experienced only a few times in a day as they explained in the following statements:

> *I think I craved for the substance about 2 to 3 times a day. (P1)*

> *For me it was in the morning and at night … I didn't have the craving during the day. (P2)*

> *I craved for it may be two times a day. (P4)*

> *I don't know but every time after eating, after having food I felt like having a portion of the soil, I used to eat it sometimes 4 or 5 a day. (P10)*

Like P10, some of the other participants also noticed that their cravings were always present at a particular time of the day. For most of them, it was in the morning and/or at night. They shared their experiences in the following statements

> *For me it was in the morning and at night, at night I would take my phone and put the light on and I would go and look for it, and in the morning whenever I go to school, on my way to school I would take it then go and chew it on the way. I didn't notice around which time at night, but it was always dark because I would have to take my phone, in the morning it was around 9am. (P2)*

> *I craved for it maybe 2 times a day, in the morning maybe around 6am and in the afternoon maybe around 5pm. (P4)*

> *In the morning it was around 7 am and at night it was at any time I wake up, maybe 11pm. (P6)*

> *The craving was always there, I think mostly when I'm about to sleep at night, around 6pm; I used to sleep early. (P9)*

It was mostly at night and mornings … whenever I'm not busy I would feel and give into it and then eat the sand. (P7)

I had the craving mostly I think in the night, I couldn't sleep without eating soil and drinking water … If I didn't eat it, I felt like there's something missing. (P5)

For P7, her craving was not only always present in the morning and at night but was also present whenever she was not busy. P5 also noticed that the craving would come back whenever she had time to spare. To the statement above she added:

If I'm not doing anything or going anywhere I felt like I can use the soil also the water … or else, if I finished the food I used to take the soil. (P5)

P1 and P3 also experienced the cravings mainly when they were not busy, as they explained:

The cravings were mostly prominent during the day because I was staying alone, so I think that's the only time I had with mind and my craving, but when you are busy with someone or something else then you don't notice the craving. (P1)

I craved for it the most when I was sitting, relaxing and watching a movie or something, it was like a snack, when I was not busy I would go and take it from the fridge and with a spoon I would sit, relax and enjoy myself. (P3)

Before or/and after having a meal is also a particular time at which cravings often come back, as P5 previously explained. P8, P10, P11 and P12 shared the same experience as P5 on that point. They expressed themselves as follows:

It was before or after a meal, it depends sometimes I would feel like taking it before my meal, sometimes after my meal, I would enjoy it better; but

every time before or after a meal … I think during the day, during lunch time maybe around 1:30pm or 1pm, before 3 pm, those times. (P8)

I don't know, but every time after eating, after having food, I felt like having a portion of the soil, I used to eat it sometimes 4 or 5 times a day, but more especially after having a meal I felt like having the soil. (P10)

For ice, maybe I would crave for ice after every meal or when I'm lazyto prepare food then I would go for ice first then meal after. (P11) Sometimes after meals, it was just the most beautiful thing to get myself. (P12)

4.2.1.3 Subtheme 3: Pica progression in pregnancy

This subtheme refers to when does the pica craving hit its peak during pregnancy. It was identified in line with answers given to the following question: **At which trimester of the pregnancy did you crave the most for this substance?**

According to Wisner and Gurevich (2021), cravings during pregnancy are known to peak in the 2nd trimester and decline in the 3rd trimester as it ends. This was the case for some of the participants in this study regarding their cravings for non-food items. Answering the question above, they explained their experiences as per the statements below:

For the 2004 one, I think I was 5 or 6 months pregnant because I remember I was admitted I was 6 months pregnant and my blood pressure was high and I was admitted and I had to ask the nurse to get ice for me because I was feeling like I want to eat them, I was at the hospital and chew them. (P3)

I can say the 2nd trimester, that's when I craved it the most; it was whenI stopped using it. (P4)

Maybe around the 6th month. (P6)

I would say 2nd trimester. (P12)

When asked if the craving decreased in the 3rd trimester, P12 responded as follows:

I think it went down because I would have any kind of water it didn't have to be cold, I wouldn't mind and I was starting to substitute it with a lot of juice. (P12)

However, for the majority of the participants, the cravings peaked in the 3rd trimester. This is illustrated in the following answers given to the question above.

In the 1st and 2nd trimester I would want to eat it but I knew deep down that I was not supposed to be taking those things but during the last trimester, I couldn't hold it anymore … it's in the 3rd trimester that I couldn't hold it anymore, that's when the cravings were bigger. (P2)

3rd trimester because I remember my stomach was big at that time. (P7)

The craving was high maybe around 7 months in the 3rd trimester though I was not eating it. (P8)

I think when I was about to give birth in the last trimester, that's when the craving was bigger. (P9)

The last trimester, the last one is worse; it was the 1st and 2nd month of the 3rd trimester, because I gave birth at month 8. (P11)

I think around 6 months to 7 months … 7 months. (P5)

Like P5, P10 also experienced the most craving the in the 6th or 7th month of pregnancy and was unable to specify in which trimester, as she explained:

I'm not sure, but I think I was 6 or 7 months pregnant. (P10)

One may also be unable to tell or notice when the craving is worse for various reasons; for P1 it was due to the inaccessibility of the craved substance (charcoal) throughout her pregnancy, which she could only find once back at home. To the question previously stated, she answered the following

> *The thing is it's very different because I only went home when I was 8 months pregnant, so I'm not sure. (P1)*

4.2.2 Theme 2: Craved substances during pregnancy

Pregnant women experience cravings for a wide variety of items ranging from digestible to indigestible items. In this study, the participants were asked about what substances they craved for during their pregnancies and the answers given were grouped in the subthemes that follow below.

4.2.2.1 Subtheme 1. Pica substances during pregnancy

This subtheme was obtained in line with answers given to the following questions: **What substance did you crave for? Where were you getting this substance from and how were you collecting it?** It refers to the indigestible or non-food items craved during pregnancy. These items were varied and existed in many different categories. In this study, the substances that participants reported craving were grouped into four categories as follows:

4.2.2.1.1 Category 1. Geophagia

This group craved earth in the form of soil, mud, sand and clay. The majority of the participants described having craved and ingested geophagic items during pregnancy. They expressed themselves as follows:

I used to crave soil, it used to smell so nice especially when it's wet when it has rained. It used to smell so nice that you would go dig and eat but no I didn't eat it. (P3)

It's this thing I don't know what it's called but it's something like mud like that termites create maybe on the rooftop, you know, on the woods, it's like soil that is created by termites … I usually take it at home; I found it on woods, trees. (P4)

Soil, near my home there is a river, so I used to go to the river and dig up that soil … it's like mud, then I put it at the sun to dry. (P6)

Soil, wet soil; I would normally collect it after raining, you see after raining there is this soil that is wet, like … it smelled nice for me and I would go and collect it outside in the yard in my home. (P9).

I was eating soil; it was the red one, the red soil. (P5)

P5 also ingested another type of red geophagic item whenever she had no access to the red soil from home that she craved, as she explained:

Sometimes I used to buy the red soil from the market, the soil when it rains and smells so good is not the same as the one that I buy from the market, I bought this soil from the market just to have my own soil even if it's not raining, the one I took when it's raining it was from home. The one I bought in the market I used it when I was not home, when I was traveling or I'm with my friends. (P5)

The red soil bought from the market that P5 is talking about is called in isiZulu Ibomvu' (Red). Together with a similar substance called 'umcako' (lime), 'ibomvu' was reported to have been craved for by some participants (Figure 4.5).

Figure 4.5: from left to right, *umcako* and *ibomvu*

Umcako and *ibomvu* are non-food items that are similar in nature but different in colour. Participants reported that they purchased these substances from the Durban central market or on the street from street vendors and did not obtain the material from their natural habitat, so it is difficult to identify the precise nature of these substances. Some participants described them as soil, others as sand, stones or clay. As the majority described them as geophagic items, they will be regarded as such in this study. Participants described their cravings for these substances as follows:

> *It was mostly sand and I would crave for it and want it … I craved mostly white sand, I was buying the sand from the market, it's not a stone because you can actually grind it with your teeth and eat it like … it's not stone, it is sand. Some people break it down easily it's not like a stone, it is solidified but it's sand or soil you can say soil or whatever but it's called 'umcako' … I also wonder, I don't know how they make it because there is also a red one. (P7)*

> *It's the stone, you see 'umcako', the white stone, I think it's a stone because when I'm eating it I grind it … I buy it anywhere in town, they sell it, those vending people selling fruits and stuffs in the market, it's 2 rands, 1 rand, 3 rands, it depends on how much you're giving. (P8)*

> *Soil, I used to eat that soil called 'umcako', you know that white soil and the red one; the other one is called 'ibomvu' because it is red, the one used by Sangomas. I used to buy it in the market, both of them. (P10)*

'Umcako' and ice. For 'umcako' I would have to eat 'umcako' every minute, I would always feel like there should be 'umcako' on my tongue … the 'umcako' is the white one, I never saw the red one, it was always the white one or soil. The soil was a substitute for 'umcako'. I'm not sure what makes up 'umcako' but I think it's clay-soil, I don't think it's clay-soil only,I think it's mixed with something else because I doubt it would be the soil alone. (P11)

P11 described how she would ingest soil if she does not find *umcako*. The soil is not the only item that P11 used to substitute 'umcako'; she also explained she sometimes ingests clay:

When there is no 'umcako' at all, I would go there by the dam, there is a clay-soil there then I would have to scoop, I used to scoop them because they are soft as ice cream; the clay-soil is soft as ice cream, then I would scoop them into a cup and go back home, no one would see what is inside the cup, I used to scoop it with a spoon, it's wet there,it's not mud mud, you can see it is the one that they use to make vases, clay, it's a clay-soil, yes, It is soft even in the mouth; It was just a substitute because they taste alike in a way; I would find the clay near my place, by the dam. The 'umcako' obviously I would buy it by the street vendors. (P11)

4.2.2.1.2 Category 2. Pagophagia

This category groups all cravings for and/or ingestion of ice cubes, freezer frost, and/or ice-cold beverages. The following statements were given by participants who reported craving and ingesting pagophagic items during pregnancy.

Ice cream and ice water. For the ice cream, I wanted the ice, anything that was cold; I was not drinking these cool drinks, I would take cold juices and stuffs, I wanted them cold I don't know why. I don't think it was thirst, I just wanted anything cold. (P2)

You see in the fridge that white ice that's there on top. Sometimes it's on the sides, I used to take a cup and take it out and take a spoon and eat it; it's the one that looks like a powder … if that thing is finished because I used to take out and finish it, I used to take the cubes. (P3)

Red soil, also ice water … for ice water during the days I just like … I used to feel I can drink water, but not the normal one, I must use ice water. (P5)

Sometimes I could crave ice, you see the ice not the ice cubes but ice that's normally in the freezer that's like there, that one I would scrap it off and eat it, I would love to eat that. (P7)

Umcako and ice … for ice, I would have to crash the fridge, you see the fridge, the snow in the fridge, the ice that is like snow, I would have ice cubes normally when I go to my friend because my mom she couldn't let me. In winter, or in cold weather, I used to put them in a blender just to blend them and I would put them in a glass and eat them with a spoon, yes the ice cubes, I would eat them with a spoon. (P11)

I craved ice water. There always had to be water in the fridge, not freezer, it just had to always be in the fridge. So when I take out the bottle, I had to replace it as well so when I finish the other water I have more. When I go out to restaurants, I would order, I used to love lemon juice, I would always have to chew on the ice, not that I craved it, but it was just an indulgence, I knew that it was wrong, but I just had that indulgence, I needed to do it. (P12)

4.2.2.1.3 Category 3. Lithophagia

This category groups craving and ingestion of stones. Two participants in this study reported to have craved and eaten stones. The stones were found in the soil in the yard of their homes. They expressed themselves as follows:

I don't know what you call this but it's small stones and they are soft. I used to find mine at home in the yard and the colour is brown. It's soil but it's like stone, so when you crush it, it becomes soil. I was looking for softer stones and you can see by the colour because they are usually brown, light brown; the darker ones were too hard on my teeth. (P2)

Like P2, P8 also craved a specific type of stones as she explained

Even when I was at home I would eat the … you see in the garden, the black thing in the garden I used to eat it … the soil but the black one, how can I explain this, it's like the 'umcako' one the white one but when you are at home in the garden it's the black stone we call it 'igade', it's the black stone I used to eat it when I was at home … They were not that hard, they were a bit crunchy when I'm eating them, yes I liked the crunchiness and they are much better than the 'umcako' one. (P8)

P8 also explained that the stones had to have certain specific characteristics. This is illustrated in the statement below:

For the black stones I would prefer the dry one than the wet one. You see, when it's raining they become wet, I don't like them when they are like that, I prefer the dry one, but they must not have the small stones. I would choose the one which is fine, I would prefer that one than the one who's got small stones inside, I don't like that, I would like the fine one.The black stones you can differentiate them, there are those that are fine stones and the stone with small stones inside of it, that one I didn't prefer, I preferred the fine one. (P8)

4.2.2.1.4 Category 4. Other craved pica substances

This category groups cravings for other non-food substances reported by participants. P1 reported to have craved for charcoal and chalk; these forms of pica have no specific terminology attributed to them. P1 shared her experience as follows:

When I went back home around the 8th month, 3rd trimester of the pregnancy I started eating charcoal. The cravings for the other substances were there even during the 2nd trimester but I did not act upon them for the safety of the child. I craved lime, charcoal, chalk. So,that's why when I went home I started eating charcoal because I had been craving for it but I did not have the means to get it, so when I got my hands on it, I ate it. (P1)

Xylophagia is a form of pica referring to the craving and ingestion of paper (Gowda, Patel and Chandrasekar 2014). P7 reported having experienced this form of pica, as she explained in the following statement:

When comes to food I could not eat food that much because I would eat and vomit you know and I had a huge loss of appetite so what I would crave for … at times I would find myself eating paper. (P7)

P7 explained that she found herself eating paper as it is easy to have access to it; she expressed herself as follows:

The paper in a way it is something that I find myself doing and I still do sometimes; I'm doing some school work and then I would just start eating paper, it's not like I had to go and buy it somewhere, it would be just next to me and next thing I find it and I'm like I'm eating paper now,okay, yeah. (P7)

4.2.2.2 Subtheme 2: Digestible substances craved during pregnancy

This subtheme groups craving for digestible items ranging from food to pills in the form of supplements. The subtheme was identified in line with answers given to the following question: **Was there any other substance or food that you were craving for?**

As stated before, human organisms are different and pregnancies are lived differently among women which means that cravings during pregnancy differ

greatly.In this study, a variety of cravings for digestible substances mainly sour, sweet, chilly substances and fizzy drinks were reported by participants, as presented in Table 4.2.

Table 4.2: Digestible substances craved by participants

Participant	Reported craved items
P1	Tissue salts, banana and cheesy sausage on pizza
P2	Ice cream, hot pizza
P3	Sugarcane
P4	Pineapples, oranges, sugarcane, spinach and samp
P5	Chicken and mushroom pie, brown bread, scrambled eggs and chilli sauce
P6	Lemon twist and sour milk
P7	Lemon twist and sour milk
P8	Tin fish, russians sausage, doughnuts, and shwarma
P9	Banana
P10	Chilli food
P11	Grapes, banana, orange, sour milk and eggs
P12	Dry lemon, orange juice and organ meat

P1 reported having craved and ingested a huge amount of tissue salts per day. According to her, it was not always a craving; she began taking the tissue salts for therapeutic reasons for troublesome symptoms she had at the beginning of her pregnancy, but gradually it became more than she could control. She shared her experience in the following statement:

> *During pregnancy, I was eating the tissue salts just to prevent fatigue and stretch marks, and then I also asked for the combination just to cover everything else. But then as I kept on eating them, I would not just eat those 2 pills 3 times a day, it would be the lid of the bottle, I would make sure it is full and then sometimes I would take 2 full lids and I don't know how many times a day. I would take the 2 full lids at once because it was crunchy and I just liked that crunchiness and the taste it was just good for me. It was satisfying, the amount of sugar is well measured. (P1)*

P5 reported having had a peculiar craving for *Cannabis sativa* smoke. She explained that she wouldn't smoke it but instead would sit near individuals

smoking it as she craved that smell. She expressed herself in the following statement:

> *Each and every day I wish I can smell weed. There was my friend who was smoking weed, so each and every day, during the day I was spending time with her so I can hear the smell so that I can be happy … it was the smoke of weed … for weed it was just the smell. (P5)*

4.2.3 Theme 3: Aetiology of pica during pregnancy

Participants were asked to give their insight into what might have brought on their pica habits during pregnancy. They answered the following question: **What do you think was the cause of your craving or pica habits?**

Participants shared their thoughts on the matter and the answers given were grouped in four subthemes as laid out below.

4.2.3.1 Subtheme 1: Iron deficiency and anaemia

Six of the participants attributed their cravings to iron deficiency or anaemia of some sort. P1 and P12 reported to have always been anaemic and had low iron levels, therefore associated this state to their pica experience.

> *I think me being anaemic had an effect on that, because even before the pregnancy, at the clinic I was doing my secondary points I asked them to test my iron levels and it was low. (P1)*

> *Low iron levels. I've always had low iron levels, and because I was in my fifth year when we did pregnancy, so obviously pica was a big thing and it made sense, so you know towards 5 months, I have to do bloods, you know, that's when you do all your intensive tests, so at 5 months I did bloods and my iron levels was severely low, I was sitting on 6, 7, yeah iron levels were somewhere there, they were very very low. (P12)*

P7 also reported to had been anaemic during pregnancy and linked her pica experience to iron deficiency.

> *I can't say it was iron but during my pregnancy I was anaemic and I also had low blood pressure so … I can't really be certain what it was that made me crave for it … I think it could be iron deficiency. (P7)*

Other participants, namely P3, P5 and P10, reported that they were told at the clinic to have iron deficiency, as they explained:

> *To tell you the truth I don't know, I just know that I wanted ice. It was coming to me that I want ice, even when I open the fridge I know exactly that I want nothing else but ice, I don't know why ice … So, I went to thedoctor then I explained it to my doctor … and the doctor said it's a lack of iron, something like that. They didn't check my blood but he gave me some tablets to take, I don't remember which tablets they were. (P3)*

> *If I'm not mistaken, they did tell me about abnormal blood iron levels because they just gave me the pills, it was yellowish, smallest ones, iron-folic acid, they just gave me those pills. (P5)*

> *No I don't know but I googled it and I found that there are some nutrients lacking in my body … At the clinic they did check my iron levels because they even told me to eat the food that will boost my blood, eating the beetroot, the liver, yeah things like that, they said I don't have enough blood and I must eat those things just to boost my blood. (P10)*

Like P10, P8 was told to eat food that would increase her iron levels and therefore figured out that her low iron blood count could be the cause of the cravings, as she explained:

> *I wouldn't know … I think I had anaemia because when I was about 4-5 months pregnant, at the clinic they said I must eat lot of liver, it must behalf*

cooked, I must eat lot of spinach and they said my blood is weak or what, that's what they told me, they didn't tell me if I had anaemia or not. (P8)

4.2.3.2 Subtheme 2: Smell, taste, texture and appearance of the substance

For some participants, the smell or/and taste or/and texture of the craved substances is what attracted them in the first place. They reported that they liked the smell and/or enjoyed the taste and texture of the craved substances.

The following statements are from those participants.

I think for me it was the smell, they smelled really nice. You know when there is a one-minute rain, it rains for one minute and then it just stops, there is this smell coming from the ground, yeah that's the smell I don't know how to describe it but it's something so nice that you just feel like take it and eat it. It's like after the rain it would just call me "come and take me". And it's nice in the mouth, it's so soft and so nice. (P2)

I liked the smell of the mud because even if I think about it, about the smell you can't stop me to go and …, it was just the smell that pushed me to eat it, it was just the smell. (P6)

I really don't know I was eating soil because it smells nice, it was because of the smell. It tastes good too. Honestly, I still eat it even now.(P9)

Though P1, P5 and P10 linked their pica to iron deficiency and anaemia as we saw previously, they also reported to have been attracted to the craved items by their smell, texture and taste.

The crunchiness was the characteristic of the substances I craved for. (P1)

I only eat that soil to feed my craving if I can say, but it was so nice, it tasted good, it was soft, it was fine; if there was a stone inside, I took the stone out and eat the soil only. When it's raining, I could feel that smell of

the soil then I would go outside and pull up the soil, it was when the rain is starting. (P5)

I don't know why I went for those but I felt like eating them because every time after having a meal then I felt like I must have a portion of it, I liked the smell and taste. It smelled like you know when it starts to rain and the soil was dry and it's starting to get wet, that's what it smelled like, they both smelled like that. (P10)

For those that craved soil or similar geophagic items, the cravings seem to have been triggered mostly by the smell coming from the ground as it begins to rain.

For P11, it was only the taste of the craved item that triggered her cravings. According to her the item had no smell and actually the fact that it had no smell suited her.

I really don't know why I went for 'umcako', it was just my tongue, I would just feel like there should be 'umcako' on my tongue, I like the taste. And another thing it had no smell that is why I think, 'umcako' has no smell. (P11)

The taste or smell of the craved substance had nothing to do with P4 cravings; for her it was all in the appearance of the substance, as she explained:

When I was seeing it I just liked it, I liked the way it looked. I would find that soil on the trunk of the tree, seeing it made me feel like eating it. (P4)

4.2.3.3 Subtheme 3: Baby's/pregnancy's desire and therapeutic use

For P4 and P11, the taste or appearance of the craved items was not the only reason why they indulged in them, but also because they believed it was what the baby or pregnancy wanted. They shared their opinions as follows:

I don't know, I think pregnancy does not choose what you want to eat, you just feel like eating it …I think the cause of this was just pregnancy, nothing else. (P4)

I don't know, I think it's what the baby wanted. (P11)

P1 linked her pica to anaemia, but also to eating charcoal to alleviate the troublesome pregnancy symptom of nausea.

I noticed that It also helped with nausea, so whenever I felt nauseous I would go and take it to help reduce the nausea. So I would take it to ease the nausea. (P1)

4.2.4 Theme 4: Modalities and concomitants of pica during pregnancy

4.2.4.1 Subtheme 1: Modalities of pica during pregnancy

The intensity of cravings for non-food items is not constant but may increase or decrease depending on certain situations or food the pregnant woman is exposed to; these are called modalities. This theme groups anything that participants reported that increased or decreased their cravings for non-food items. Participants answered the following question: **What made your craving forthis substance better or worse?** The answers given to the above question have been tabulated and grouped in the categories below (Table 4.3 to 4.6).

4.2.4.1.1 Category 1. Weather or time of the day

Table 4.3: Modalities associated with weather or time of the day

	Worse	Better
Rain	P2, P4 and P9	-
Heat	P11	-
Morning	P11	-

4.2.4.1.2 Category 2. Mind or body state

Table 4.4: Modalities associated with the mind or body state

	Worse	Better
Hunger or thirst	P3, P7 and P12	-
Stressed, sad or depressed	P7	-
Tiredness	P12	-
Being busy	-	P4

4.2.4.1.3 Category 3. Digestible items

Table 4.5: Modalities associated with digestible items

	Worse	Better
Chocolate	-	P2
Iron tablets	-	P3
Meat	-	P7
Sweets	-	P7 and P8

Ice	-	P9

4.2.4.1.4 Category 4. The craved non-food substance

Table 4.6: Modalities associated with the craved non-food substance

	Worse	Better
Seeing it	P2, P3, P4, P6, P8, P10 and P11	-
Smelling it	P5, P6 and P10	-
Thinking about it	P6 and P8	-
Talking about it	P11	-
Eating it	-	P12
Not thinking about it	-	P4 and P6
Not seeing it	-	P5 and P8

4.2.4.2 Subtheme 2: Concomitants of pica during pregnancy

This theme refers to the other symptoms that participants experienced together with pica during pregnancy. It was identified in line with answers given to the following question: **What other symptoms did you experience with the cravings?** Most of the symptoms reported such as nausea and vomiting, tiredness and backache, were the usual symptoms experienced during pregnancy even when no pica is involved. The answers given to the question above are tabulated in Table 4.7

Table 4.7: Concomitants of pica during pregnancy reported by participants

Participant	Other symptoms
P1	Nausea and vomiting.
P2	Nausea with no vomiting, headache, backache and tiredness.
P3	Nausea and vomiting, tiredness, irritability, headache, bloated tummy, constipation and hated the smell of food
P4	Morning sickness and cramps on left thigh.
P5	Spitting and backache.
P6	Heartburn and vomiting from heartburn.
P7	Oedema of feet, tiredness, backache, headache, nausea, vomiting, tender and swollen breast, itchy stretch marks and hyperpigmentation of the neck, areolas and stomach.
P8	Vomiting, sensitive sense of smell and tiredness.
P9	Nausea, vomiting, headache, blurred vision, oedema of feet and tiredness.
P10	Headache and dizziness.

P11	Nausea and vomiting.
P12	Backache, pelvic pain, oedema of legs and feet, excessive sweating, morning sickness, nausea and vomiting on drinking tap water.

4.2.5 Theme 5: Pica management during pregnancy

Participants were asked about the pica management plan they followed. They answered the follow questions: **How did you deal with these cravings? Did you try anything to alleviate the cravings?** Eleven participants out 12 admitted to indulging in whatever substance they craved for whenever they craved for it. Three of these participants also reported that they had not tried anything to manage their cravings. To the 2nd question above, they answered the following:

> *To stop the craving? No I didn't try anything. (P5)*
>
> *No I didn't because I enjoyed it. (P9)*
>
> *No I didn't even though they told me to eat things like oranges; I didn't try it because I felt like having soil not oranges. (P10)*

However, other participants reported that at some point they tried different methods to manage the craving and these were grouped in the subthemes below.

4.2.5.1 Subtheme 1: Supplementation

It is routine for pregnant women to be supplied with iron and folic acid tablets at the clinic, as a way of preventing or treating a potential anaemic condition resulting from these micronutrient deficiencies in pregnancy. More than half of the participants in this study had been given these supplements. They explained this in the following statements:

> *If I'm not mistaken, I think they did tell me about abnormal blood iron levels because they just gave me the pills, they gave me … it was yellowish, smallest one, iron-folic acid; they just gave me those pills because I got*

admitted at the hospital on that day, they just told me I must use those pills because the iron what, what … they just explained but I didn't hear very well. (P5)

They used to give us the folic acid tablets and iron they told us what they were for but we don't listen. You know even when you crave something you don't listen to anyone who is telling you about the thing so yeah. Those tablets did not take the cravings away; I just used it because they told us it's going to boost the baby so, I used to take it. (P6)

Like P6, P8 also received iron and folic acid supplements but reported that they did not help with cravings either. She expressed herself as follows:

I had the brown pills they usually give but they didn't help with the cravings. (P8)

P7 and P12 reported to have also been given the iron tablets but had to stop them due to their side effects, though they were helping with pica. They shared their experiences in the following statements

I use to take iron supplements and folic as well. The supplements did help with my cravings a bit but it's just that those pills were, they were not making me feel comfortable in a way because they used to make me vomit, so at some point I would find myself I'm on my supplements and next I'm like I'm stopping them because they were not making me feel … yeah. (P7)

I did take supplements, and then I stopped because it made me so nauseous, and with the iron particularly, the iron really made me constipated, like as much as I drunk lot of water, I was always constipated especially if I'm taking the iron. So at some point I was like no I'm done with this. (P12)

P3 also found that the iron supplements helped with her cravings for ice; however, she was not willing to continue with the supplement because she enjoyed the ice and did not want to stop eating it. She explained this as follows:

> *The doctor said it's a lack of iron, something like that. They didn't check my blood but he gave me some tablets to take, I don't remember which tablets they were. They helped for a while and then it started again. When I started taking them, it did not help then he said I must continue taking them, then after that the cravings stopped … When the tablets got finished I did not go get more because I felt that there was nothing wrong with me eating ice, it's only when I told the doctor that the doctor told me that I would get sick and the baby would get sick because of the cold, things like that, I don't know but because I used to feel good I didn't want to stop. (P3)*

Because of the side effects that P1 experienced from the iron supplements, she opted to get herself another type of supplement, as she explained:

> *Before the pregnancy, at the clinic I was doing my secondary points I asked them to test my iron levels and it was low. So, they started giving me the supplements to treat my anaemia but then I did not stick to them because they made me vomit. So I stopped them and told myself I will try and maintain my pica on my own, it was too much. They gave me the same pills when I was pregnant but then opted to buy my own supplements that would not make me nauseous and vomit. (P1)*

However, P1 quickly realised that the supplement she chose was not meant to treat pica, as she explained:

> *They didn't help, I think those ones were for protecting the child because they did not help me, it was Chela-preg a multivitamin, the ones you take when you are pregnant. So, I wanted an alternative to the one they gave me at the clinic to make sure that the baby grows well in my stomach, but it didn't help with my pica. (P1)*

P1 tried to supplement herself with iron from food, but this did not work for her either, she explained this as follows:

> *They said "You have to eat liver and spinach" but for me I don't know if I was expecting the changes too soon but it was not helping. (P1).*

It is important to note that these supplements from the clinic were not necessarily prescribed to the participants as pica management, as more than half of those participants did not even report their cravings for non-food items to their health care providers. In the statements below, they provided their reasons for not reporting it.

> *At the clinic, I didn't tell the nurses about the cravings because I knew they will be fighting with me. (P5)*

> *I didn't talk with the nurse about it because I know that they were going to fight me. (P6)*

> *I would lie to the clinic; I didn't tell them about the cravings. The sisters at the clinic would ask "who is eating this, because we know that these things are harmful for you, you mustn't eat this and that", so now you become like scared to tell the truth so I said "I will try to stop it by myself" but I will not tell them. (P8)*

> *I didn't speak to the nurse about it because I didn't see it as a big deal. (P12)*

Although P4 and P10 did not mention taking supplements, they will try mention to have not reported their cravings to their health care providers. They expressed themselves as follows:

> *I didn't speak to the nurses about it maybe because I was afraid, I thought because it happened to me it is normal. I was afraid that maybe they would give me medication to stop it. I didn't want medication to stop, I didn't like it and those injections, I didn't like any of those. (P4)*

I didn't tell them about these cravings. (P10)

4.2.5.2 Subtheme 2: Substitution

This refers to replacing the craved non-food item by something more acceptable and digestible when the craving surges. Aside from supplementation, P6, P8 and P12 reported to also have utilised this method to get rid of their cravings for non-food items.

I tried, they told me to have a sweet, if I'm craving for the mud I used to take the sweet but it didn't help, it was any sweet. (P6)

I had so many people telling me that it is wrong for me to eat it when I'm pregnant, I said to myself "okay, I must try to find myself something which I can eat whenever I'm craving for the stones", then I tried to buy a stick sweet, maybe I would buy 3 a day, to replace that thing I would buy a stick sweet may be 3 times a day. The craving was always there but then I would force myself not to eat it and the saliva would always be there but I had to tell myself "let me stop". The sweet would work because at least I wouldn't eat the stones. (P8)

I would just drink that water. If there isn't water around, I would drink juice. I would have the water or substitute it with something else. (P12)

P2, P4, P7 and P11 also tried this method in the attempt to alleviate their cravings; for some it worked and for some others nothing changed at all.

For 'umcako' I would go for powder milk and for ice I would go for ice water at least because it's more like the same. The ice water always helped but as for powder milk, it wasn't. (P11)

I would just eat the sand or maybe replace it by eating meat you know, normally fried beef … it would ease the craving a bit. (P7)

Sometimes I tried eating other things, food maybe like banana, apples or maybe yoghurt. Yeah it did help sometimes, but sometimes it couldn't. (P4)

Sometimes I would eat a chocolate and then the craving would go down a bit because it's not the actual thing but, yeah. After eating the chocolate, I would still want to go back. (P2)

4.2.5.3 Subtheme 3: Ignoring the craving

This is another method that some participants used to deal with the cravings for non-food items. Aside from substitution, P2 also reported having tried to ignore her cravings, as she explained:

In the 1st two trimesters I would just ignore that I want to eat these things because I knew deep down in my heart that they are not good for me and my baby so I was trying to protect my baby, making sure that she was healthy during and after the pregnancy but on the last trimester I couldn't resist. (P2)

P8, P4 and P1 also ignored their cravings, and forced themselves to stop the ingestion of the craved substances:

I tried to quit taking the 'igade' in the first trimester that's when I tried to quit, I think I was 3 months pregnant, I said to myself "no it's time for me to stop because it's going to affect my baby". I started eating it when I was 3 weeks pregnant, then around 3 months I quit … The craving didn't go away; it was difficult for me to stop, when I'm walking on the street I would see it and I felt like I could cry, but I was doing it for the baby. (P8)

I told myself that this thing is wrong so, I stopped eating it may be 5 or 4 months, I mean I stopped eating it when I was 4 months pregnant. The cravings were there but I was holding myself. (P4)

The only thing that I was doing is to try not to act up on them when I can; that was my method, to try and ignore it. (P1)

P1 also mentioned that the best way of ignoring her craving was to keep herself busy, as she explained:

Sometimes I would try and divert the thought, like I am saying I think it's psychological so I would try and keep myself busy with something else just to try and… or may be eat while I' m doing something so I don't get time to go and eat this charcoal after eating. So you have to keep yourself occupied with something so that your mind doesn't go there because, if you have time on your hands you going to end up eating it. (P1)

4.2.5.4 Subtheme 4: Ejection of the substance from the stomach

Due to fear of the effect that the ingested charcoal could have on her and her unborn child, P1 reported to have come up with another method of satisfying her craving and simultaneously protecting her child, by not allowing the charcoal to remain in her organism; she would provoke the vomiting mechanism so the stomach could eject the ingested charcoal. She expressed herself as follows:

The difference while I was pregnant with the charcoal is that I didn't eat them to have them sit in my stomach because I knew that maybe it would have an effect on my child. So, I would eat it and then gag, so it would just come on its own. So I ate it and then just vomited it. I would gag immediately after eating it, it would go out again. I think that as much as I wanted to satisfy my needs I also had to look and take care for my child so it's like looking out for the both of us so that even if a little bit of it is left in the stomach but most of it is out. (P1)

4.2.6 Theme 6: Effects of and emotional responses associated with pica during pregnancy

This theme groups all physical and emotional effects of pica that participants reported to have experienced, but also the emotional responses associated with pica occurring in pregnancy. The information given by participants was allocated into three subthemes that follow.

4.2.6.1 Subtheme 1: Physical effects of pica during pregnancy

Food has an effect on the body when ingested, as do non-food items. Participants in this study were asked to describe what kind of effects the craved substances had on their bodies. They answered the following question: **Did you notice anything that changed physically as a result of eating this substance?**

Although some participants reported to have not noticed any change in the body on consumption of the craved substances, the majority of the participants reported to have suffered from severe constipation as a result of ingesting those substances. They expressed themselves as follows:

> *Of all the substances I've always craved for the lime but I don't like it because it makes me constipated. (P1)*

Although some participants reported to have not noticed any change in the body on consumption of the craved substances, the majority of the participants reported to have suffered from severe constipation as a result of ingesting those substances. They expressed themselves as follows:

> *I was having constipation after eating the soil. (P5)*

> *I had constipation throughout my pregnancy, I feel like when I started eating the sand that's when it got worse, the constipation got worse. (P7)*

Like P7, P11 always suffered from constipation even when she was not pregnant and was not ingesting a pica substance; she therefore couldn't tell if the ingested substance was the cause of the constipation she experienced in pregnancy. She explained this in the following statement:

> *I suffered from constipation a lot, I always suffer from it, even when I'm not pregnant so, I didn't notice when I'm pregnant what is the cause of it because even when I'm not pregnant it is the same. For me even 2 weeks could pass without passing a stool. (P11)*

For some participants, not only they had a severe constipation, but also they would bleed on passing the hard stool. This was the case of P6, P10 and P8, as they explained

> *The problem happened when I go to the toilet, I had constipation, the stool was hard, it was like a stone, too much painful and sometimes there was blood coming because it was injuring me. (P6)*

> *Constipation after eating the soil, the stool was hard and there was blood, the stool was black, dark grey. Sometimes I would pass a stool after a week or even a week could pass without passing a stool. (P10)*

> *During the time when I was eating the stones I was constipated most of the time, it was a struggle for me to go and do number 2 but then after deciding to leave it, it got better. Even during the time of taking the stones, people would say drink lot of water it will be better, but it didn't get better. Even a week would pass without passing a stool and when I do it was very painful, it was very hard, it's like a stone, it's like what I was eating the white stone when I go to the toilet for number 2 it was white, sometimes when you flush, it doesn't go, it was very painful and I was bleeding one day I experienced that I was bleeding. (P8)*

For P8, the stool was so hard to pass that she had to resort to other ways of removing the stool from the rectum as, she explained:

I could take a pen, I had a pen at home I used whenever I wanted to go use the toilet when I was doing number 2; I would push it with the pen, it was very painful. I would put Vaseline because I didn't want to tell the nurses in the clinic because they would shout. I didn't try to look but I could feel that it is swollen; I could feel it's not soft, I could feel some cracks and I would put Vaseline. (P8)

The other physical effects that were reported by participants are a sense of the body being cooler and movement of the foetus in the womb upon ingesting the craved items; this was experienced by P11 and P3 respectively. They expressed themselves as follows:

For ice I would feel like my body is cool or cooler, because it was hot during those days. (P11)

I used to notice that the minute I start eating ice the baby used to move, so that feeling was nice to me. (P3)

4.2.6.2 Subtheme 2: Emotional effects of pica during pregnancy

Participants were also asked about the possible effects that the non-food items they ingested had on their emotions. They answered the following question:**Did you notice anything that changed emotionally as a result of eating this substance?** Some participants reported to have not noticed anything that changed, while others reported to have felt happy, satisfied and relaxed after eating the craved substances. They shared their experiences as follows:

Emotionally or psychologically after eating it, I would feel happy because I am satisfied now. The happiness was just for that moment. (P2)

I noticed that I get so relaxed, I used to feel nice. I used to be like in my own world, to be so good as if I was eating something so nice. (P3)

Normally after eating, I would feel happy after eating it also in a way satisfied, you know, yeah it would enhance my mood very much. (P7)

Emotionally I would feel okay, I would feel satisfied, I would just feel the ease like "okay now everything is done", yeah nothing much. (P8)

It was simply the best, it made me feel happy, I would feel happy after eating the soil, I would feel like I'm satisfied to an extent, I don't know how to put it but soil satisfied my soul. (P9)

P9 reported that she would actually experience effects if she did not eat the substance she craved. This was also the case for P6, as they explained:

Emotionally I would get affected if I didn't find the soil. It was simply the best. (P9)

When I didn't get it I was not feeling okay, I would feel like I'm sick or there's something wrong with me. (P6)

4.2.6.3 Subtheme 3: Emotional responses associated with pica during pregnancy

Participants were asked about what type of feelings were brought on by pica during pregnancy. They answered the following question: **How did this experience make you feel?** Participants reported to have felt guilty, worried, sad, selfish, regrets but also happy and indifferent.

Many of the participants reported having felt guilty from eating non-food items while pregnant.

Because I knew that I wasn't supposed to, so I would feel very guilty of eating these things. Because I know that they are not good for the child and for me so, I also knew that maybe somehow I would create

complication for my pregnancy so, I would feel very guilty but then hey, tomorrow again I'm going there. (P2)

I was not feeling well because I was just eating this thing and I know it's not good for me, for my body, I also felt guilty because I know that this thing is not good. I was feeling guilty because I know that thing is not good for my body and for my child. (P6)

Feeling guilty was mostly the case because, people would prevent me and say the sand is not good for the baby and the sand is just not good for a pregnant person and is not good for the gut as well so, it would be that I would feel guilty, if something happens to my child and I will be the cause of it, it was yeah, I would get guilty yeah. (P7)

I would have a guilty conscious with myself when I'm alone having me time because I know I'm expecting a baby; people are saying this is not good for a child but because I want it I would buy it. When I'm alone I would feel very sad that's why one day I decided "okay, I'm going to quit this, I'm not doing it for me, I'm doing it for my baby because people are saying it is not good for the baby and for my health too" … some other people say that those white patches on the skin I don't know what they call it but I was scared of that, what if my baby comes out with those skin types and it took a very long time for me to forgive myself. I was very sad and guilty, saying to myself "what if something happens when I go to labour, what if this baby dies because of the stones and stuffs, was it worth it?" (P8)

The sadness and worry that P8 reported in the above statement was also expressed by P10. She shared her feelings as follows:

Sometimes I would feel sad that why do I have to eat things that other people don't eat in such a way that sometimes I even went to internet to search "is it normal for a pregnant person to crave for soil", yeah. Sometimes I used to think about my health, is it healthy for me to eat that

soil, yeah things like that. I wasn't feeling okay, I don't want to lie, I wasn't feeling okay, I was worried but there's nothing I could have done. (P10)

P1 and P4 also reported having been worried and scared for the safety of their unborn children, as they explained:

I didn't like it; I mean I didn't know the effect it had on my child so it made me worry. With tissue salts I was a bit relaxed because tissue salts are no harm but with the charcoal I was concerned because I didn't know what effect it had, but then I also told myself that may be because I'm vomiting it … but that worry of not knowing what's happening because of the things that you are eating. So yeah I was worried for the safety of the child. (P1)

Emotionally I wasn't okay because I was thinking of the side effects that thing could have caused to the baby and also for me, I was scared. (P4)

Feelings of selfishness, regret and a need to clean oneself were experienced by P11, as she shared in the following statement:

For me honestly it wasn't good at all because I knew that it's not good for the baby but as much as I wanted it, I had nothing to do but I made sure that the baby is safe and healthy because I felt like after eating all those substances that are not good for the baby, I need to clean everything and make it up for the baby, then I would go for milk, I can drink even the whole 2 litre of milk, just to clean everything and sour milk as well I used to drink sour milk a lot and warm water after having ice … for 'umcako' it was regret, as for ice I won't say because it was helping in a way so, but for 'umcako' I was regretting every minute after taking it. Sometimes I even felt like I'm so selfish to my baby. (P11)

For P3 and P5 happiness is what they experienced.

I used to feel good, my ice, I won't lie to you I used to feel very good. I was happy, once I eat my ice I wouldn't even touch food, I would feel good

maybe for 2 to 3 hours after that maybe I would need something more. (P3)

When I was still pregnant everything was fine, I was happy, the guilt only came after I gave birth. (P5)

As they saw nothing wrong with the ingestion of their craved items, P9 and P12 reported to have felt indifferent. They expressed themselves as follows:

Honestly I didn't really give it attention that "oh, I'm eating something that is not supposed to be eaten", so I didn't pay attention to it. I will try to give you an example so you know what I'm talking about, you know when you want to go eat a pizza, how do you feel? You feel like I have to eat the pizza, let's say you are staying with someone who doesn't like pizza, you will not consider his or her feeling that he doesn't like pizza, you have to, that's how I feel about the soil, I had to eat soil, I really didn't care about anything else. (P9)

I was indifferent. (P12)

Participants were also asked how their loved ones reacted regarding pica they experienced during pregnancy. They answered the following question: **What was the reaction of people around you regarding what you were experiencing with regards to the cravings?** For some participants, their loved ones were not aware/did not pay attention about the cravings. For other participants, their loved ones were aware and advised them against eating non-food substances as it would have consequences but also some would get involved and throw away the non-food items being consumed by participants, or were aware but did not comment about the cravings.

Participants whose loved ones knew about the cravings, were subsequently asked the following question: **How did their reaction make you feel?** P9 whose loved ones did not comment reported to have felt indifferent, as she explained:

Because I didn't see anything odd about eating soil, I didn't expect them to say anything, so it didn't make any difference. (P9)

Some of those whose loved ones got involved and advise them against eating non-food items reported to have felt angry at and/or judged by them. This is seen in the following statements:

I think at the time I would become very angry. (P2)

I used to ignore them because to me they didn't understand. They didn't know how I used to feel so I used to ignore them. I used to get so angry, it's like they were judging me, I felt judged because they didn't understand or they didn't know how I used to feel when I was craving for those ice; what they used to do, they used to take that block of ice and empty it. When I went to look for it in the fridge and find it empty, I actually used to cry when I didn't find it, they used to take it and throw it to stop me from eating it. (P3)

I felt very bad, angry, I felt like crying, I didn't want to speak to him, for the others I wasn't listening to them, they were telling me one thing every day so, I ignored them. (P6)

It would make me angry at that time because it's what I want to eat and I'm craving for it so, and I think during my pregnancy I was very stubborn when comes to things so which is why people just ended up taking it and throwing it away because they knew that I wouldn't listen. (P7)

I would feel angry because they didn't know how I was feeling when they took this thing and throw it away. (P10)

P4 and P11 reported to have agreed with their loved ones. Actually, P4 also reported that she was able to stop eating soil thanks to what her parents said to her. To the question previously stated, P4 and P11 responded as follows:

That's when I told myself I should stop this and I came back here in Durban, so I completely stopped, so yeah. I can't think of any feeling right now. I don't know but I did take the decision to stop even though it was hard but I tried. (P4)

Whatever she was saying to me it was true so no need for me to act as if I'm innocent or anything. I was just the same, normal as me, nothing much. I would just get into my room and sleep, nothing much, because I knew for sure that I am very wrong. Sometimes I would laugh at her,I normally laugh but deep inside knowing that I'm wrong and what she is saying is true, I wouldn't laugh in front of her but inside knowing very well that she is true and I'm wrong, inside yes I would agree with her. (P11)

P8 reported to have felt sad as she witnessed sadness and anger from her loved ones upon discovering her pica habits and therefore decided to stop eating stones. The following statement is from P8:

Very bad. I remember the father of my baby came one day I was eating the stones but he didn't know that I was eating the stones just that when we are talking he would just say "some ladies are eating this, I'm lucky you are not eating them", but I used to eat them. One day he came while I was enjoying just after my meal, eating this and then he shouted at me, he shouted like he was angry, I could see his facial expression that something is wrong I must quit this, so I decided that, no. I was obviously sad because he loved the baby, he wanted to have the baby, so me eating this thing was going to complicate things, I felt sad, very sad. (P8)

Upon receiving advice and warning against eating soil, P5 reported to have felt indifferent to what her loved ones had to say, as she explained:

I didn't care, I only cared about what I need only, at that time I was not care of everyone, they were speaking the very same story, my grandmother just told me stop doing this, even my … you see always complaining about what I feel, I was not caring about them. (P5)

4.3 Repertorial analysis of data

The data collected from participants were also analysed using the homoeopathic repertory Synthesis, edition 9.1 by Dr. Frederik Schroyens (2012). The rubrics chosen for and remedies resulting from the repertorisation are presented below.

4.3.1 Rubrics emerging from participants' symptomatology

From the symptoms that each participant provided, 8 rubrics were chosen using Synthesis (Schroyens 2012), and were entered into repertory sheets (Appendix H). The rubrics chosen are presented below together with the corresponding participants' symptoms between brackets.

4.3.1.1 P1

-Female-pregnancy-during complaint (Complaints during pregnancy)
-Generals-food and drinks-charcoal-desire (Craving for charcoal)
-Generals-food and drinks-bananas-desire (Craving for banana)
-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia)

-Stomach-nausea-pregnancy-during (Nausea during pregnancy)
-Rectum-constipation-pregnancy, agg, during (Constipation during pregnancy)
-Generals-evening-eating-after-agg (Craving worse after eating supper)
-Mind-cares full of-relatives, about (Worry over unborn child)

4.3.1.2 P2

-Female-pregnancy-during complaint (Complaints during pregnancy)
-Generals-food and drinks-indigestible things-desire (Craving for stones)
-Generals-food and drinks-ice cream-desire (Craving for ice cream)
-Generals-weather-rainy-agg (Craving worse for rain)

-Stomach-nausea-pregnancy-during (Nausea during pregnancy)
-Generals-forenoon-9h00 (Craving comes back at 9h00)
-Mind-reproaching, oneself (Feeling guilty)
-Mind-anger-reproaches, from (Angered by loved ones' reproaches)

4.3.1.3 P3

-Female-pregnancy-during complaint (Complaints during pregnancy)
-Generals-food and drinks-ice-desire (Craving for ice cream)
-Generals-food and drinks-earth-desire (Craving for soil)
-Generals-food and drinks-sweet drinks-desire (Craving for the juice in sugarcane)
-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia)
-Generals-hunger-agg (Craving worse for hunger)
-Nose-smell-acute-food (Can't bare the smell of food)
-Mind-anger-reproaches from (Angered by loved ones' reproaches)

4.3.1.4 P4

-Female-pregnancy-during complaint (Complaints during pregnancy)
-Generals-food and drinks-earth-desire (Craving for soil)
-Generals-food and drinks-oranges-desire (Craving for oranges)

-Generals-food and drinks-spinach-desire (Craving for spinach)
-Generals-weather-rainy-agg (Craving worse for rain)
-Extremities-cramps-thighs-left (Cramps on left thigh)
-Mind-cares full of-relatives, about (Worry over unborn child)
-Generals-afternoon-17h00 (Craving comes back at 17h00)

4.3.1.5 P5

-Female-pregnancy-during complaint (Complaints during pregnancy)
-Generals-food and drinks-earth-desire (Craving for soil)

-Generals-food and drinks-eggs-desire-fried eggs (Craving for scrambledeggs).
-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia).
-Rectum-constipation-pregnancy, agg, during (Constipation during pregnancy).
-Mind-spitting (Spitting a lot).
-Generals-night (Craving comes back at night).
-Mind-indifference-loved ones, to (Lack of care towards loved ones).

4.3.1.6 P6

-Female-pregnancy-during complaint (Complaints during pregnancy).
-Generals-food and drinks-earth-desire (Craving for mud).
-Generals-food and drinks-sour drinks-desire (Craving for lemon twist and sourmilk).
-Mind-thinking-complaints-agg, thinking of complaint (Craving worse forthinking about craved substance).
-Stomach-heartburn-pregnancy, agg (Heartburn during pregnancy).
-Rectum-constipation-pregnancy, agg, during (Constipation during pregnancy).
-Generals-morning-7h00 (Craving comes back at 7h00).
-Mind-reproaching, oneself (Feeling guilty).

4.3.1.7 P7

-Female-pregnancy-during complaint (Complaints during pregnancy)
-Generals-food and drinks-earth-desire (Craving for *umcako*)
-Generals-food and drinks-sour drinks-desire (Craving for lemon twist and sourmilk).
-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia)
-Generals-food and drinks-meat-amel (Craving better for meat).
-Skin-discoloration-chloasma (Hyperpimentation of skin during pregnancy).

-Rectum-constipation-pregnancy, agg, during (Constipation during pregnancy).
-Mind-reproaching, oneself (Feeling guilty).

4.3.1.8 P8

-Female-pregnancy-during complaint (Complaints during pregnancy).
-Generals-food and drinks-indigestible things-desire (Craving for stones).
-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia).
-Generals-food and drinks-sweets-amel (Craving better for sweets).
-Nose-smell-acute (Sensitive smell).
-Rectum-constipation-pregnancy, agg, during (Constipation during pregnancy).
-Generals-food and drinks-sausages-desire (Craving for sausages).
-Mind-reproaching, oneself (Feeling guilty)

4.3.1.9 P9

-Female-pregnancy-during complaint (Complaints during pregnancy).
-Generals-food and drinks-earth-desire (Craving for soil).
-Generals-food and drinks-bananas-desire (Craving for bananas).
-Generals-food and drinks-ice-amel (Craving better for ice).
-Generals-food and drinks-meat-aversion (Aversion to meat).
-Vision-blurred (Blurred vision).
-General-evening-18h00 (Craving comes back at 18h00).
-Mind-indifference-opinion of others (Lack of care towards loved ones opinions).

4.3.1.10 P10

-Female-pregnancy-during complaint (Complaints during pregnancy).
-Generals-food and drinks-earth-desire (Craving for *umcako*).
-Generals-food and drinks-spices-desire (Craving for hot food).

-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia).
-Rectum-constipation-pregnancy, agg, during (Constipation during pregnancy).
-Vertigo-pregnancy, agg, during (Dizziness during pregnancy).
-Generals-eating-after-agg (Craving worse after eating).
-Mind-cares full of (Worry over health).

4.3.1.11 P11

-Female-pregnancy-during complaint (Complaints during pregnancy).
-Generals-food and drinks-earth-desire (Craving for *umcako*).
-Generals-food and drinks-oranges-desire (Craving for oranges).
-Generals-food and drinks-milk-desire-sour (Craving for sour milk).
-Stomach-nausea-pregnancy, during (Nausea during pregnancy).
-Generals-night-midnight (Craving comes back at midnight).
-Generals-heat-lack of vital heat (Sense of cooling on eating ice).
-Mind-remorse (Sense of regret).

4.3.1.12 P12

-Female-pregnancy-during complaint (Complaints during pregnancy).
-Generals-food and drinks-cold drinks, water-ice water-desire (Craving for icewater).
-Generals-food and drinks-sour food, acids-desire (Craving for sour food).
-Generals-anaemia-nutritional imbalance, from (Iron deficiency anaemia).
-Generals-eating-after-agg (Craving worse after eating).
-Generals-hunger-agg (Craving worse for hunger).
-Stomach-nausea-drinking-water-agg (Nausea worse for drinking tap water).
-Mind-indifference (Indifferent to what is being experienced).

The first rubric chosen, also known as the eliminating rubric, was related to complaints arising during pregnancy and was therefore common to all participants. The other rubrics, wherever possible, were chosen following the acronym CLAMSIT that was discussed in Chapter 2. These rubrics were entered on each participant's repertory sheet.

A repertorisation of the 6 most represented rubrics from participants' symptoms was also conducted (Appendix G). These were:

-Female genitalia-pregnancy-during, complaints
-Generals-food and drinks-earth-desire
-Generals-anaemia-nutritional imbalance, from
-Rectum-constipation-pregnancy, agg-during
-Stomach-nausea-pregnancy-during
-Mind-reproaching, oneself

The remedies emerging from these repertorisations are presented in the sub-section below.

4.3.2 Remedies emerging from the repertorisation

The highest remedies emerging from repertorisation of symptoms reported by each participant are tabulated in Table 4.8.

Table 4.8: Highest remedies emerging from the repertorisation of rubrics from each participant

Participant	Remedies
P1	*Nux Vomica, Alumina, Conium maculatum, Psorinum.*
P2	*Natrum muriaticum, Silicae terra, Sulphur, Nux vomica, Lachesis mutus, Calcarea phosphorica, Alumina, Bryonia alba, Psorinum, Cyclamen europaeum.*
P3	*Silicea terra, Argentum nitricum, Arsenicum album, Calcarea carbonica, Veratrum album, Phosphorus, Pulsatilla pratensis.*
P4	*Nuv vomica, Natrum muriaticum, Pulsatilla pratensis, Alumina, Conium maculatum, Silicea terra*
P5	*Sepia officinalis, Nux vomica, Natrum muriaticum, Ferrum metallicum, Alumina, Calcarea carbonica, Hyoscyamus niger, Pulsatilla pratensis, Conium maculatum, Silicea terra*

P6	*Nux vomica, Sepia officinalis, Conium maculatum, Pulsatilla pratensis, Natrum muriaticum, Calcarea carbonica, Alumina, Ignatia amara.*
P7	*Nux vomica, Sepia officinalis, Pusatilla pratensis, Alumina, Conium maculatum, Natrum muriaticum.*
P8	*Nux vomica, Alumina, Sulphur, Lachesis mutus, Calcarea phosphorica, Conium maculatum, Silicea terra, Belladonna, Ignatia amara, Natrum muriaticum, Bryonia alba, Cyclamen europaeum, Psorinum.*
P9	*Nux vomica, Natrum muriaticum, Calcarea carbonica, Silicea terra, Sepia officinalis, Pulsatilla pratensis.*
P10	*Nux vomica, Natrum muriaticum, Alumina, Pulsatilla pratensis, Sepia officinalis, Conium maculatum, Calcarea carbonica, Ferrum metallicum, Silicea terra.*
P11	*Nux vomica, Natrum muriaticum, Ferrum metallicum, Pulsatilla pratensis, Sepia officinalis, Alumina, Calcarea carbonica, Silicea terra, Conium maculatum, Hyoscyamus niger, Tarentula hispanica.*
P12	*Veratrum album, Aconitum napellus, Phosphorus, Arsenicum album, Silicea terra.*

The above remedies came up highest in the repertorisation of each participant's rubrics and were chosen according to the criteria below

- The remedy had to be represented in a minimum of 3 rubrics
- The remedy had to be represented not only in the eliminating rubric butalso in the rubric representing the pica substance craved.

Looking at all the highest remedies that came up for each participant's repertorisation, the most represented remedies were: *Nux vomica, Alumina, Natrum muriaticum, Pulsatilla pratensis, Conium maculatum, Silicea terra, Calcarea carbonica* and *Sepia officinalis*.

The highest remedies that came up from the repertorisation of the six most represented rubrics were: *Nux vomica*, *Alumina*, *Sepia officinalis*, *Natrum muriaticum*, *Pulsatilla pratensis*, *Conium maculatum*, *Ferrum metallicum* and *Silicea terra*.

Looking at the remedies resulting from both sets of repertorisation (Appendix G and Appendix H), the most represented remedies, following the alphabetic order were: *Alumina*, *Conium maculatum*, *Natrum muriaticum*, *Nux vomica*, *Pulsatilla pratensis*, *Sepia officinalis* and *Silicea terra*. A classification of these remedies in

terms of the kingdom and miasm they belong to is provided in Tables 4.9 and 4.10.

Table 4.9: Kingdoms to which the most represented remedies belong

Kingdom	Remedies
Plant	*Conium maculatum, Nux vomica, Pulsatilla pratensis*
Mineral	*Alumina, Natrum muriaticum, Silicea terra*
Animal	*Sepia officinalis*

Table 4.10: Miasm to which the most represented remedies belong

Remedy	Miasm
Alumina	Psoric + Sycotic
Conium maculatum	Sycotic
Natrum muriaticum	Psoric + Sycotic
Nux vomica	Psoric
Pulsatilla pratensis	Sycotic
Sepia officinalis	Sycotic
Silicea terra	Tuberculinic

The tables above show that the majority of these remedies belong to the Plant and Mineral kingdoms and the Sycotic miasm. These remedies will further be discussed in the next chapter.

CHAPTER 5: DISCUSSION OF RESULTS

In this chapter the findings presented in chapter four are discussed in line with the themes, subthemes and objectives of this study.

5.1 Demographics

5.1.1 Age

The results show that 75% of the participants were youth between 20 and 29 years old, 8,3% of the participants were between 30 and 39 years old, and 16,6% were between the age of 40 and 49. This is because students were more willing to participate compared to the staff and the majority of DUT students are youth.

5.1.2 First pregnancy

The study showed that 83,3% of the participants had their first child in their twenties, while 16,6% of the participants had their first pregnancy at the age of 16. In this study, the youngest age of first pregnancy was 16, while the oldest was 26. Although the literature on mean age of women at first birth is unavailable, the South African National Department of Health together with Statistics South Africa, South African Medical Research Council and ICF conducted the South Africa Demographic and Health Survey (South Africa, National Department of Health 2016) found that the median age at first birth for women of age 25-49 was 21 years. Six participants of the 12 in this study fall in a category above that median age, three participants fall within that median age and the three remaining participants fall below that median age.

5.1.3 Number of pregnancies

The study revealed that seven of the twelve participants at the time of the study had had only one pregnancy. Again, this is because most of the participants were

young; many in their early twenties. For the remainder of the participants, three of them who were in their late twenties at the time of the study and had had two pregnancies, one participant who was 31 years old at the time of the study had had three pregnancies while another participant at 44 years old had had four pregnancies.

5.1.4 Pregnancy with pica experience

Eight of the twelve participants reported having experienced pica on their first pregnancies. For seven of the eight participants, this is because they had had only one pregnancy. Some of those that had more than one pregnancy reported having experienced pica in more than one pregnancy.

5.2 Pica experienced in pregnancy

One of the objectives of this study was to determine the symptoms of pica experienced during pregnancy through in-depth interviews. In line with achieving this, six major themes were identified and are discussed below.

5.2.1 Pica course during pregnancy

The study showed that most participants first noticed their craving for non-food items in the first trimester of their pregnancies. This is consistent with Iftikhar (2020) that pica can occur at any stage of the pregnancy but often appears in the 1st trimester. One would expect pica cravings to start in 1st trimester of pregnancy because that is when most of thepregnancy symptoms are experienced or at least begin. Some participants reported having noticed the craving before they even found out they were pregnant, which allows us to deduce that pica could actually be one of the earlysymptoms of pregnancy in some cases. However, as already suggested by Iftikhar (2020), pica can occur at any stage of pregnancy which was the case in this study as some participants reported having first noticed their cravings for non-food items in the second trimester of their pregnancies.

The study revealed that for most participants, pica cravings occurred frequently throughout the day, and in some cases, eating non-food items had become a habit or a lifestyle. For some participants, the cravings resulted in them establishing a routine; some participants reported having always eatenthe craved substance in the morning before having breakfast, at night before going to bed, before or after meals, or during free time. The study also revealed that for the remainder of participants, cravings were not that frequent; they were experienced only few times a day.

This study revealed that after pica onset, some participants experienced the peak of their pica cravings in the second trimester; this is consistent with food cravings during pregnancy which are known to peak in the 2nd trimester and decline in the 3rd trimester (Wisner and Gurevich 2021). However, the study also revealed that for the majority of the participants, the cravings peaked in the third trimester as they were close to delivery. This is because it is in this phase that the pregnancy hormones peak during pregnancy, with oestrogen levels being as high as they will ever be trimester (Daley 2018).

5.2.2 Craved substances during pregnancy

The study revealed that the majority of the participants experienced geophagia in the form of soil, mud, and clay. This is because the majority of theparticipants resided in rural arears where these kinds of substances are easily accessible; and for those that spend some time in the city, they would buy *umcako* (lime) and/or *ibomvu* (Red) geophagic substances to use while in the city. Pagophagia was also highly reported in the study by participants in the form of ice cubes, freezer frost and ice-cold water. One can deduce that it is also due to the easy accessibility of these, for those that owned a refrigerator. The study shows that the least craved substances were stones, charcoal, chalk and paper.

The study revealed that apart from non-food items, cravings for food substances during pregnancy were also very common. The most reported in this study were cravings for sour food or drinks such as citrus fruits, lemon twist and sour milk;

sweet food like sugarcane, banana and pineapple; and highly spicy food. These food items were consumed for the prevention of nausea and vomiting that participants would experience on ingesting or smelling other foods; some participants reported that they could not bear the smell or taste of certain food. Other substances reported included tissue salts. Although tissue salts are commonly known to be safe even during pregnancy, taking them in excess might cause side effects. One participant revealed that she would have nausea and diarrhoea after ingesting large amounts of tissue salts which could lead to dehydration endangering both the mother and baby. One participant revealed having a craving for *Cannabis sativa* smoke; she would not smoke it but wanted to sit next to those smoking so she could inhale the smoke and smell it. Polysubstance use in pregnancy is common and is linked to harmful maternal and foetal consequences (Forray 2016). Although that participant did not directly smoke the cannabis, the amount of smoke inhaled could be sufficient to cause severe consequences.

5.2.3 Aetiology of pica during pregnancy

The study showed that half of the participants linked their pica habit to the anaemic state they experienced while pregnant. With the pregnancy, the micronutrient demand for both the mother and the foetus increases and this is especially true for iron and folic acid. If this demand is not met, it results in conditions such as anaemia and the cravings arise as a biological response to the micronutrient deficiency (Chung *et al*. 2019), leading to ingestion of substances that might contain the lacking macronutrients. According to Hommey (2016), red clay, stone and soil may be ingested by people with pica because they contain high levels of natural iron.

Findings also revealed that for some participants, pica is the result of enjoying the taste, texture, smell and appearance of the craved substances, this is a sensory factor contributing to pica as described by Rose, Porcerelli and Neale (2000). This is mostly true for geophagic substances; participants in this study reported that the taste, texture and smell of the craved geophagic substances is what attracted

them especially as it began to rain. Participants reported that the smell from the ground as it started raining caused them want to ingest soil. This can be attributed to the fact that during pregnancy the sense of smell is increased (hyperosmia) for some women (Cameron 2014).

Some participants revealed eating geophagic substances because they believed it is what the baby or pregnancy wanted. This finding suggests that participants might have heard it from someone in their environment and therefore this may be a common belief among African communities. This is proved by the fact that some geophagic substances are found being sold on the streets and market places for this purpose and to make it easier for users to purchase, being mainly pregnant women. This is in line with the statement from Macheka *et al*. (2016) that indications of geophagia origins have been found among Africans as cultural and religious practices, making it an acceptable norm, regardless of the health dangers involved.

One participant revealed that her pica habit was linked to nausea as charcoal helped reduce nausea when she was pregnant. This finding supports the hypothesis on pica aetiology from Chung *et al*. (2019) that pica relieves short-term illnesses like nausea, the so called “protective hypothesis”. This is however mostly true for geophagic substances. According to Diko and Siewe epse Diko (2014), upon ingestion soil reduces excessive salivation during pregnancy by absorbing the saliva and leaving the mouth dry, which alleviates the nausea and vomiting experienced during pregnancy.

5.2.4 Modalities and concomitants of pica during pregnancy

The study showed that there are a variety of things that can influence the increase or decrease of a craving for a particular substance. Participants revealed that certain weather, time of day, food and situations influence their cravings for non-food substances. Findings showed that seeing, smelling, and thinking about or talking about the craved substance would make the craving worse. The two main triggers were rain that would increase the smell of the ground, and lack of activity

which would provide them with free. Equally, findings showed that anything that would make the participants forget about the craved substances would make the craving better, and this included staying busy with other things, not seeing or thinking about the substance. and diverting the craving to food items such as sweets.

The study also revealed that pica in pregnancy occurs with all the other common pregnancy symptoms. These are mainly nausea and vomiting, dizziness, tender and swollen breasts, tiredness, backache, heartburn, headache, chloasma, stretch marks, sensitivity of smell to food, bloated abdomen and/or oedema. However, as mentioned before that, because experiences are different for different organisms, some unusual symptoms were also revealed as concomitants of pica including cramps on the left thigh, blurred vision and excessive sweating.

5.2.5 Pica management during pregnancy

The majority of patients revealed that they were given supplements, mainly iron and folic acid in form of tablets. For those whose cravings were caused by a deficiency in iron, one would assume that once given the iron supplements, the cravings would go away or subside. Of seven participants that received iron supplements from the clinic, four revealed having experienced a decrease in their craving. This finding is in line with the explanation by Blinder and Salama (2008), that iron supplementation has beenseen to dramatically reverse pica in patients whose clinical symptoms are more clearly coincident with iron deficiency. Two of the seven participants however, reported having not noticed any difference regarding the craving and those that had initially seen an improvement from the supplement had to stop it becauseof side effects or because they enjoyed the craved substance and were not willing to stop eating it. Findings revealed that the prescription of these supplements during pregnancy are more of a preventive effort against anaemia rather than therapy against pica, as themajority of pregnant women do not report their pica habits to their health care providers. This is in line with findings from Jyothi (2015) that pregnant women with pica do not report it

due to fear of embarrassment and being ridiculed or judged. Participants in this study revealed that they did not report their pica habits to their nurses because they were afraid of their reaction and being shouted at.

The study also showed that apart from supplementation, substitution of the craved substance was also a method commonly used to avoid eating non-food items. Participants revealed that they tried replacing the craved substance by something more edible mostly sweet food and beef meat. For the majority of participants this was a good idea as the mind was directed away from the craved substance and it would bring down the craving for the non-food item, but for others this did work as the actual craving was not satisfied.

Some participants also revealed that ignoring the craving and restraining themselves was an effective method of dealing with these cravings; they forced themselves to stop eating the craved substances and they succeeded although it was not easy. This is because these participants were strong willed and determined to protect their unborn children from harm. One participant revealed that she achieved this by keeping herself busy whenever possible. This same participant also revealed that even after ingesting the non-food item, one can still prevent it from harming the baby or one's health by ejecting it from the organism. She explained that she would not let the substance sit in the stomach but would gag and vomit it out. This method is invasive and may come with risks of malnutrition as food that had been ingested prior to the substance would also be ejected in the vomiting process, leaving the body with insufficient nutrients.

5.2.6 Effects of, and emotional responses to, pica during pregnancy

The study showed that the most common physical effect of pica was constipation. This was especially true for those that ingested geophagic substances and other solid non-food items. As they are hard in nature, these substances are not easily passed down the gastrointestinal tract resulting in constipation. Furthermore, because these substances cannot absorb water to become soft, passing the stool becomes more difficult resulting in greater straining with risks of creating tears

and fissuresas it is forced down the rectum and anus. Some participants revealed that they would bleed on passing a hard stool, with one participant explaining that she would manually force the stool out of the rectum using a pen, a practice with great potential for creating more damage and complications.

Findings also showed that pica can have other effects on the body; one participant revealed that after eating ice, her body would get cooler and she explained that it was because at that time it was very hot, introducing a cold substance in the organism in such weather will definitely cool down the body. Another participant revealed that after eating freezer frost, she would feel her baby move in the womb as she was happy, because there is a connection between the mother and the baby in the womb. According to the Association for Psychological Science (2011), the baby gets messages through the placenta, it hears not only the heartbeat or music that the mother plays but it also receives chemical signals including signals of the mother's mental state.

Participants revealed that emotionally the major effects of pica were a sense of happiness and satisfaction; they explained that they would feel relaxed and happy after eating their craved substances. This is because the body had received what it had been craving for and it was satisfied, and participants would find peace again which came in the form of relaxation and mood enhancement. The findings showed that if the body did not receive what it craved for, it would get affected; participants revealed that they would feel like something is wrong with them or they would feel sick if they did not eat the substance they craved for.

Feelings of guilt and worry are common in pregnant women eating non-food items. The study revealed that participants felt guilty, worried and sad as a result of their pica habits during pregnancy. Pregnant women feel responsiblefor the life they are carrying within their womb and are aware that their behaviour will affect their unborn child one way or another. The thought that any harm could come to their foetus from their pica habits created guilt, worry, sadness and sometimes regret in most participants. The fact that pregnant women still indulge in the craved non-food items despite knowing that they might be harmful to their unborn

children might also lead to them feeling that they were being selfishness; one participant revealed having felt selfish regarding her baby to the point where she felt that she needed to make it up to her baby and clean her organism by ingesting large quantities of milk. The study also showed that some pregnant women might be happy with their pica experience; this is due to the enjoyment of the craved substance because ingesting these substances made them feel good. However, some participants felt indifferent to their pica experience; this is because they saw nothing wrong with ingesting what they craved for.

Loved ones and surroundings have a certain influence on one's behaviour, which is why it was important in this research study to ask participant about other people's reaction on discovering their pica habits. The study showed that although some might be indifferent, the majority disapproved of this practice and advised the pregnant women against ingesting non-food items. The findings revealed that after loved ones advised participants not to ingest non-food items. Some of the participants agreed with this and stopped the practice, although this might be difficult. As one might expect however, sometimes words from loved ones are not enough to make someone change their habits and might actually lead to frustration with feelings of being judged and not understood. In this regard, participants revealed having felt angry, judged and not understood as their loved ones advised them to stop eating the craved non-food items.

5.3 Repertory analysis and emerging remedies

The symptoms that were described by the participants in the interviews were converted into repertory rubrics, which were then entered into repertory sheets and repertorised, as per objective 2b, to analyse and repertorise the symptomatology arising from the interviews. Two sets of repertorisations were conducted in this study.

In the first set, 12 repertorisations were conducted; eight rubrics were chosen from the interview symptoms of each participant as the basis for the repertorisation, and the remedies with the highest ranking were determined. The

remedies that emerged from all 12 participants were analysed to determine the most common eight remedies, which were: *Nux vomica, Alumina, Natrum muriaticum, Pulsatilla pratensis, Conium maculatum, Silicea terra, Calcarea carbonica* and *Sepia officinalis*.

In the second set, six of the most common symptoms in all 12 interviews were converted into repertory rubrics and repertorisation of those rubrics was conducted and the top eight remedies determined. This was a way of verifying the remedies determined in the first set of repertorisation. The remedies with the highest ranking in the second repertorisation set were as follows: *Nux vomica, Alumina, Sepia officinalis, Natrum muriaticum, Pulsatilla pratensis, Conium maculatum, Ferrum metallicum* and *Silicea terra*.

The analysis of both repertorisation sets allowed the achievement of the following objective of this study: to determine the remedies with the highest ranking in relation to the symptomatology repertorised. This analysis revealed that *Alumina, Conium maculatum, Natrum muriaticum, Nux vomica, Pulsatilla pratensis, Sepia officinalis* and *Silcea terra* are the first remedies one should consider in treating pica in a pregnant woman. These remedies were the most represented in both repertorisations.

Madan (2019) discussed homoeopathic remedies that are already used in treating pica generally occurring at any age and gender, and these included: *Alumina, Antimonium crudum, Calcarea carbonica, Calcarea phosphorica, Cicuta virosa, Nitricum aidum, Nux vomica and Silicae terra*. Of these remedies, *Alumina, Nux vomica* and *Silicea terra* may also be used in treating pica occurring specifically during pregnancy, as this study previously revealed.

Findings of this study revealed remedies that have mainly have characteristics of the sycotic miasm. These characteristics, as listed by Sankaran (2007), include: fixed ideas (e.g., *Nux vomica, Silicea terra),* ritualistic behaviour, hypersensitive reaction to situations (e.g.. *Natrum muriaticum, Nux vomica, Sepia officinalis*), feelings of regret (e.g., *Pulsatilla pratensis, Sepia officinalis, Silicea terra*) and feelings of guilt and self-reproach (e.g., *Natrum muriaticum, Nux vomica,*

Pulsatilla pratensis). Many participants exhibited these characteristics in regards to the pica they experienced during pregnancy. These characteristics are further described in the materia medica review of the above remedies later in this chapter.

Findings showed that three of the remedies indicated for pica occurring during pregnancy that this study revealed, belong to the mineral kingdom, namely: *Alumina, Natrum muriaticum* and *Silicea terra*. According to Sankaran (2017), the elementary characteristic of individuals in need of such remedies is the need for structure which can be in terms of existence, identity, position, relationships, security, performance and responsibility. The personality of individuals needing these remedies arise from lacking formation, maintaining or breaking of this structure. For these individuals it is all about achieving completeness, and incompleteness isexpressed as “something is missing or lacking”. According to Oliveira *et al*. (2015), the sense of incompleteness in the mineral remedies can be described in various ways. In this study, some participants revealed that they would feel like something is missing if they didn’t eat their craved substances; they would only feel happy, satisfied and complete if they ate what they craved for.

Findings also showed that three of the remedies indicated for pica occurring in pregnancy belong to the plant kingdom, namely: *Conium maculatum, Nux vomica* and *Pulsatilla pratensis*. According to Sankaran (2017), the basic characteristics of individuals needing such remedies are sensitivity and reactivity. These individuals are emotional, sentimental and easily hurt. Findings revealed that some participants were sensitive towards what they were experiencing and what they were putting their loved ones through; as a result, they felt guilty and sad and wondered why they were eating things other people do not eat. They were sad to see their loved ones sad due to their pica habits but would also feel judged and not cared for if their loved ones did not support their pica habit.

The study further showed that one of the remedies revealed by this study belongs to the animal kingdom, namely: *Sepia officinalis*. According to Sankaran (2017), the main characteristic of individuals in need of such a remedy is survival, raising themes such as competition, aggressor and victim, strong and weak, predator

and prey, one versus the other, dominating and dominated, persecutor and persecuted. These individuals want to draw attention to themselves (Oliveira *et al*. 2015). In this study, findings revealed that for some participants eating their craved non-food items made them happy, it was about what they needed and wanted to do at that time, and was not about what their loved ones had to say or what the potential consequences could be – their cravings came first and they did not care about anything else.

The last objective of this study was to conduct a materia medica review of five of the most represented remedies arising from the repertorisation. This review is provided bellow.

5.3.1 *Alumina*

In the repertorisation of the most represented rubrics (Appendix y), *Alumina* was present in all the rubrics. It was highly graded (as a 3) in the rubric regarding complaints occurring in pregnancy. This finding suggests that *Alumina* is one of the most commonly used remedies in pregnancy. The major symptom in this study was pica, which is cravings for indigestible items, which is a big symptom in *Alumina*. Patients crave for chalk, charcoal and indigestible things, as well as for dry and coarse food, with an aversion to meat (Phatak 1999), which is a symptom that was also reported by some participants. The patient in need of this remedy is thin, inactive, sluggish and suffers from fatigue (Phatak 1999); these characteristics resemble those of an anaemic individual which makes this remedy suitable for anaemic conditions, usually due to inadequate nutrients intake, a condition that was highly reported in this study by participants. A very general condition corresponding to *alumina* is dryness of skin and mucous membrane such as the rectum (Boericke 1906). This remedy also causes functions to be sluggish and actions to be delayed (Phatak 1999). This, together with dryness in the rectum, leads to constipation, a big characteristic of *Alumina* (Boericke 1906). The majority of participants reported having suffered from severe constipation some with bleeding from rectum cuts on passing a hard stool, a feature that is seen in *Alumina* – “hard stools cause severe cutting” (Phatak 1999). Another symptom revealed in the study is headache. According to Phatak (1999), the

headache for which *Alumina* is indicated feels as if patient was dragged by the hair and is better for lying quietely in bed. Emotionally, the individual in need of *Alumina* is low-spirited (Boericke 1906), with everything being viewed in a sad light with a depressive mental state (Phatak 1999). This is in line with what participants' reported in this study; the majority of the participants revealed feeling guilty, sad and worried about their pica habits which could lead to depression, especially if they felt judged, not understood and not supported by their loved ones.

5.3.2 *Conium maculatum*

This remedy is made from *Conium maculatum* also known as Poison-Hemlock, a plant from the carrot family Umbilliferae (Vetter 2004). The plant is very poisonous and is thought to have been responsible for causing the death of the Greek philosopher Socrates (Phatak 1999).

Repertorisation showed that *Conium maculatum* can be used to heal or alleviate ailmentsfrom pregnancy including pica; it is graded as a 1 for complaints during pregnancy and in geophagia rubrics. *Conium maculatum* is greatly used in nervous and muscular systems, in conditions such as paralysis leading to death from failure of breathing, sudden loss of strength when walking, difficult gait, trembling and stiffness of legs (Boericke 1906), weakness, sluggishness and local congestion like in old people (Phatak 1999) and during pregnancy. Participants reported experiencing fatigue, weakness and congestion or oedema in legs and feet while they were pregnant. According to Phatak (1999) *Conium maculatum* is indicated for heartburn, nausea and vomiting and constipation occurring during pregnancy, but also cravings for sour things – symptoms that were highly reported by participants in this study. Other symptoms include headache and blurred vision. According to Phatak (1999), *Conium maculatum* is indicated for a headache in the occiput which is better for stooping and moving the head. There is also a sensation of fullness and bursting in the brain during a headache, and is indicated for blurred vision on vexation. Emotionally, the individual in need of *Conium maculatum* is dissatisfied with him/herself and

experiences a great sadness as if a great weight of guilt was on his/her shoulders (Phatak 1999). Some participants revealed that they felt guilty and sad over their pica practice, making *Conium maculatum* a good remedy for such patients.

5.3.3 *Natrum muriaticum*

Natrum muriaticum is a remedy made from chloride of sodium, common salt (Boericke 1906). The repertorisation in this study revealed that *Natrum muriaticum* is one of the biggest remedies used to treat ailments from pregnancy including pica; it wasgraded as a 3 for complaints during pregnancy rubric and as a 2 for the geophagia rubric. The individual in need of this remedy is thin and poorly nourished because common salt profoundly affects the nutrition and blood, causing anaemia (Phatak 1999). This makes *Natrum muriaticum,* a good remedy for anaemia due to a lack of proper nutrients and micronutrients, a state that many participants revealed having been in while pregnant. Participants also revealed having suffered from heartburn, craved for sour things such as sour milk, which are also symptoms found in this remedy; *Natrum muriaticum* patients desire salt, sour things, milk and suffer from heartburn (Phatak 1999). They also experience nausea and constipation from inactive rectum, the stool causing tears in the anus as it is passed out (Phatak 1999). These symptoms were also experienced by some of the participants as revealed earlier. Other symptoms include headache and blurred vision. *Natrum muriaticum* is indicated for throbbing, blinding headaches, the pain is as if a thousand little hammers were knocking on the brain on waking up in the morning and from sunrise to sunset (Boericke 1906), it is also indicated for blurred vision (Phatak 1999). Emotionally, the *Natrum muriaticum* patient is irritable; they get angry easily over small things, and suffer from anxiety, sadness and depression which is aggravated by consolation (Boericke 1906) This resembles the experiences of some participants; feeling sad, worried and guilty about their pica habits leading to anxiety and depression, but also having reacted angrily to loved ones advising them against eating non-food items.

5.3.4 *Nux vomica*

In the repertorisation of the most represented rubrics, *Nux vomica* was present in all the rubrics and had the highest ranking, making it the best remedy to consider for pica occurring during pregnancy, it also showed that *Nux vomica* is one of the biggest remedies used in dealing with pregnancy ailments; it is graded as a 3 for this rubric. *Nux vomica* is useful for individuals who indulge in and abuse drugs, alcohol and rich stimulant food, and suffer the consequences through many kind of diseases such as digestive disturbances (Phatak 1999). This can be compared to the indulgence in and abuse of non-food items reported by participants, which resulted in severe constipation for many of them. The *Nux vomica* patient indulges in indigestible items, particularly chalk (Phatak 1999), and suffers from constipation with ineffectual urging; they have urging but the stool is difficult to expel and when it is expelled, it feels incomplete andunsatisfactory, as if a part of the stool remains unexpelled. The constipation might also alternate with diarrhoea (Boericke 1906). Another symptom that was revealed by participants is anaemia from insufficient micronutrients. The typical *Nux vomica* patient is thin, quick, active and always selects food that is poorly digested resulting in dyspepsia (Phatak 1999). This can lead to insufficient intake of proper nutrients resulting in anaemia. Heartburn and nausea are symptoms that participants revealed and from which a *Nux vomica* patient may suffer; the nausea is worse if no vomiting occurs and when it occurs it is violent, bilious and sour (Phatak 1999). Another symptom revealed in the study is headache. According to Phatak (1999), *Nux vomica* is indicated for frontal headache worse in the sunshine and the patient desires to lean the head on something. Emotionally, the *Nux vomica* patient is a workaholic, impatient, headstrong and does not want to be consoled, but also self-willed and gets angry easily (Phatak 1999). These two last symptoms were found in many participants in this study; they wanted to indulge in their craved pica substances, some of them felt happy indulging in them, did not want to hear anyone tell them not to ingest those items, and if they did this would anger them.

5.3.5 *Pulsatilla pratensis*

This remedy is made from the plant *Pulsatilla pratensis* also known as wind flower or pasque flower, belonging to the Ranunculacea family of plants (Weryszko-Chmielewska *et al*. 2017). The repertorisation revealed that *Pulsatilla pratensis* is a good remedy to be used for troublesome symptoms arising during pregnancy including pica; it was represented in both rubrics of complaints during pregnancy (graded as a 2) and geophagia (graded as a 1). According to Phatak (1999), *Pulsatilla pratensis* is pre-eminently a remedy for females of a mild, timid, emotional and gentle nature and yielding disposition who is discouraged and cries easily even when talking. These characteristics can also be found in pregnant women as they become sensitive and vulnerable from hormonal and other body changes, which would explain the sadness, worry and guilt they feel if they believe they are not looking after their unborn child as they should and they are endangering their life through non-food items ingestion. Another symptom revealed in this study is anaemia; the *Pulsatilla pratensis* patient is pale and anaemic from excessive blood loss which may lead to amenorrhea (Phatak 1999). Heartburn, nausea and cravings for acidic foods werehighly reported in this study, symptoms that, according to Phatak (1999),a *Pulsatilla pratensis* patient also suffers from; they crave for acids or what does not agree with their digestive system and experience nausea, heartburn and vomiting with thirstlessness. Boericke (1906) explained that the *Pulsatilla pratensis* patient an aversion to fatty food, milk, warm food and drinks. Some participants revealed having experienced those symptoms; they explained that those typesof food would bring on nausea when they were pregnant and that they would prefer cold drinks and boiled food with no oil. Other symptoms revealed in thestudy include headache and blurred vision. *Pulsatilla pratensis* is indicated for pulsating, bursting headaches with lacrimation on the affected side, the headache is better for walking in the open air, it is also indicated for dimness of vision with a sensation as though there was something covering the eyes which the patient wishes to wipe or rub (Phatak 1999).

5.3.6 *Sepia officinalis*

This remedy is made from the inky juice of the common Cuttlefish scientifically known as *Sepia officinalis*; the ink is also known as Indian ink (Phatak 1999). The

repertorisation showed that *Sepia officinalis* is a great remedy to consider in pregnant women experiencing pica; it is represented in the rubrics of complaints occurring during pregnancy (graded as a 3) and geophagia (graded as a 2). According to Phatak (1999), although suited to persons of both sexes, *Sepia officinalis* is pre-eminently a woman's remedy, for relaxed, plethoric and affectionate women especially during pregnancy. Emotionally, the *Sepia officinalis* patient is sensitive, irritable, miserable, sad and constantly worries especially about her health. These symptoms resemble greatly the emotions that most participants reported having felt about their pica habits; they felt sad and worried about those non-food items effects on their health and unborn children. Other symptoms reported were anger towards loved ones and indifference to what was being experienced and to loved ones. These symptoms are also found in a *Sepia officinalis* patient; they are easily offended and therefore get angry easily, they are indifferent to loved ones and have an aversion to family, and prefer being alone (Boericke 1906). Some participants revealed that they would walk away from their families and go to their friends because they felt their friends understood their cravings for non-food items better. Nausea, vomiting and craving for acidic and sweet food are the other symptoms revealed in this study. *Sepia officinalis* is indicated for nausea occurring at the thought or smell of food, vomiting of solid food or milky fluids during pregnancy, and cravings for vinegar and acidic food, pickles and sweet (Phatak 1999). Another symptom that was highly reported is constipation. One of the symptoms for which *Sepia officinalis* is indicated is constipation; there is no urging to pass a stool for days, and when the stool is passed it is after a prolonged straining. The stool is large and hard and is followed by a cupful of jelly-like yellow-white offensive mucus. There is a sensation of a ball in the rectum and the stool might also cause bleeding as it is passed (Boericke 1906, Phatak 1999). Other symptoms included chloasma and headache. According to Phatak (1999), *Sepia officinalis* is indicated for chloasma and a shooting, stinging headache over the left eye but also on the alternating sides of the occiput, which is better for eating and worse for mental labour.

5.3.7 *Silicea terra*

The last remedy we will take note of is *Silicea terra*. The repertorisation showed that*Silicea terra* can be used to heal or alleviate ailments from pregnancy, pica included, appearing graded as a 1 in the rubrics representing complaints during pregnancy and pica. One of the symptoms revealed in this study was sadness, with some participants wondering why they had to eat strange things and endanger their unborn children. They felt sad that they could not control their cravings. This symptom is found in a *Silicea terra* patient – they are sad, sensitive and feel hopeless (Phatak 1999). *Silicea terra* is also indicated for individuals that are stubborn, obstinate and head-strong (Phatak 1999). Some participants revealed similar symptoms as they wanted to absolutely ingest their craved pica substances, they enjoyed them and regardless of what their loved ones had to say about it, they still indulged in those substances. The major symptom in this study is pica, with some participants revealing that they craved ice water but also ice cream. *Silicea terra* patients have an aversion to warm food and drinks, they desire ice water and ice cream because they feel comfortable having cold things in the stomach. Normal water tastes bad for them and causes nausea and vomiting (Phatak 1999). This symptom was also revealed in this study. Other symptoms include being bloated and constipation.According to Boericke (1906), *Silicea terra* is indicated for constipation; the stool comes down with difficulty and when it is partly expelled, it goes back up again which results in great straining and leaves the rectum stinging and the anus fissured, the tummy also feels hard and bloated. Other symptoms include headache and blurred vision. According to Phatak (1999), the *Silicea terra* headache is periodical, there is an ascending occipital pain that is better for pressure, worse for exertion, noise, motion, light, cold air, talking and straining at stool and is followed by blindness. The last symptom is fatigue; the *Silicea terra* patient experiences great prostration not only of mind but of body as well (Boericke 1906).

According to the repertorisation and the above review, *Nux vomica* is the most suited remedy for pica occurring in pregnancy as it had the highest ranking in the repertorisation followed by *Alumina* which had the second highest ranking. These two remedies were also revealed to be best because they were present in all rubrics that were used in the repertorisation of the most common rubrics. In the above review they covered most of the symptoms that were commonly reported

by participants. The second-best suited set of remedies for pica occurring in pregnancy following the highly ranked order were *Sepia officinalis, Natrum muriaticum* and *Pulsatilla pratensis* which were present in five rubrics of the six rubrics used in repertorisation and were highly graded for those rubrics in which they were present. *Conium maculatum* and *Silicea terra* had the lowest ranking in the repertorisation of the most common rubrics compared to the other remedies, although the review showed that they can be used as differential remedies for pica occurring in pregnancy as they cover many of the symptoms reported by the participants.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

The aim of this study was to determine by repertorial analysis and exploration the homoeopathic remedies indicated in treating pica during pregnancy. To achieve this aim, four objectives were set and achieved, namely: to determine the symptoms of pica experienced during pregnancy through in-depth interviews, to analyse and repertorise the symptomatology arising from the interviews, to determine the remedies with the highest ranking in relation to the symptomatology repertorised and to conduct a materia medica review of five of the most represented remedies arising from the repertorisation. This chapter presents the conclusions from the findings obtained in line with achieving these objectives, and offers recommendations arising from the findings.

6.1 Conclusion

The first objective of this study was to determine the symptoms of pica experienced during pregnancy by means of in-depth interviews. This was achieved through a qualitative exploration of the pica experiences of participants during pregnancy. This qualitative exploration had a grand tour question and sub-questions. The grand tour question was: **Have you experienced unnatural cravings or pica in your pregnancy/pregnancies?** Results from the interviews allowed us to conclude the following:

The study found that for 58.3% of the participants, the craving for non-food items started in the first trimester of pregnancy, and that for 66.6% of participants, the craving returned very often in a day, so much so that it had become a habit to indulge in those substances. For 50% of the participants, it peaked in the third trimester as labour got closer. This finding was in line with answers given to the following sub-questions of the qualitative exploration: When did you first notice the craving during pregnancy? How frequent were these cravings experienced in a day? Was there a particular time when you craved for a substance? At which trimester of the pregnancy did you crave the most for this substance?

The findings in this study confirmed the literature on the most craved non-food items during pregnancy; geophagic items in form of soil, clay, sand and mud were the most highly reported in this study followed by pagophagic items in the form of freezer frost, ice cubes and ice beverages. The study also showed that the craving for these non-food items often occurred with other food cravings mostly for sour food or drinks such as citrus fruits, lemon twist and sour milk; sweet food like sugar cane, banana and pineapple; and highly spiced food. These findings were in line with answers given to the following sub-questions of the qualitative exploration: What substance did you crave for? Where were you getting this substance from and how were you collecting it? Was there any other substance or food that you were craving for?

As suggested in the literature, the common cause of pica revealed in this study was iron deficiency anaemia or anaemia of some sort. Participants suggested this based on their already existing anaemic state or reports they were given at the clinic that their iron levels were low and were given iron tablets and/or were advised to eat food that would increase their iron levels. The other common cause of pica revealed was a simple enjoyment of the taste, smell, texture and appearance of the craved substances. These findings were in line with the following sub-question of the qualitative exploration: What do you think was the cause of yourcraving or pica habits?

Based on the results of this study, it is concluded that anything that reminded a pregnant woman of her craved substance increased her craving for that substance and the opposite is true for anything that would shift her mind off the craved substance. This study also found that pica during pregnancy presents itself as one of the symptoms that a woman would normally experience during pregnancy. These findings were in line with answers to the following sub-questions of the qualitative exploration: What made your craving for this substance better or worse? What other symptoms did you experience with the cravings?

According to the results of this study, the first method used in the management of pica is supplementation of iron or the other lacking micronutrients, if the pica habits are due to micronutrient deficiency. The researcher observed that although many of these participants received iron supplements, it was not in line with pica treatment but rather as a routine measure to prevent potential anaemic conditions, as participants did not report pica at the clinic due to fear of being scolded. Furthermore, the study showed that pregnant women commonly used other methods such as substitutionand ignoring the craving as means of dealing with these annoying cravings. These findings were in line with answers given to the following sub-questions of the qualitative exploration: How did you deal with these cravings? Did you try anything to alleviate the cravings?

Pertaining to the effects of pica during pregnancy, it is concluded that constipation is the major physical effect associated with pica for those consuming geophagic or other solid indigestible items. This is the case because they aggregate in the intestines and make the bowel movement difficult. Emotionally, a sense of satisfaction is the effect brought on by the ingestion of the craved substances. This finding was in line with answers to the following sub-questions: Did you notice anything that changed physically as a result of eating this substance? What about emotionally?

Still on the emotional plane, the study found that the emotions mostly associated with a pica experience during pregnancy were guilt and sadness as the pregnant women felt that they were endangering their unborn child by ingesting items that could potentially harm the children, so worried about their own health and their baby's health. Based on the findings, it is also concluded that the common emotional response of pregnant women experiencing pica to being advised against pica practice is anger; this is because they feel judged and not understood. These findings were in line with answers given to the following sub-questions of the qualitative exploration: How did this experience make you feel? What was the reaction of people around you regarding what you were experiencing with regards to the cravings? How did their reaction make you feel?

The second objective was to analyse and repertorise the symptomatology arising from the interviews. To achieve this, the symptoms derived from the interviews were repertorised. Two sets of repertorisation were conducted: the first repertorised for each participant using eight of the symptoms they had reported; the second repertorised six of the most common symptoms reported in this study.

The third objective of this study was to determine the remedies with the highest ranking in relation to the symptomatology repertorised. In line with this objective, the findings from the above repertorisations revealed that *Alumina, Conium maculatum, Natrum muriaticum, Nux vomica, Pulsatilla pratensis, Sepia officinalis* and *Silicea terra* are the remedies of choice when comes to treating or alleviating cravings for non-food items occurring during pregnancy.

The last objective of this study was to conduct a materia medica review of five of the most represented remedies arising from the repertorisation. In line with achieving this, all the remedies were reviewed. The repertorisation and review revealed that of those remedies *Nux vomica* and *Alumina* are the most suited remedies for pica occurring in pregnancy, followed by *Sepia officinalis*, *Natrum muriaticum* and *Pulsatilla pratensis*. *Conium maculatum* and *Silicea terra* were also shown to be good differential remedies for pica during pregnancy. In addition, it was observed that the majority of these remedies pertain to the sycotic miasm and to the mineral and plant kingdoms due to similarities between characteristics of these miasm/kingdoms and the symptoms displayed by participants in this study.

The above conclusions were drawn from the findings of this study. These findings were representative of the 12 sampled participants. As described in Chapter 1, these participants were limited to and included women from the DUT community who experienced pica when they were pregnant, who were not pregnant at the time of the study and were above 18 years of age.

6.2 Recommendations

This study focused on pregnant women because there is a paucity of literature on pica during pregnancy despite the harmful consequences it can have on this vulnerable population. It was imperative that we establish a safe treatmentregime to help these women have a better pregnancy outcome. It is therefore recommended that:

- A similar study be conducted, but on cravings for stimulants during pregnancy that include alcohol, tobacco and drug use. Stimulant use in pregnancy is more common than one would realise and this carries a much higher likelihood of harming not only the mother but the foetus she carries as well.
- A study be conducted including the perceptions and practices of various healthcare providers managing women in their pregnancy journey. Concepts in these proposed studies should include pica screening in the routine screening of pregnant women. It is suggested that during consultations with pregnant women healthcare providers should question them about pica, this should be done with no judgements to gain patient confidence and trust so that patients are comfortable to report pica if it is experienced.
- Further studies are encouraged to explore educational programmes for pregnant women about pica practice. The outcome of these studies could help to raise awareness among pregnant women and their families of the harmful consequences that pica practice might have on both mother and baby. Findings from this study suggest that geophagia during pregnancy might be a practice that is accepted and may be encouraged among certain communities, as evidenced by the sale of some geophagic items being sold in market places for this purpose.
- In addition, studies should be conducted to explore the role of homoeopathic remedies that are commonly prescribed and used by pregnant women for the treatment of pica and incorporate into these studies a measurement tool to gauge the effect of these remedies on pica and other related pregnancy symptoms.

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APPENDICES

Appendix A: Permission to Conduct Research

Directorate for Research and Postgraduate Support
Durban University of Technology Tromso
Annexe, Steve Biko Campus
P.O. Box 1334, Durban 4000
Tel.: 031-3732576/7 Fax: 031-3732946

5th January 2021
Ms Nadia Kaneza
c/o Department of Homoeopathy Faculty of Health Sciences
Durban University of Technology

Dear Ms Kaneza

PERMISSION TO CONDUCT RESEARCH AT THE DUT

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research and Innovation Committee (IRIC) has granted **Full Permission** for you to conduct your research "A reportorial analysis of the homoeopathic remedies indicated in pica in pregnancy" at theDurban University of Technology.

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

We would be grateful if a summary of your key research findings would be submitted to the IRIC on completion of your studies.

Kindest regards.

Yours sincerely

_____

DR LINDA ZIKHONA LINGANISO

DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT DIRECTORATE

Appendix B: Letter of Information

LETTER OF INFORMATION

Title of the Research Study: A repertorial analysis of the homoeopathic remedies indicated in pica in pregnancy.

Principal Investigator/s/researcher: Nadia Kaneza (B.Tech Hom)

Co-Investigator/s/supervisor/s: Dr. M Maharaj (M.Tech Hom)

Brief Introduction and Purpose of the Study:

Good day to you, I hope you are doing well. My name is Nadia Kaneza, I am a student at DUT doing a research for my Master's degree in Homoeopathy and would like to invite you to participate in this research.

A research is a systematic search or enquiry for generalized new knowledge. This research is about understanding the strange cravings that women experience during their pregnancies and finding homoeopathic remedies that can be used to alleviate such cravings. Please know that you may ask as many questions as you wish to make sure you understand fully what this research is about, and are not obliged to commit yourself to this research at this stage. You are given this letter of information to take home and read, and you may discuss the research with your family and friends.

Please feel free to contact me should you wish to participate in this study, so we can arrange a date and time of your interview.

Outline of the Procedures: Pica refers to the unusual cravings and eating of non-food substances such as clay, coal, paper, sand etc. It is known to affect young children, people with nutritional deficiencies such as iron deficiency as well as pregnant women. These substances eaten can be quite harmful at times, especially for pregnant women as they also carry a life within their womb. The aim of this research is to determine which homoeopathic remedies can be used to treat pica during pregnancy. This refers to the alleviation of the cravings resulting in the future mother having a healthier pregnancy.

In this research, I will be interviewing you about your cravings during pregnancy. Before the interview, I am giving you this letter together with an informed consent form to be signed. After you have signed the consent form agreeing to participate,

I will ask you some questions. This will take about 30 to 45 minutes and the whole interview will be recorded.

Risks or Discomforts to the Participant: there will be no physical involvement in this study, it will only be a guided interview with questions that will need to be answered by you. You are free to stop the interview if at any point you feel uncomfortable**.**

Withdrawal from the study: should you want to withdraw from the study at any point, you may freely do so. There will be no adverse consequences to this action.

Benefits: the outcome of this study will be available at the DUT library.

Remuneration: no money or whatsoever will be given to you to participate in this study. It will be completely over your willingness to participate and be interviewed by me.

Costs of the Study: there will be no cost to this study.

Confidentiality: You will be given a number of reference so to keep your participation anonymous and your identity confidential. The information given by you during the interview will remain confidential and will be saved on a password protected email account and Google drive that only I have access to. The data collection sheets and recording will be kept by me and my supervisor.

Results: results will be available at the DUT library or online repository.

Research-related Injury: This study has no related injury. However, should you experience anxiety during the interview as a result of some questions, the supervisor will assess, manage your case or refer you further. **Storage of all electronic and hard copies including tape recordings:** as said previously, the information given by you will be transferred to Microsoft Word and be kept as a soft copy on a password-protected email account and Google drive that only I have access to. Note that the hard copies (data log sheets) together with the digital recording will be kept by the researcher and supervisor. After five years, the data log sheets will be shredded and the soft copies will be deleted from Google drive.

Persons to contact in the Event of Any Problems or Queries: Please contact me, Nadia Kaneza (061 426 5649), my supervisor Dr M Maharaj (031 373 2041) or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031 373 2577 or researchdirector@dut.ac.za.

Appendix C: Participant Consent Form

CONSENT

Full Title of the Study: A repertorial analysis of the homoeopathic remedies indicated in pica in pregnancy.
Names of Researcher/s: Nadia Kaneza

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Nadia Kaneza about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: IREC 171/20.
- 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/RightThumbprint

I, Nadia Kaneza herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____ _____ _____

_____ _____ _____

Full Name of Researcher Date Time

_____

Signature

_____ _____ _____

Full Name of Witness Date Time

_____

Signature

_____ _____

_____

Full Name of Legal Guardian (if applicable) Date Time

_____

Signature

Appendix D: Question guide to interview

Demographic data

1. How old are you?
2. When was your first pregnancy?
3. How many pregnancies did you have?
4. When did you last experienced pica during pregnancy?

Question guide to interview

Grand tour question

Have you experienced unnatural cravings or pica in your pregnancy/pregnancies?

Sub questions

1. When did you first notice the craving during the pregnancy?
2. What substance did you crave for? Where were you getting this substance from and how were you collecting it?
3. What do you think was the cause of your craving or pica habits?
4. At which trimester of the pregnancy did you crave the most forthis substance?
5. How frequent were these cravings experienced in a day? Wasthere a particular time when you craved a substance?

6. How did you deal with these cravings?
7. Did you try anything to alleviate the cravings?
8. What made your craving for this substance better or worse?
9. Was there any other substance or food that you were cravingfor?
10. What other symptoms did you experience with the cravings?
11. Did you notice anything that changed physically or emotionally asa result of eating this substance?
12. How did this experience make you feel?
13. What was the reaction of people around you regarding what youwere experiencing with regards to the cravings?
14. How did their reaction make you feel?

Appendix E: Ethics Clearance

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court Gate l, Steve Biko Campus
Durban University of Technology
P O Box 1 334, Durban, South Africa, 400 1
-ret:03 1373 2375 Email: lavishad@dutac.za
http://www.dut.ac.za/research/institutional_research ethics www.dut.ac.za

14 January 2021
Ms N Kaneza
122 Diakonia Avenue
51 Grantchester Durban

Dear Ms Kaneza

A repertorial analysis of the homoeopathic remedies indicated in pica in pregnancy Ethical Clearance number IREC 1 71120

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

We are pleased to inform you that the data collection tool has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letter.

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.

ours Sincerely,

Prof J K Adam

Chairperson: IREC

INSITUTUTIONAL RESEARCH ETHICS COMMITTEE
P O BOX 1334 DURBAN 4000 SOUTH AFRICA

Appendix F: Editing Certificate

DR RICHARD STEELE
BA HDE MTech(Hom)
HOMEOPATH
Registration No. A07309 HM
Practice No. 0807524
Freelance academic editor
Associate member: Professional Editors' Guild, South Africa

154 Magenta Place
Morgan Bay
5292
Eastern Cape
082-928-6208

Email: rsteele@vodamail.co.za

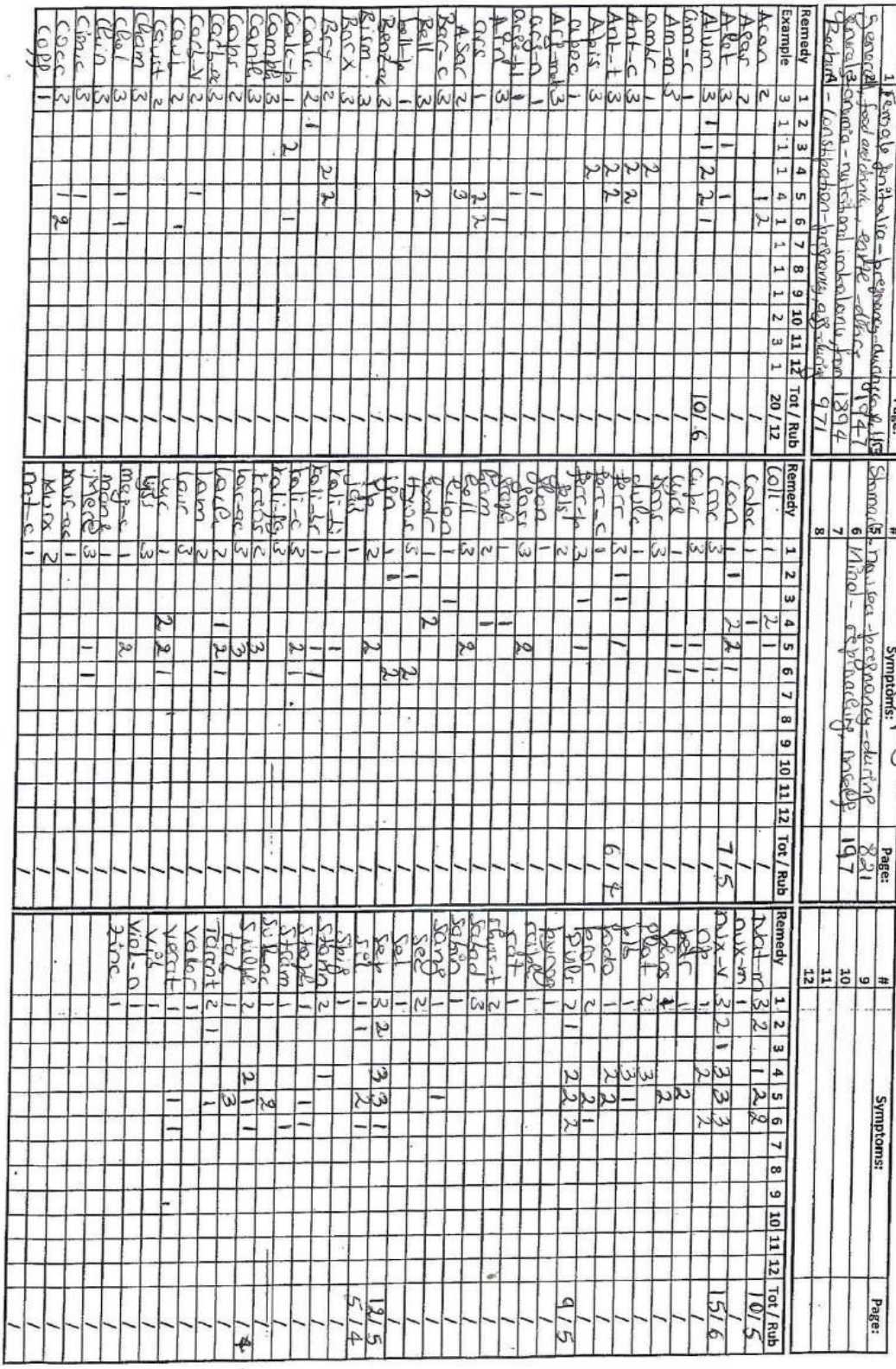
EDITING CERTIFICATE

Re: **Nadia Kaneza**
Journal article: **A repertorial analysis of the homoeopathic remedies indicated in pica in pregnancy**

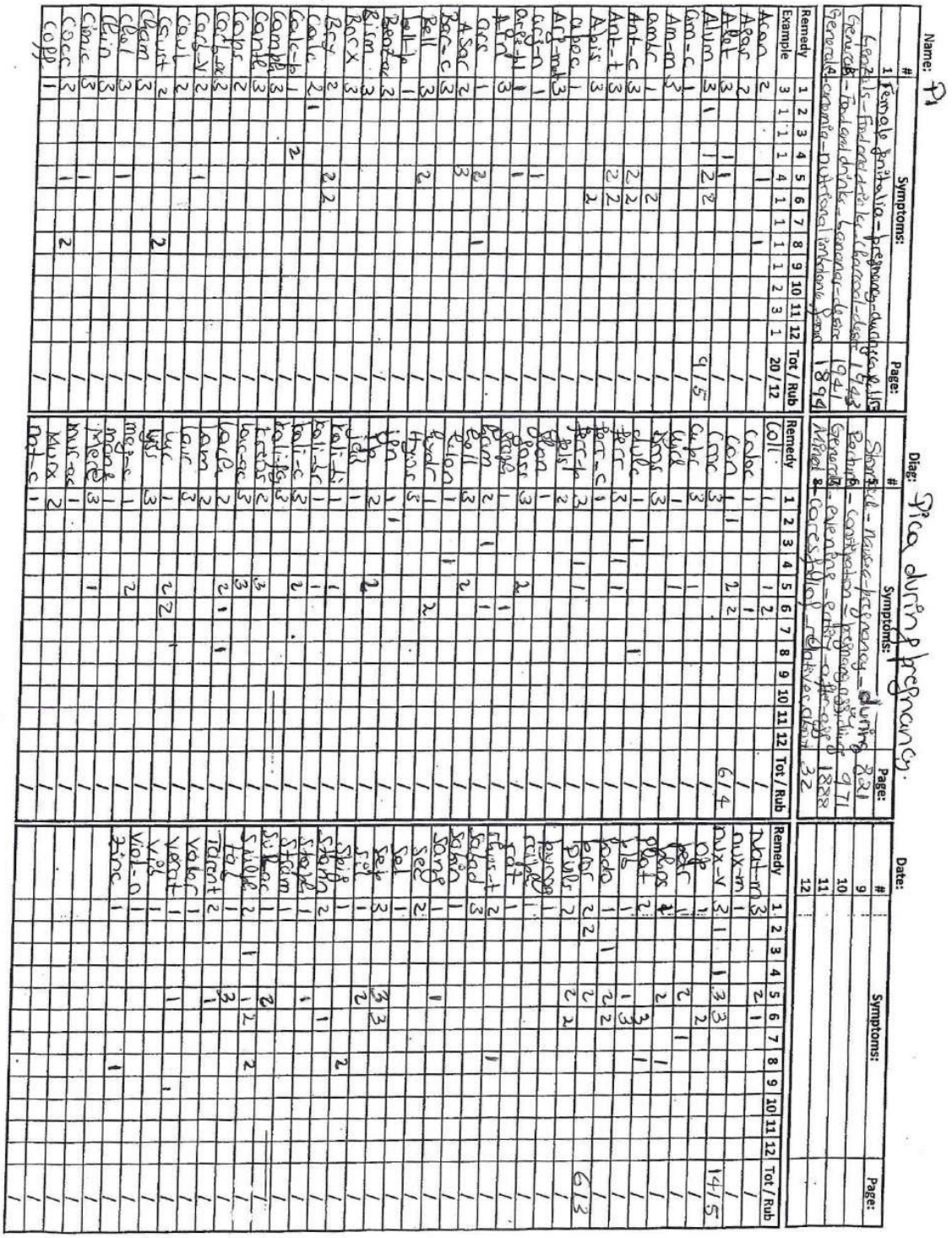
I confirm that I have edited this dissertation and the references for clarity, language and layout. I returned the document to the author with track changes so correct implementation of the changes and clarifications requested in the text and references is the responsibility of the author. I am a freelance editor specialising in proofreading and editing academic documents. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I obtained a distinction for my M.Tech. dissertation in the Department of Homoeopathy at Technikon Natal in 1999 (now the Durban University of Technology). I was a part-time lecturer in the Department of Homoeopathy at the Durban University of Technology for 13 years and supervised many master's degree dissertations during that period.

Dr Richard Steele
6 December 2021
per email

Appendix G: Repertorisation of common rubrics



Appendix H: Repertorisation for each participant



Name: P2

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia – pregnancy – during	p. 113
General	3 – food and drink – indigestible – desire	198
General	8 – food and drink – ice cream – desire	1950
General	5 – weather – rainy cold	20281

#	Symptoms:	Page:
Stomach	– nausea – pregnancy – during	821
General	6 – forenoon – 9 h	1886
7	Mind – reproaching oneself	197
8	Mind – anger – reproaches, from	12

#	Symptoms:	Page:
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2				1		2						/
Aesc	2												/
Aet	3				1								/
Alum	3	2			2		1						814
Am-c	1												/
Am-m	3												/
amr	1												/
Ant-c	3				2								/
Ant-t	3				2								/
Apis	3												/
aqua	1												/
Arg-met	3												/
arg-n	1		1		1								/
Arg-pl	1				1								/
Arn	3						1						/
ars	1			1	2		2						/
Asar	2				3								/
Bac-c	3												/
Bell	3	1			2								613
bell-p	1												/
Benz-ac	2												/
Bism	3												/
Bacx	3												/
Bry	2	1			2	1							614
Calc	2	2	2										613
Calc-p	1	2	1				1	1					615
Camph	3												/
Cantha	3												/
Caps	2												/
Carb-ac	3												/
Carb-v	2				1								/
Caul	2					1							/
Caust	2												/
Cham	3					2							/
Chel	3				1		1						/
Chin	3												/
Cimic	3				1								/
Cocc	3				1		2						/
Coff	1												/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coli	1				1								/
Coloc	1												/
Con	1	1			2		1						514
Croc	3						1	1					/
Cupr	3				1		1						/
Cycl	1	2			1		1						514
Dros	3												/
dulc	1		1	1									/
Ferr	3	1			1								513
ferr-c	1												/
ferr-p	3				1								/
Gels	2												/
Glon	1			1									/
Graph	3				2								/
Ham	2			1									/
Hell	3				2								/
Helon	1												/
Hydr	1												/
Hyos	3						2						/
Ign	1	1					2						413
Ip	2				2			1					/
Jab	1												/
kali-bi	1				1	1							/
kali-br	1				1		1						/
kali-c	3				2	1	1						/
kali-fg	3												/
kreos	2				3								/
lac-ac	3				3								/
Lach	2	3		1	2		1						915
lam	2												/
Laur	3												/
Lyc	1				2		1						/
Lyss	3												/
mag-c	1			1	2								/
mang	1			1									/
Merc	3			1	1		1						/
Merc-ac	1												/
Murx	2												/
nat-c	1												/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	1	1		2	1	2						1016
nux-m	1												/
nux-v	3	1			3	1	3						1115
Op	1						2						/
petr	1				2								/
Phos	1		3		2								/
plat	2			1									/
Plb	1				1								/
podo	1		1		2	1							/
por	2	1			2		1						614
Puls	2		1		2		2						/
pyrog	1												/
rhus	1												/
rat	1												/
rhus-t	2			2									/
Salad	3												/
Sabin	1			1									/
Sang	1				1								/
Sec	2												/
Sel	1												/
Sep	3				3	1	1						/
Sil	1	3	2	1	2		1						1016
Spig	1												/
Stann	2												/
Staph	1				1		1						/
Stram	1						1						/
Sul-ac	1				2	1							/
Sulph	2	1	2	2	1		1						916
tab	1				3								/
Tarent	2	2			1								513
valer	1												/
verat	1		1		1		1		1				/
Vib	1												/
viol-o	1												/
zinc	1												/

Name: P5

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia – pregnancy – during	1145
General	s – food and drinks – eat – desire	1947
General	s – food and drinks – eggs – desire – fried eggs	1941
General	s – anaemia – nutritional (in babies from	1894

#	Symptoms:	Page:
Rectum	– constipation – pregnancy, agg during	971
6	Mind – Spitting	223
7	Generals – night	1888
8	Mind – indifference – loved ones to	148

#	Symptoms:	Page:
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2						3	2					/
Apar	2						1						/
Alet	3			1									/
Alum	3	1		1	2		1						815
Am-c	1												/
Am-m	3						2						/
ambr	1				2		1						/
Ant-c	3				2		2						/
Ant-t	3				2	1	2						/
Apis	3				2		1						/
aspc	1						1						/
Arg-met	3						1						/
arg-n	1						3						/
Arsi-pl	1												/
Ars	3					1	3						/
ars	1					1	3	1					/
Asar	2						1						/
Bar-c	3						2						/
Bell	3					2	2	1					/
bell-p	1												/
Benz-ac	2												/
Bism	3												/
Bov	3						1						/
Bry	2				2		2						/
Calc	2	1				2	3						814
Calc-p	1		1	2			3						/
Camph	3					1	2						/
Cand	3						2						/
Caps	2						2						/
Carb-ac	3						1						/
Carb-v	2						2	1					/
Card	2					1							/
Cast	2						2						/
Cham	3						3						/
Chel	3						2						/
Chin	3						3						/
Cimic	3						1						/
Cocc	3						2						/
Coff	1						3						/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coll	1				2								/
Coloc	1				1		2						/
Con	1	1			2		3						714
Croc	3						2						/
Cupr	3						2						/
Cycl	1						3						/
Dros	3						2						/
dulc	1		1			1	3						/
Ferr	3	1		1		1	3						915
Ferr-c	1												/
Ferr-p	3			1			2						/
Gels	2					1							/
Glon	1					1							/
Gosc	3												/
Graph	1				1	1	3						/
Ham	2	1			1			1					/
Hell	3						2	3					/
Helon	1			1									/
Hydr	1				2								/
Hyos	3	1				1	3						814
Ign	1	1					2						413
Ip	2						3						/
Jab	1												/
Kali-bi	1						3						/
Kali-br	1						2						/
Kali-c	3						3						/
Kali-p	3						4						/
Kreos	2						1						/
Lac-ac	3												/
Lach	2				1		3						/
Lam	2												/
Laur	3												/
Lyc	1				2	1	2						/
Lyss	3												/
Mag-c	1						3						/
Mang	1						3						/
Merc	3					1	3	1					/
Murex	1						2						/
Nat-c	2												/
Nat-c	1						2						/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	2			1	2	2						1015
nux-m	1						2						/
nux-v	3	2			1	3	2	2					1316
Olp	1					2		2					/
petr	1							2					/
phos	1						1	3	3				/
plat	2				3								/
Plb	1				3	1	3						/
podo	1				2								/
psor	2						3						/
Puls	2	1			2		3						814
pyrog	1						1						/
rhab	1												/
rat	1						1						/
rhus-t	2					1	3						/
Sabad	3					1	2						/
sabin	1						1						/
sang	1					1	1						/
Sec	2					1	1						/
Sel	1						2						/
Sep	3	2			3	1	3	3					1516
Sil	1	1	1				3						614
Spig	1						2						/
Stann	2				1		2						/
Staph	1						2						/
Stram	1					1	1						/
Sul-ac	1												/
Sulph	2				2	1							/
tab	1					2							/
Tarent	2	1					1						413
valer	1						1						/
verat	1					2	1	1					/
Vib	1						1						/
Viol-o	1												/
Zinc	1						3						/

Name: PG

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia – pregnancy – during	1947
2	General – food and drinks – craving – desire	1947
3	General – food and drinks – sour drinks – desire	1947
4	Mind – thinking – complaints – after thinking of complaint	234

#	Symptoms:	Page:
5	Stomach – heartburn – pregnancy, during	806
6	Rectum – constipation – pregnancy, during	971
7	General – moving – agg.	1886
8	Mind – reproaching, oneself	197

#	Symptoms:	Page:
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2		2					2					/
Aesc	2			1									/
Alet	3												/
Alum	3	1				2		1					7 / 4
Am-c	1			1									/
Am-m	3												/
amic	1			1		2							/
Ant-c	3		1			2							/
Ant-t	3		1			2							/
Apis	3				1	2							/
apoc	1												/
Arg-met	3			1									/
arg-n	1			2									/
arse-i	1												/
Ars	3		1	1				1					/
ars	1		1	1				2					/
ASar	2			1									/
Bar-c	3			2									/
Bell	3		1										/
bell-p	1												/
Benz-ac	3												/
Bism	3												/
Bor x	3		1										/
Bry	2		2	1		2							/
Calc	2	1	1	1	1								6 / 5
Calc-p	1			2				1					/
Camph	3												/
Cantr	3				1								/
Caps	2												/
Carb-ac	3				1								/
Carb-v	2												/
Caul	2					1							/
Caust	2			2									/
Cham	3			1									/
Chel	3							1					/
Chin	3												/
Cinis	3												/
Cocc	2			1				2					/
Coff	1			1									/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coli	1					2							/
Coloc	1					1							/
Con	1	1	1	1	1	2		1					8 / 7
Croc	3							1					/
Cupr	3							1					/
Cycl	1							1					/
Dros	3			1									/
dulc	1												/
Ferr	3	1											/
Ferr-c	1												/
Ferr-p	3												/
Gels	2			2									/
Glon	1												/
Gnaph	3												/
Graph	1			1		1							/
Ham	2					1							/
Hell	3			2									/
Helon	1			2									/
Hydr	1			1		2							/
Hyos	3	1						2					6 / 3
Ign	1	1		1				2					5 / 4
Ip	2			1									/
Jab	1												/
Kali-bi	1		2										/
Kali-br	1							1					/
Kali-c	3							1					/
Kali-fg	2												/
Kreos	2												/
Lac-ac	3				1								/
Lach	2			2		1		1					/
Lam	2												/
Lauc	3			1									/
Lyc	1					2		1					/
Lyss	3												/
Mag-c	1		2										/
Mang	1		1										/
Merc	3			1	2			1					/
Mur-ac	1												/
Murx	2												/
Nat-c	1						1						/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	2		1	1	1		2					10 / 6
nux-m	1			2									/
nux-v	3	2		2	2	3	2	3					17 / 7
Ol-j	1					2		2					/
petr	1												/
phos	1			1									/
phyt	2					3							/
Pic	1		1	1		3							/
podo	1		1			2	1						/
psor	2							1					/
Puls	2	1	2		2	2		2					11 / 6
pycnop	1												/
rumx	1												/
sat	1												/
sbuc-t	2												/
Sal-ac	3			2									/
Sabin	1												/
Sang	1												/
Sec	2		1	1									/
Sel	1												/
Sep	3	2	1	1		3	1	1					12 / 7
Sil	1	1						1					3 / 3
Spig	1												/
Stann	2			1		1		1					/
Staph	1			1				1					/
Stram	1		2					1					/
Sul-ac	1												/
Sulph	2		2		2			1					/
Tab	1			1									/
Tarent	2	1											/
Valer	1												/
Verat	1		3					1	1				/
Vip	1												/
Viol-o	1												/
Zinc	1			1	1								/

Name: P7

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia - pregnancy - during	1153
2	General - food and drinks - sour - desire	1927
3	General - food and drinks - sour drinks - desire	1926
4	General - anemia - nutritional, iron deficiency, from	1894
5	General - food and drinks - meat - amel	1951
6	Rectum - constipation - pregnancy, agg. during	971
7	Skin - discoloration - chloasma	1845
8	Mind - repertories, on use of	197
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2		2					2					/
Aesc	2												/
Aloe	3			1									/
Alum	3	1		1		2		1					8/5
Am-c	1												/
Am-m	3												/
ambr	1					2							/
Ant-c	3		1			2							/
Ant-t	3		1			2							/
Apis	3					2							/
apoc	1												/
Arg-met	3												/
arg-n	1						2						/
Arg-pl	1												/
Arn	3		1					1					/
ars	1		1					2					/
ASac	2												/
Bar-c	3												/
Bell	3		1										/
bell-p	1												/
Benz-ac	2												/
Bism	3												/
Borx	3		1										/
Bry	2		2			2							/
Calc	2	1	1										4/3
Calc-p	1			2				1					/
Camph	3												/
Cann-s	3												/
Caps	2												/
Carb-ac	3												/
Carb-v	2												/
Caul	2					3							/
Caust	2												/
Cham	3												/
Chel	3							1					/
Chin	3												/
Cinnb	3												/
Cocc	3							2					/
Coff	1												/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coll	1					2							/
Coloc	1					1							/
Con	1	1	1			2		1					6/5
Croc	3							1					/
Cupr	3							1					/
Cycl	1							1					/
Dros	3												/
dulc	1												/
Ferr	3	1		1									5/3
Ferr-c	1												/
Ferr-p	3			1									/
Gels	2												/
Glon	1												/
Gass	3												/
Graph	1					1							/
Ham	2					1							/
Hell	3												/
Helon	1			1									/
Hydr	1					2							/
Hyos	5	1						2					6/3
Ign	1							2					/
Ip	2												/
Jab	1												/
Kali-bi	1		2										/
Kali-br	1							1					/
Kali-c	3							1					/
Kali-fg	3												/
Kreos	2												/
Lac-ac	3												/
Lach	2					1		1					/
Lam	2												/
Laur	3												/
Lyc	1					2	3	1					/
Lyss	3												/
Mag-c	1		2										/
Mang	1		1										/
Merc	3							1					/
Muc-ac	1												/
Murx	2												/
Nat-c	1												/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	2				1		2					8/4
nux-m	1												/
nux-v	3	2		1		3	1	3					13/6
Op	1					2		2					/
petr	1						1						/
phos	1												/
plat	2					3							/
Plb	1		1			3	1						/
podo	1		1			2							/
pror	2							1					/
Puls	2	1	2			2		2					9/5
pyrog	1												/
rumx	1						1						/
rat	1												/
rhus-t	2												/
Sabad	3												/
Sabin	1												/
Sang	1												/
Sec	2		1										/
Sel	1												/
Sep	3	2	1			3	3	1					13/6
Sil	1	1						1					3/3
Spig	1												/
Stann	2					1							/
Staph	1							1					/
Stram	1		2					1					/
Sul-ac	1												/
Sulph	2		2			2	1	1					/
Tab	1												/
Taren	2	1											/
Valer	1												/
Verat	1		3	1				1					/
Vip	1												/
Viol-o	1												/
Zinc	1												/
													/
													/
													/
													/
													/

Name: P8

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia – pregnancy – during	1113
General	food and drinks – indigestible – kinds of	1950
General	anemia – nutritional deficiency – from	1899
General	– food and drinks – sweets – aversion	1958

#	Symptoms:	Page:
5	nose – smell – acute	577
Rectum	constipation – pregnancy – after during	971
General	– food and drinks – sour – desire	1956
8	Mind – reproaches – oneself	197

#	Symptoms:	Page:
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2				3			2					/
Apar	2				2								/
Alet	3		1										/
Alum	3	2	1		1	2		1					/
Am-c	1			1	1								1016 /
Am-m	3												/
amtr	1				1	2							/
Ant-c	3				1	2							/
Ant-t	3					2							/
Apis	3					2							/
apoc	1												/
Arg-met	3												/
arg-n	1			2									/
Arg-pl	1												/
Ars	3				1			1					/
ars	1				2			2					/
ASac	2				1								/
Bar-c	3				2								/
Bell	3	1		1	3								814 /
bell-p	1												/
Benz-ac	3												/
Bism	3												/
Borx	3												/
Bry	2	1			1	2							/
Calc	2	2			2								614 /
Calc-p	1	2	2				1	1					613 /
Camph	3												715 /
Cantr	3				1								/
Caps	2				1								/
Carb-ac	3												/
Carb-v	2				1								/
Caul	2					1							/
Caust	2												/
Cham	3				2								/
Chel	3							1					/
Chin	3				3								/
Cimic	3				1								/
Cocc	3				2			2					/
Coff	1				3								/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coll	1					2							/
Color	1					1							/
Con	1	1			2	2		1					715 /
Cmc	3							1					/
Cupr	3				1			1					/
Cycl	1	2			1			1					514 /
Dros	3												/
dulc	1			1	1		1						/
Ferr	3	1	1										513 /
Ferr-c	1												/
Ferr-p	3		1										/
gels	2												/
Glon	1												/
Gnaph	3												/
Graph	1				3	1							/
Ham	2				1	1							/
Hell	3												/
Helon	1	1											/
Hydr	1					2							/
Hyos	3				1			2					/
Ign	1	1			3			2					714 /
Ip	2				1								/
jab	1												/
Kali-bi	1				1								/
Kali-br	1							1					/
Kali-c	3				1			1					/
Kali-fg	3												/
Kreos	2												/
Lac-ac	3			3	1								/
Lach	2	3			1	1		1					815 /
Lam	2												/
Laur	3												/
Luc	1			2	3			1					/
Lyss	3				2	2							/
Mag-c	1				1								/
Mang	1												/
Merc	3				1			1					/
Murx-ac	1				1								/
Murx	2												/
Nat-c	1				1								/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	1				1		2					714 /
nux-m	1				2								/
nux-v	3	1	1		3	3		3					1416 /
Op	1				3	2		2					/
petr	1												/
phos	1												/
plat	2				2	3							/
Plb	1				2	3							/
podo	1				1	2							/
psor	2	1			1			1					/
Puls	2				1	2	1	2					514 /
pyrog	1												/
ruta	1												/
sat	1												/
rhus-t	2												/
Sabad	3				1								/
Sabin	1												/
Sang	1				1								/
Sec	2												/
Sel	1				1								/
Sep	3				3	3		1					/
Sil	1	3			1		1	1					715 /
Spig	1				1								/
Stann	2				1	1							/
Staph	1				1			1					/
Stram	1							1					/
Sul-ac	1												/
Sulph	2	1		1	2	2		1					916 /
Tab	1				1								/
Tarent	2	2											/
Valer	1				1								/
Verat	1							1					/
Vib	1												/
Viol-o	1												/
Zinc	1				1								/

Name: Pq

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia - pregnancy - during	
General	- food and drinks - sick - abscess	1947
General	- food and drinks - bananas - desire	1941
General	- food and drink - - ice - cravings	1950

#	Symptoms:	Page:
General	- food and drinks - meat - aversion	1951
6	Vision - blurred	481
7	General - evening - 18h	1287
8	Mind - intelligence - opinion of others, loss of	148

#	Symptoms:	Page:
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2					1							/
Agar	2				1								/
Alet	3												/
Alum	3	1			2								6 / 3
Am-c	1				1								/
Am-m	3				1	1							/
amb	1												/
Ant-c	3												/
Ant-t	3						1						/
Apis	3												/
apoc	1												/
Arg-met	3												/
arg-n	1				2	1							/
arg-pl	1												/
Ars	3				2	1							/
ars	1				2	2							/
ASac	2				1								/
Bac-c	3												/
Bell	3				1	1							/
bell-p	1												/
Benz-ac	2												/
Bism	3												/
Bov	3				1								/
Bry	2				2								/
Calc	2	1			3	1	1						8 / 5
Calc-p	1					1	1						/
Camph	3												/
Cantr	3												/
Caps	2					1							/
Carb-ac	3												/
Carb-v	2				2								/
Caul	2												/
Caust	2				1		1						/
Cham	3				1								/
Chel	3				1	1							/
Chin	3				3	1							/
Cinnc	3												/
Cocc	3												/
Coff	1												/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coll	1												/
Coloc	1												/
Con	1	1				2							4 / 3
Croc	3												/
Cupr	3												/
Cycl	1				2	1							/
Dros	3				1	1							/
dulc	1		1		1	1							/
Ferr	3	1			2								6 / 3
Ferr-c	1												/
Ferr-p	3				1								/
Gels	2					3							/
Glon	1					2							/
Gnaph	3												/
Graph	1				3								/
Ham	2		1										/
Hell	3				1								/
Helon	1												/
Hydr	1				1								/
Hyos	3	1											/
Ign	1				2								/
Ip	2												/
Jab	1					1							/
Kali-bi	1				2								/
Kali-br	1												/
Kali-c	3				2		2						/
Kali-fg	3												/
Kreos	2				1								/
Lac-ac	3												/
Lach	2												/
Lam	2												/
Laur	3												/
Luc	1				2	1							/
Lyss	3												/
Mag-c	1				1								/
Mang	1												/
Merc	3				2								/
Merc-ac	1				3								/
Murx	2												/
Nat-c	1												/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	2			2	3	1						11 / 5
nux-m	1												/
nux-v	3	2			3	2	3						13 / 5
Op	1				1								/
Petr	1				3		1	1					/
Phos	1			1	2	1							/
Phyt	2				2	2							/
Pic	1												/
Podo	1	1			1	1							/
Pour	2				1	2							/
Puls	2	1			3		2						8 / 4
Pyrog	1												/
Rhod	1												/
Rut	1												/
Rhus-t	2				2	2	2						/
Sabad	3				2								/
Sabin	1												/
Sang	1												/
Sec	2				1	1							/
Sel	1					1	2						/
Sep	3	2			3		2						10 / 4
Sil	1	1			3	1	2						8 / 5
Spig	1												/
Staph	2												/
Stict	1												/
Stram	1					1							/
Sul-ac	1												/
Sulf	2	1			3								/
Tab	1												/
Tarent	2	1			2								5 / 3
Valer	1												/
Verat	1				1								/
Vip	1												/
Viol-o	1												/
Zinc	1				2								/

Name: P10

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia – pregnancy – during	115
General 2	food – drinks – eating – desire	1947
General 3	– food and drinks – Spite – desire	1957
General 4	– anemia – nutritional imbalance from	1894

#	Symptoms:	Page:
Rectum 5	– constipation – pregnancy, associated with	971
6	Vertigo – pregnancy, associated with	264
7	Generals – eating – after – agg	1929
8	Mind – Confusion of	32

#	Symptoms:	Page:
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2		1				1	1					/
Aesc	2						2						/
Aflat	3			1		1							/
Alum	3	1	1	1	2		1	1					1017
Am-c	1		1										/
Am-m	3						2						/
ambr	1				2			1					/
Ant-c	3		1		2		1						/
Ant-t	3				2		1						/
Apis	3				2		2	1					/
apoc	1												/
Arg-met	3												/
arg-n	1		1				2						/
arge-pl	1												/
Ars	3						1	1					/
ars	1		1			1	3	2					/
ASar	2												/
Bar-c	3						2						/
Bell	3					1	2						/
bell-p	1												/
Benz-ac	3												/
Bism	3						2						/
Borx	3						2						/
Bry	2				2		3						/
calc	2	1					3	1					714
Calc-p	1		1	2			3	1					/
Camph	3						1						/
Cantha	3						1						/
Caps	2		1				1						/
Carb-ac	3												/
Carb-v	2						2						/
Caul	2						1						/
Caust	2		1				3	2					/
Cham	3						2						/
Chel	3		2				2	1					/
Chin	3		3				2	2					/
Cinnc	3												/
Cocc	3					1	2	3					/
Coff	1						2	1					/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coll	1				2								/
Coloc	1				1		3						/
Con	1	1			2		3	1					815
Croc	3						1						/
Cupr	3												/
Cycl	1						2						/
Dios	3						1	1					/
dulc	1		1				1						/
Ferr	3	1		1			2						714
Ferr-c	1												/
Ferr-p	3			1			1						/
Gels	2				3								/
Glon	1												/
Goss	3												/
Graph	1				1		2	1					/
Ham	2				1			1					/
Hell	3						1						/
Hilon	1			1									/
Hydr	1				2								/
Hyos	3	1					2						613
ign	1						1	3					/
Ip	2						1						/
jab	1												/
kali-bi	1						3						/
kali-br	1							2					/
kali-c	3						3	1					/
kali-fe	3												/
kreos	2						1						/
lac-ac	3												/
Lach	2				1		3						/
lam	2												/
laur	3												/
lyc	1		1		2		3	1					/
Lyss	3												/
mag-c	1						1						/
mang	1												/
Merc	3						1						/
mur-ac	1						1	1					/
Murx	2												/
nat-c	1						2	2					/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	2	1		1	3	3	2					1517
nux-m	1		1				1						/
nux-v	3	2	2	1	3	1	3	1					1618
Op	1				2		1	1					/
petr	1												/
Phos	1	3				1		1					/
Plat	2				3								/
Plb	1				3								/
Podo	1		1		2			1					/
Psor	2						2	2					/
Puls	2	1	2		2		3	3					1316
pyrog	1												/
rhod	1												/
rhus-t	1												/
Sabad	2						2	1					/
Sabin	3						1	1					/
Sang	1		2				1						/
Sec	2		1				1	1					/
Sel	1						2						/
Sep	3	2			3		3	1					1215
Sil	1	1					3	1					614
Spig	1						1	2					/
Stann	2				1		1	1					/
Staph	1		1				1	3					/
Stram	1												/
Sul-ac	1		2				1						/
Sulph	2		3	2			3	2					/
tab	1												/
Tarent	2	1	2										513
valer	1						1						/
verat	1		1				1	1					/
Vib	1												/
viol-o	1												/
Zinc	1						3	1					/

Name: P12

Diag: Pica during pregnancy.

Date:

#	Symptoms:	Page:
1	Female genitalia – pregnancy – during	115
	General – food drinks – cold drinks, water – ice water – desire	1945
	General – food drinks – sour food, acids – desire	1957
	General – anaemia – nutritional imbalance, iron	1894
5	Generals – eating – after – ags	1929
6	Generals – hungry – ags	1971
	Stomach – nausea – drinking – water – ags	818
8	Mind – indifference	146
9		
10		
11		
12		

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Example	3	1	1	1	4	1	1	1	1	2	3	1	20 / 12
Acon	2	1	3		1		2						915
Apar	2				2								/
Alet	3			1									/
Alum	3		1	1	1	2							/
Am-c	1		1										/
Am-m	3		1		2								/
amic	1												/
Ant-c	3		2		1								/
Ant-t	3		2		1								/
Apis	3		2		2								/
apoc	1						1						/
Arg-met	3												/
arg-n	1		1		2								/
Arge-pl	1												/
Ars	3		2		1								/
ars	1	1	2		3		1						815
ASac	2												/
Bac-c	3				2								/
Bell	3		1		2								/
bell-p	1												/
Benz-ac	2												/
Bism	3				2								/
Bacx	3		2		2		1						/
Bry	2		2		3								/
Calc	2		2		3		1						/
Calc-p	1			2	3								/
Camph	3				1								/
Canth	3				1	1							/
Caps	2	1			1								/
Carb-ac	3												413
Carb-v	2		2		2								/
Caul	2												/
Caust	2		1		3	2							/
Cham	3		2		2								/
Chel	3		1		2	1							/
Chin	3		1		2								/
Cinic	3												/
Cocc	3				2		2						/
Coff	1				2								/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Coll	1												/
Coloc	1				3								/
Con	1		2		3								/
Croc	3				1								/
Cupr	3		1										/
Cycl	1				2								/
Dros	3				1								/
dulc	1				1								/
ferr	3		2	1	2	1							/
ferr-c	3												/
ferr-p	3		1	1	1								/
fels	2												/
Gon	1												/
Gass	3												/
Graph	1				2	3							/
ham	2												/
Hell	3				1	1							/
Helon	1			1									/
Hydr	1												/
Hyos	5				2								/
ign	1		2		1								/
Ip	2				1								/
jal	1												/
kali-bi	1		1		3		1						/
kali-br	1												/
kali-c	3		2		3	3							/
kali-fg	3												/
kreos	2		1		1								/
lac-ac	3		2										/
Lach	2		2		3								/
lam	2												/
Laur	3												/
lyc	1		1		3	1							/
Lyss	3		1										/
mag-c	1		2		1								/
mang	1		1										/
Merc	3				1		1						/
Mur-ac	1				1								/
Murx	2												/
nat-c	1				2								/

Remedy	1	2	3	4	5	6	7	8	9	10	11	12	Tot / Rub
Nat-m	3	2	3	1									/
nux-m	1	1		1									313
nux-v	3		1	3									/
Op	1			1		2							/
petr	1												/
phos	1	1	2		2	3							915
phyt	2				1								/
pic	1	1											/
podo	1	2											/
psor	2	1		2	2								/
Puls	2	2		3									/
pyrog	1												/
rhus	1												/
rat	1												/
rhus-t	2	1		2	2								/
Salad	3	2		1									/
Sabin	1	2		1									/
Sang	1			1	1								/
Sec	2	2		1									/
Sel	1			2		1							/
Sep	3	2		3									/
Sil	1	1		3	3								814
Spig	1			1	2								/
Stann	2	1		1	1								/
Staph	1	1		1	1								/
Stram	1	2											/
Sul-ac	1			1									/
Sulph	2	2		3	3								/
tal	1												/
Tarent	2												/
valer	1			1	1								/
verat	1	1	3		1	1	1						816
vib	1												/
viol-o	1												/
zinc	1				3	2							/
													/
													/
													/
													/
													/