UNIVERSITY OF THE WESTERN CAPE

Faculty of Community and Health Sciences

FULL-THESIS

Title: Exploring factors associated with substance use among pregnant women in a Cape Town community

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Type of thesis: Full-thesis

Degree: M.A. (Psychology)

Department: Psychology

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Date: 29 November 2018

Keywords: Substance addiction, antenatal care, bio-ecological system theory, maternal lifestyle, methamphetamine *'tik'*, pregnancy, prenatal development and substance use

Declaration

I, Manguvhewa Mutshinye hereby declare that this whole thesis is my own work, which is *Exploring factors associated with substance use among pregnant women in a Cape Town community*. This work has not been submitted for any other degree, examination or professional qualification. I, therefore, confirm that this research is my own composition except for the work that was sourced from other researchers and authors as indicated by the *APA (American Psychological Association) referencing style.*

MANGUVHEWA MUTSHINYE

Date: 29/11/2018

Acknowledgment

Firstly, I would like to thank the most wonderful and miraculous God for guiding me against all odds. My sincere gratitude goes to everyone who walked with me through the journey of this thesis completion:

Professionally:

- I would like to express my deep gratitude to Dr. Florence Maria, my supervisor, for playing the main role in my research and for her patience, guidance and enthusiastic encouragement throughout this thesis.
- Jabulani Chitanga, your assistance in keeping my research on progress is highly appreciated.
- Dr. Karin Elizabeth Daniels and Alechine Emmanuel Ameh, my research writing coaches from Division for Post Graduate Studies (D/SPGS) at the University of the Western Cape, thank you for your enduring support.
- Dominique Caswell, a social worker in Department of Social Development, Western Cape Province; thank you for your assistance during data collection process.
- To all participants who willingly formed part of the study, thank you for sharing your life experiences and trusting me with your confidential information.

Personally:

- I will like to thank my mother; Thinavhuyo Pertunia Dagume and my siblings; Mpho and Ompha for their love and emotional support.
- My spiritual mother, Mbitsimuni Maggie Hlungwani thank you for your endless encouragement and prayers
- Fulufhelo Hector Marubini, thank you for being my inspiration.

Special thanks to all the above-mentioned people.

Aa! Ndo livhuwa, nala dzavhathu

Dedication

It is with genuine gratitude and warmest regard that I dedicate this work to all women, regardless of substance use or not. As women, let us continue to positively guide each other and encourage one another to rise and take a stand for our health and the health of future generations. I would like to dedicate this study to my family that gave me the strength to look back and continues to enrich myself academically. This thesis is also dedicated to my two wonderful siblings; Mpho and Ompha, being your elder sister inspires me to lead the academic path in our family.

Abstract

Substance use among pregnant women is a perennial problem in the Western Cape Province of South Africa. There are many influential factors are associated with substance use among women of childbearing-age. The study explored factors associated with substance use among pregnant women using a qualitative research design and the bio-ecological theoretical framework to explore and guide the researcher throughout the study. Participants were selected using purposive sampling. Only participants accessed from the Department of Social Development meeting the inclusion criteria of the study were interviewed using semi-structured interviews. Immediate referral for psychological intervention during the interview was available for participants who needed it. Braun and Clarke's (2006) six phases of thematic analysis were utilised to analyse the data. The study adheres to ethical guidelines for the participants' protection. Participants were informed about the study before the initiation of the interviews and the details of their voluntary participation were explained. The key findings from this study illustrate that socio-cultural factors, personal factors, emotional response and intimate relationships are the major contributing factors to substance use among pregnant women in this sample. The results outline the preventative measures that pregnant women implement. Lastly, the study reveals the positive and negative perceptions of substance use programmes that participants share. Some of the study findings are similar to the existing literature and some of the findings differed. Recommendations emanating from the study include that the stakeholders, rehabilitation centres, Department of Health and future researchers should act proactively against substance use during pregnancy.

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List of Abbreviations

FASD-Foetal Alcohol Spectrum Disorder

PFAS-Partial Foetal Alcohol Syndrome

ARND-Alcohol Related Neurodevelopmental Disorder

SACENDU-South African Community Epidemiology Network on Drug Use

MOU-Midwife Obstetric Unit

PPCT-Person Process Context Time

SUDs-Substance Use Disorders

NAS-Neonatal Abstinence Syndrome

UNODC-United Nations Office on Drug and Crime

PME-Prenatal Methamphetamine Exposure

PAE-Prenatal Alcohol Exposure

CNS-Central Nervous System

ADHD-Attention Deficit Hyperactivity Disorder

HPCSA-Health Professional Council of South Africa

HSSREC-Human and Social Sciences Research Ethics Committee

CHAPTER ONE

INTRODUCTION

1 Background

Substance use during pregnancy is one of the challenges affecting pregnant women globally, as indicated by the extremely high, daily cumulative prevalence rates worldwide (Vythilingum, Roos, Faure, Geerts & Stein, 2012). Substance use results in physiological and psychological effects on both the mother and infant. A study conducted in the United States showed that tobacco, alcohol, pregnant women (Forray, 2016) commonly use cannabis and illicit substances. Substance use treatment relapses estimated to be over 60% (McLellan, Lewis & O'Brien, 2002). Another study by Amaro and Black (2017) further revealed that the majority of women with Substance Use Disorders continue taking substances throughout pregnancy due to treatment relapse. About 36.9% of pregnant women self-reported the use of alcohol during pregnancy in the Cape Metropole in South Africa (Petersen-Williams, Jordaan, Mathews, Lombard & Parry, 2014). According to Petersen-Williams et al., (2014) through a urine screening analysis, the Midwife Obstetric Unit (MOU) in Cape Town reported a high usage of crystal methamphetamine among pregnant women in 2014. Methamphetamine is commonly known as 'tik' in the Western Cape Province (Petersen-Williams et al., 2014).

Furthermore, the commonly used substances in the Western Cape province include alcohol, cigarettes, Hookah pipe and methamphetamine (South African Community Epidemiology Network on Drug Use, 2015). A study conducted in 1999 in the Cape Metropole evidently found that 42.8% of pregnant women consume alcohol during pregnancy (Croxford & Viljoen, 1999). However, a study conducted 12 years later by Jones, Browne, Myers, Carney, Ellerson, Kline and Wechsberg (2011) shows that 88.5% of pregnant women in Cape Town drink alcohol during pregnancy. The same study also revealed that the minimum intake of alcohol is two to four times per week in Cape Town and about 46.2% of pregnant women were

found to be within this range. Steyn, Yach, Stander, and Fourie (1997) observed that 21% of pregnant women continue with cigarette smoking during pregnancy, with this group being predominantly coloured women.

The use of methamphetamine has increased dramatically in South Africa from 1% in 2002 to 51% in 2006, with significantly more pronounced use in Cape Town and the nearby townships (Dyk, 2011). Peltzer and Ramlagan, (2010) reported that from 2008 the use of methamphetamine has increased from 1% to 2.2% in the Western Cape Province. According to Peltzer and Phaswana-Mafuya (2018), substance use is increasing with various drug administration methods such as injection use, which also increases risk for Human Immunodeficiency.

Regardless of the harmful effects associated with substance use, the South African National Drug Master Plan (2013-2017) still reports a sustained increase in substance distribution and illegal drug use in the Western Cape (Couzyn & Howell, 2015). The prevalence of Foetal Alcohol Spectrum Disorder (FASD) in the Western Cape is greater than in other provinces in South Africa, signifying a high rate of alcohol use during pregnancy in this region (Olivier, Urban, Chersich, Temmerman & Viljoen., 2013).

The South African Community Epidemiology Network on Drug Use (SACENDU) shows that in 2015 there was a shift from high methamphetamine use to cannabis as the primary substance used in the Western Cape Province (Dada, Erasmus, Burnhams, Parry, Bhana, Timol & Weimann, 2016). However, the most shocking aspect is that methamphetamine and cannabis use is extremely high among pregnant women when compared to non-pregnant women and young adults below the age of 20 years (Petersen-Williams et al., 2014).

1.1 The rationale for the study

Few descriptive studies clarify the factors that are linked to substance use among pregnant women (Amaro, Fried, Cabral, & Zuckerman, 1990; Berenson, Stiglich, Wilkinson, & Anderson, 1991; Gillmore, Butler, Lohr, & Gilchrist, 1992; Lindgren, 2001 & Thomas, Waxmonsky, Gabow, Flanders-McGinnis, Socherman, & Rost, 2005). According to Peltzer and Ramlagan (2009), the rate of substance use among pregnant women is higher in the township and urban areas compared to the rural areas. However, Cunningham, Leveno, Bloom, Spong, and Dashe (2014) are of the opinion that the leading factors contributing to substance use among pregnant women in the Cape Metropolitan are race, marital status, and unemployment. Therefore, the current study aims to explore these contributing factors for substance use among pregnant women by using a descriptive analysis aspect of the study findings. Dyk (2011) indicates that the use of substances is amplified by temporary satisfaction and desired effect. This shows that there are many amplifying factors that are not fully explored within the substance use field. Data collection interaction with participants also gives rise to various perceptions regarding substance use. Conducting the current study plays a significant role in adding to qualitative studies regarding the phenomenon at hand.

Substance use during pregnancy has dangerous side effects that are harmful to both mother and infant (Briggs, Freeman & Yaffe, 2012). A study done by Zabaneh, Smith, LaGasse, Derauf, Newman, Shah, Arria, Huestis, Haning, Strauss and Grotta(2012) shows substance use during pregnancy causes hypertension and placental abnormalities which affect the development of the foetus. The infant may suffer long-lasting effects such as eye defects, delayed motor development and learning impairments (Zabaneh et al., 2012). Despite the general factors that have an influence on substance use, little is known about the factors that are linked to substance use in pregnant women. The World Drug Report (2016) shows that women who are using substances are more likely than men, to be stigmatised and prone to

developing mental health disorders. The current study should increase the knowledge of substance use among pregnant women within the South African context and of substance use in general.

This study also endeavors to generate new knowledge regarding substance use. In addition, the study provides an honest reality of what happens in the world of expectant mothers that use substances.

1.2 Aims and Objectives

The aim of the proposed study is to explore and build knowledge about substance use among pregnant women. The study seeks to understand the level of knowledge that pregnant women have about the risks associated with substance use during pregnancy, as well as outlining the preventative measures applied to pregnant women who use substances. The specific objectives of the study are as follows:

- To explore the factors that influence substance use among pregnant women in Cape Town.
- To understand the level of knowledge that pregnant women have concerning the dangers of using substances during pregnancy.
- To describe the preventive measures that pregnant women try to implement to refrain from substance use.
- To explore the experiences of women who went through substance use interventions during pregnancy.

1.3 Research questions

The following research questions were developed to obtain the required information:

- What factors influence the use of substances among pregnant women at a centre in Cape

Town?

- What is the level of knowledge that pregnant women have concerning the dangers of using substances during pregnancy?
- What are the preventive measures that pregnant women try to implement to refrain from substance use?
- What are the experiences of women who went through substance use interventions during pregnancy?

1.4 Conceptual definitions

- **Substance addiction**

The definition of substance addiction is itself a matter of controversy. However, key features that identify substance addiction include neither physiological tolerance nor physical withdrawal (Goodman, 2001). Goodman (1990) gave further definition of addiction; "Addiction may be defined as a process whereby a behaviour, that can function both to produce pleasure and to provide relief from internal discomfort, is employed in a pattern characterized by (1) recurrent failure to control the behaviour (powerlessness) and (2) continuation of the behaviour despite significant negative consequences unmanageability)".

- **Antenatal care**

Antenatal care is a health control routine that pregnant women g through with a medical aim of screening, presumed healthy checkups in order to diagnose diseases or complications regarding obstetric conditions and to provide information about healthy lifestyle and delivery (Backe, Pay, Klovning & Sand, 2016).

- **Bio-ecological system theory**

Bio-ecological systems theory suggest that environment have an influence on individuals development within the context of the complex system and the relationships that individuals and structures form (Ceci, Rosenblum, de Bruyn & Lee, 1997).

- **Maternal lifestyle**

Maternal lifestyle refers to characteristics during and before pregnancy and perinatal factors such as physical activity, smoking and alcohol consumption during and after pregnancy that play an important role in the health, development, and Body Mass Index status of the offspring in the future (Mizutani, Suzuki, Kondo & Yamagata, 2007; Mourtakos, Tambalis, Panagiotakos, Antonogeorgos, Arnaoutis, Karteroliotis & Sidossis, 2015).

- **Methamphetamine *'tik'***

Methamphetamine is 'a powerful, highly addictive stimulant that affects the central nervous system. Also known as meth, chalk, ice, and crystal, among many other terms, it takes the form of a white, odorless, bitter-tasting crystalline powder that easily dissolves in water or alcohol (Volkow, Chang, Wang, Fowler, Ding, Sedler, Logan, Franceschi, Gatley, Hitzemann & Gifford, 2001)'.

- **Pregnancy**

Pregnancy refers to a period where the offspring or the foetus develops inside a woman (Hasan, Rahman, Locks, Rahman, Hore, Saqeeb, Khan & Ahmed, 2018).

- **Prenatal development**

Prenatal development refers to a process which the embryo develops inside the mother's womb to a full-term baby (Lin, Lim, Wu, Teh, Chen, Aris, Soh, Tint, MacIsaac, Morin & Yap, 2017).

- **Substance use**

Substance use refers to the consumption of substances either alcohol, taking drugs and etc (Card, Armstrong, Carter, ZCui, Wang, Zhu, Lachowsky, Moore, Hogg & Roth, 2018).

1.5 Structure of thesis

The thesis is outlined in seven chapters, namely: introduction, theoretical framework, literature review, methodology, results, discussion of results and conclusion.

Chapter one – Introduction

This chapter provides a background to the study by outlining some of the main aspects of the factors associated with substance use among pregnant women. The chapter also includes the problem statement and rationale of the study. Lastly, the aim and objectives of the study are described briefly.

Chapter two – Theoretical Framework

This chapter consists of the theory that guided the study, i.e. the bio-ecological theoretical framework by Urie Bronfenbrenner. The origin of the theory, the application of the theory and the aspects of the theory are detailed in chapter two.

Chapter three – Literature Review

This chapter presents a review of the body of literature relevant to the topic of this research study and considers empirical studies on substance use. The focused review attempts to provide an academic rationale for the study by highlighting gaps in the literature.

Chapter four – Methodology

The method implemented in the study is described in this chapter. The research design, participant selection, procedure, data collection and analysis, reflexivity and, very importantly, the ethics guidelines followed in the execution of the study, are reported on. The aim of this

chapter is to provide a process account of the methodological decisions made and to report on the rigor with which those decisions have been executed.

Chapter five – Results

This chapter presents results in which the findings of the study are reported relative to the methodology employed. The themes derived from thematic analysis, using Braun and Clarke's (2006) approach, are presented with illustrative quotes.

Chapter six – Discussion of the results and conclusion

The last chapter discusses results in relation to other arguments presented in the literature review. Each theme is relating to the literature reviewed, as well as the bio-ecological theoretical framework. The chapter will further outline a summary of the study in relation to its stated aims and objectives. The chapter also summarises the limitations acknowledged, as well as recommendations made for future research and the significance of the study.

CHAPTER TWO

THEORETICAL FRAMEWORK

2 Introduction

This chapter explains the structure that holds, supports and guides the development of the study. Sinclair (2007) describes the term theoretical framework as a travel map which consists of the elements that explain the problem being explored in the study. The chapter explains the bio-ecological theoretical framework as the theory that is used to outline the logical structure of the study. The bio-ecological theoretical framework by theorist Urie Bronfenbrenner is highlighted and discussed. According to Basford and Slevin (1999), a theoretical framework is a basis for understanding the phenomenon within the context of a particular study. A detailed discussion of the research problem is presented in this chapter which concludes by bringing the knowledge of the theory into alignment with the phenomenon under study.

2.1 A brief explanation of the bio-ecological theoretical framework

In tracing the evolution of Bronfenbrenner's theory, the theory was initially known as the ecological theory and evolved into the newly renamed bio-ecological theory. According to Bruno, Stachowicz and Bertness (2003), ecologists view the natural world as the structure of conflicts and interactions that constantly evolve from time to time. The currently known bio-ecological theory includes the immediate interaction setting, considers the life of a developing person in larger social contexts and considers both the formal and informal dimensions of life (Bronfenbrenner, 1977). The ecological system theory formed part of the major informal discussion from the 1970's to the 1980's until it was formally published (Bronfenbrenner & Morris, 2006). Throughout the examination of the theory, Bronfenbrenner proceeds to explore

other elemental factors that are influential in human development. In 1986, the ecological theory was renamed to bio-ecological systems theory (Bronfenbrenner & Morris, 1998).

Bronfenbrenner's main influence in developing the ecological systems theory was from one of the great psychologists and teachers, Lev Vygotsky, who is the founder of the social learning theory, published around the 1920's. The theory was structured within the context of learned behaviours from the social content. Kurt Lewin, the founder of modern social psychology (Greathouse, 1997), played another strong influential role in bio-ecological system theory. Bronfenbrenner and Ceci to bring about the theoretical framework of the bio-ecological Person Process Context Time (PPCT) model (Bronfenbrenner & Ceci, 1994) restructured the bio-ecological system theory.

The bio-ecological theory looks into the environmental influential aspects in individual behaviour. These aspects are defined by the conflicts that arise within the environment, and the relations formed with various dimensions such as societies and families. The theory also includes a model entitled Person Process Context and Time. The model illustrates the interlinking between an individual's developmental processes, the current life content and the era of development, which affect a person's behaviours within the ecosystem. The bio-ecological theory best suits this study as it creates greater exploration in the eco-systems from the relationships formed within families to national trends. In addition, the theory highlights the role played by human surroundings on the behaviours that humans display. For example, an expecting mother can continue smoking simply because it is a behaviour she grew up observing, and is generally acceptable within her specific society.

2.2 Bio-ecological theoretical framework conceptualisation

Research findings indicate the increasing prevalence of substance use among pregnant women, with one out of four pregnant women reporting the use of substances during pregnancy (Havens, Simmons, Shannon & Hansen, 2009). It is clear that there are increasing influential factors that are associated with substance use during the pregnancy period. The bio-ecological theoretical framework gives a broader view of what is occurring in (internal) and outside (external) the situations that are considered influential (Coady & Lehmann, 2016). The theory evaluates the various influential factors, both internal and external, that drive substance uses among pregnant women. The internal influences refer to the factors within families and the environment in which they spend most of their time. The external factors reflect the incidents that are indirect but still influence individuals' behaviours. Some of the external drives include parental conflicts and unemployment (Havens et al, 2009).

The bio-ecology system is based on the interaction induced by the influences on every element in the systems level. In our day-to-day life, influential elements can be either the people surrounding us, stressors or other interactive elements within the environment. The same applies to pregnant women; the difficult situations they experience during pregnancy, the social support system as well as the area where they reside, have a great influence on the likelihood of substance use during their pregnancy. The reciprocal influences of substance use in a situation are categorised in various 'levels'.

Coady and Lehmann (2016) indicate that the bio-ecological theoretical framework incorporates various concepts that include social support, stress and coping perspectives. The component of social support among pregnant women reduces the chances of substance use or its continuation. It appears that the more women experience positive social support during pregnancy, the less the chances are of substance use. Women who develop poor coping mechanisms when stressed, such as drinking alcohol or taking any substance, regardless of

pregnancy condition, also influence substance use during pregnancy. Pregnant women are therefore easily affected by the influential components within the ecology system.

Ecosystem concepts have drawn the attention of many researchers and are frequently used to communicate and understand societal dependence on interaction within the ecological life (Daily, 1997; De Groot, Wilson & Boumans, 2002). Bronfenbrenner was a consummate developmental scientist who laid the groundwork for understanding the dynamics of relationships throughout integrated human development within the bio-ecological system (Bronfenbrenner, 2005).

This theory explains how individual developmental processes influence the interactions within the environment. The theory brings the propositions of functioning into play, which include proposition one and proposition two. The first proposition is induced by progressive, active interaction between an active evolving bio-psychological human organism and objects within the ecosystem, which include the immediate external environment. Bronfenbrenner describes a proposition as the domination of enduring proximal process. The joint functioning characterised by both the environment and the individual developing process causes the second proposition. The enduring relationship within the environment consists of both the immediate situations within the bio-ecological system and situations influenced by other environmental stimuli (Bronfenbrenner, 1999).

2.2.1 Person

In the bio-ecological system theory, a person is defined by the biological makeup structure as well as by various personal characteristics that individuals portray in social situations (Bronfenbrenner, 1995; Bronfenbrenner & Morris, 1998). A person's functioning is based on three specific characteristics, namely: demand, resources, and force. Human behaviour is directed to the fulfillment and satisfaction of those needs. Personal demands are

explained as ‘personal stimuli’, which are dominated by the physical, such as appearance. The resource characteristics include material needs and experiences and the skills that a person possesses. Finally, the force is an uncontrollable characteristic, which consists of motivation, persistence, and aspects over which a person has no control (Tudge, Mokrova, Hatfield & Karnik, 2009). Access to resources and various exposures clearly have a huge impact on human development. It can take a change of the environment to change a person’s character, however, much about individuals change in based on what Bronfenbrenner refer as PPCT model.

The PPCT model explains the person-concept based on the physical abilities of those participating in activities. The components of the PPCT model identified ‘person’ behaviour as an inclusive physical appearance and personal experience (Renn, 2000). Some of the characteristics that individuals possess, such as background knowledge and skills, have an influence on the adoption or continuation of certain compulsions. Findings in a study by Renn (2003) highlight person characteristics as a limiting or enabling factor for engaging in some activities. For example, for an individual to engage in running activities, the body needs to be active and healthy. Thus, there would be limitations on a person who does not have an active body. Another aspect of the ‘person’ component is knowledge and propensity (Renn, 2000). A person, who has never seen a cigarette before and does not know how to smoke, would not have the propensity to engage in smoking. The whole concept of person can, therefore, be summarised as an individual domain.

2.2.2 Process

The process is the element that brings the connection between similar contexts such as an individual and culture (Bronfenbrenner & Crouter, 1983). Bronfenbrenner’s PPCT model became the core of the bio-ecological system theory after other scholars studied developmental processes as the influential factors on behaviour (Bronfenbrenner, 2005; Bronfenbrenner &

Evans, 2000; Bronfenbrenner & Morris, 2006). Tudge et al. (2009) further indicate that process in the PPCT model is viewed as the 'primary mechanism'for development. Development is the result of the progressive interaction of an individual and bio-ecological systems level. However, the theorists present a general aspect of development without differentiating between affirmative and detrimental development. The theory holds that human development is enhanced by the process of propositions and complex reciprocal interaction within the level of the bio-ecological system theory. The proposition process is about actions occurring within the system and the reciprocal interaction is characterised by the exchange and mingling of similar behaviour (Tudge et al., 2009). Renn (2003) used an ecology model to conceptualise the study that was aimed at understanding the identities of mixed race students. The study results indicated that certain characteristics instigate compliance with processes of developmental induction. The propensity and willingness to form part of activities predispose individuals to adopt or learn certain habits or behaviours. To understand the process concept of the PPCT model, the current study results could confirm whether group engagement processes form part of the influential factors for substance use.

2.2.3 Context

Bronfenbrenner explains the context as the environment that individuals live in, which is further broken into the bio-ecological systems levels, namely: microsystems, mesosystems, exosystems, macrosystems and the chronosystems level. The experiences and the interaction within different bio-ecological systems levels play a major influential role in peoples' development (Tudge et al., 2009). For example, a person who smokes two cigarettes a day could increase smoking to three cigarettes a day, based on their prior smoking experiences. Their peers who consume more cigarettes per day might subjectively influence this. Experience plays an important role in how people perceive content or in the perception of content and

interaction with other persons/individuals in that environment. Hence, the bio-ecological system and the interaction process define the context.

Content generally concerns the systems level, which includes all the levels from the micro to the chronosystem. The environment is the view as a whole, consisting of the current trends and styles that influence people to engage in certain practices. However, the perception of situations and elements in the context keep changing, based on the indefinite continued progress of existence and the knowledge available. For example, engaging in alcohol drinking can be perceived as acceptable by a certain group of people influenced by the resultant effect of alcohol consumption as being beneficial to relieving stress, but could later perceive another substance as being more effective in relieving stress. The result is that a shift in context occurs, for example from alcohol to cocaine.

2.2.4 Time

Time is one of the influential factors in human behaviour and development and is divided into different sub-factors that include microtime, mesotime, and macrotime (Bronfenbrenner & Morris, 1998). Microtime is referred to as the current period of interaction between an individual and the environment. Mesotime is the consistency of the activity or interaction and lastly, macrotime describes the history linked to specific behaviour or phenomena of the study (Tudge et al., 2009). According to Renn (2003), the macrosystem shift changes the population in various spheres, which include interaction among the population, cultural norms, childbearing and other elements that make up the way of life. The time concept affects the way generations experience life. This means that the life experiences of people who lived 50 years prior to the present time can have difficulty in accepting current living styles due to the time concept. There is a concurrent change in individual lifespan and lifestyle

influenced by time. Education also has an interlinked influence with time, as history has a significant impact on human behaviour.

The component of time covers aspects such as chronological age, duration, and periodicity nature (Krishnan, 2010). The moral impacts of life decrease as time progresses, hence age has an impact on the component. Activities that people used to fear most at a younger age become more manageable as they age. For example, a person who used to fear taking drugs might become indifferent to the influence of drugs in early adulthood. The bio-ecological theory gives an insight into the environment and the biological component that has an effect on human behavior in relation to time. Bronfenbrenner is the first theorist who looked at the biological factors as the predisposition to an individual's behaviour (Krishnan, 2010). The PPCT model confirms that development is a totality of interconnection among people, activities, engagement and environmental influence. The whole environment shapes human behaviour.

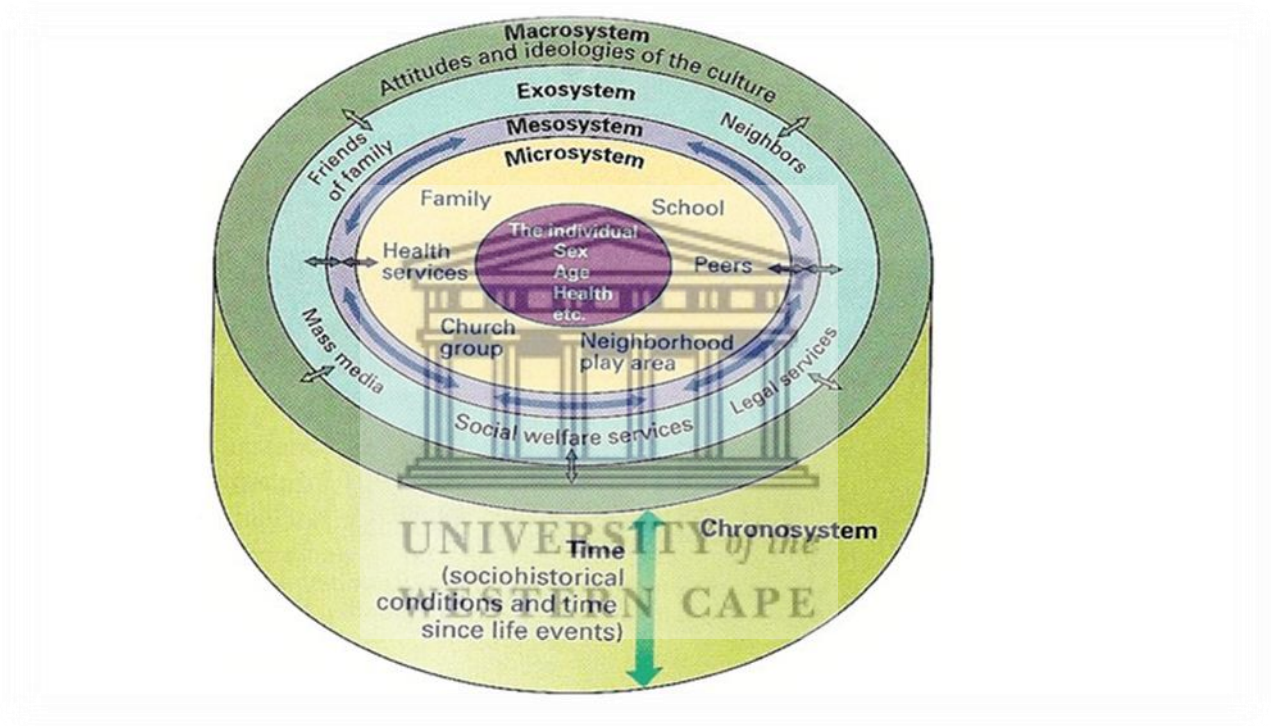
The microsystem level demographic and the socio-economic status have significant effects (Krishnan, 2010). Factors, including one's employment status and financial income, are internal components that influence substance use among expectant women (Krishnan, 2010). These factors also indicate that married women are less likely to engage in substance use during pregnancy. However, Kuo, Schonbrun, Zlotnick, Bates, Todorova, and Johnson (2013) argue that marriage does not carry weight in terms of happiness but that a satisfying relationship is more important.

2.3 Contextual Influences on Development

Based on the bio-ecological system theory, an individual's development is affected either positively or negatively by the existential environment. Therefore, Bronfenbrenner categorises various environments into five levels: the microsystem, the mesosystem, the

exosystem, the macrosystem, and the chronosystem. All these levels play an influential role in one's behaviour and adaptation. Bronfenbrenner and Ceci (1994) describe the environment as the existential structure that surrounds individuals like a nest. The figure below shows Bronfenbrenner's model which will be integrated into the discussion of contextualising influence on development.

Figure 2.1: Bronfenbrenner's Bio-ecological model



2.3.1 Microsystems level

The first level of Bronfenbrenner's theory is the microsystem; this level describes the immediate living environment in which individuals have direct contact with day-to-day life. The relationship that individuals form and rely on for existence is covered by the micro- system level. This describes the relationship where a close family member or peers have an influence on how another individual perceives certain behaviour as being acceptable or not. The microsystem includes the environment that contains an individual's participation in a particular activity (Bronfenbrenner & Ceci, 1994),

Some of the developmental virtues at this level are individual growth in trust in the people surrounding him or her, such as family (Florence, 2014); dependence and reliance on a family support (Dew, Dozier & Elifson, 2007) and susceptibility to peer influence (Uberg, Luo & Degirmendolga, 2003). Development of a healthy personality is nurtured within this level. However, because the focus by Bronfenbrenner, when conceptualising, was on children, it becomes at times more difficult than is at first appears to apply the same concept to adults. For example, whereas a child might be easily influenced, the same is not the case with adults. Christensen (2010) stresses the same point, indicating that adults are co-constructors of the environmental settings that influence them.

DeHaan and Trageton (2001) are of the opinion that the association between peer attachment and substance use is partly the result of lack of recreational facilities and consequent boredom amongst the seventh and eighth graders in their study. Using bio-ecological theory, Mason, Cheung, and Walker (2004) explored the impact of physical and social characteristics on substance use and other mental disorders in children in a selected neighborhood. They found that these and, more specifically, the meanings that adolescents attach to activities in these settings, are strong predictors of substance use.

2.3.2 Mesosystems level

This second level is marked by the interaction between an individual and microsystem aspects such as the home environment. Bronfenbrenner and Morris (2006) summarised the mesosystem as the interaction between two or more microsystems. This interaction is influenced by the various kinds of relationships that a person forms with other people. The mesosystem of pregnant women includes the relationships that expectant mothers have with their partners, as well as the friendship cycle in the surrounding environment. These kinds of interactions and relationships have a high indirect impact on the life and decision of an

individual, as, for example, the stressful relationship between a pregnant woman and a responsible father. Ouimette, Kimerling, Shaw and Moos (2000) confirm that pregnant women who use substances are mainly influenced by life trauma that they experience, such as emotional abuse from their partners. Covington (2008) supports this with evidence that shows that the majority of women who use substances have previously experienced abuse either from their partners or during childhood development. Mesosystem level is where individuals develop independence in their day-to-day life (Berk, 2000). Conversely, failure to successfully progress through this stage leads to dependence on other people or compulsive habits such as reliance on substances.

The pressure that individuals experience from different structures because of the interaction with these structures is categorised as the mesosystem level (Lopez, 2000). The interaction among components that result in an influential factor on one's behaviour can be stimulated by their area of residence. As an example, a pregnant student who goes to a university where most students take substances is more likely to take substances herself regardless of being pregnant. The interaction with other students taking substances and pregnancy status can be driven by the fear of rejection in the same structure. Hong, Huang, and Kim (2011) indicate that the relationship and interaction among family and peers also have a strong influence on substance use.

2.3.3 Exosystems level

The exosystem level covers the environment that affects individuals indirectly; the individuals might not be the direct subject of the circumstances, but they also get affected. Steinberg, Darling, and Fletcher (1995) define the exosystem level as a relationship-enhancing development in an individual. This includes the situation and the behaviour of other people in the surrounding environment. The linkage between two or more settings (Bronfenbrenner,

1993) indirectly influences the developing person. An example would be a husband's workplace conflicts making his pregnant wife the fear that the situation might cause her husband to lose his job and affect their future, particularly the ability to care and provide for the unborn baby.

2.3.4 Macrosystems level

The macrosystem shell consists of the societal customs, lifestyle and cultural beliefs as the influential factors in individuals' lives (Bronfenbrenner, 1994). This system level has a greater influence on the way people portray their relations with others, as well as holding the threads of life. Bronfenbrenner (1977) attaches great value to the studies that explore the way the environment influences the relationships among individuals, rather than the studies that compare cultural differences based on the various individuals' characters.

The laws and regulations of a country also have an impact on the macrosystem level. South Africa has a high rate of prevalence of substance use compared to other African countries and this prevalence includes the high statistics of pregnant women who use substances (Vythilingum et al., 2012). With this in mind, one might assume that South African regulations of substance use are ineffective. An increase in substance use is also influenced by country factors such as demographic and economic variables (Flisher, Parry, Evans, Muller & Lombard, 2003). Pregnant women who live in a country that has strict regulations on substance use during pregnancy would obviously have a very low chance of taking substances during the pregnancy.

2.3.5 Chronosystems level

The outer shell that covers all the levels is the chronosystem; it is the final parameter of the system. This shell consists of interconnections within all the systems levels. The

chronosystem level emphasises the effects of time on human development, which can be referred to as the existential period. Time also plays an influential part in human development as it includes various factors in the surrounding environment. Various temporary dimensions are included within the yolk-shell of bio-ecological system theory.

2.4 Application of the bio-ecological theoretical framework

This section presents various studies conceptualised in line with Bronfenbrenner's theory. The application section discussed consists of few studies sharing the phenomena explored in the current study because little has been investigated using the bio-ecological theoretical framework. Fellow researchers have used the bio-ecological theory to expose different environmental influential factors.

The bio-ecological theoretical framework has uncovered a great deal of successful evidence in the studies on substance use within society (Dishion & Skaggs, 2000; Dishion, Capaldi & Yoerger, 1999). The theory has been used in both international and local studies. However, few local studies used the bio-ecological theoretical framework. One of the advantages of using this framework is that it has a broader content with subdivided elements indicating influential aspects of development.

In South Africa, a study indicated that the bio-ecological theoretical framework can be used to explore the perceived individual and contextual factors that impact on adolescent substance use (Florence, 2014). The study clearly indicates the factors that play an influential role in each bio-ecological system level, namely: microsystem, mesosystem, exosystem, chronosystem and macrosystem in relation to substance use among adolescents.

Dishion and Skaggs (2000) used the bio-ecological theoretical framework to study monthly substance-use outbursts in adolescents. The study included various levels that influence child development; the relationship that the adolescent has with the parents at home,

as well as the peers that the children spend time with at school. The study found that the surroundings and interaction systems have high levels of influence on substance intake. In the bio-ecological theory, Bronfenbrenner categorised these influential factors under the microsystem level and Dishion and Skaggs (2002) relate microsystem factors to peer influence.

The more the adolescent interacts with fellow peers, who use substances, the more he or she is pressured to engage in substance use. The study found peer exposure and parental stress as the two aspects that have a huge influence on children's involvement in using substances. According to Bronfenbrenner's system of categorisation of environmental influences, parental stress that results in adolescent substance use falls within the exosystem. Another study conducted by Dishion, Capldi, and Yoerger (1999) entitled; *Middle childhood antecedents to progressions in male adolescents' substance use* used the bio-ecological theoretical framework to analyse the study findings. The study indicates a setting such as a home as having an influential role in adolescents' behavioural characteristics. Family discipline level, parents' monitoring, and peer environmental factors increase the adolescents' likelihood of engaging in substance use. The study findings were also evidenced by Hawkins' (1992) findings; that the parental norms are one of the most crucial factors in adolescent substance use. One of the meso-environmental systems levels emphasised the study is parental stress. The more adolescents witness parents' negative stress response, the more they find reasons to engage in substance use (Dishion, Capldi &Yoerger, 1999). Through the bio-ecological theoretical framework, the study clearly outlined the findings.

Araujo and Davids (2009) used the bio-ecological theory to understand and conceptualise sport and exercise behaviour. The study explored how individuals perceive exercise and sports engagement. Sports adaptation can be viewed lightly from the outside, but Araujo and David (2009) indicate that adaptation in sports is influenced by various factors. Barker (1987) caught the attention of sports psychologists with his application of the bio-

ecological theory to sports activities. Sports psychologists thus started showing interest in the bio-ecological theory as well as applying Bronfenbrenner's theory, which highlighted individual environmental influences. Sallis and Owen (2002); Sallis, Cervero, Ascher, Henderson, Kraft and Kerr (2006) applied the bio-ecological theory to individual sports content clearly outlining the person's environmental interactions and the dynamics of sports performance. Araujo and Davids' (2009) study showed how the bio-ecological theory is applicable to environmental influencing factors that people face in daily life.

There are many researchers who have used the bio-ecological theory but few who have used the PPCT model for conceptualisation. However, researchers paid inadequate attention to this in the current study phenomenon. The above studies convincingly showed how the bio-ecological theory could be used to conceptualise research centered environmental influencing factors. One of the reasons why the bio-ecological theory is applicable in various studies is its broad perspective of environmental systems. The theory obtained a view on how people interact as far as how the environment influences one's behaviour. One can wholly agree that the theory has been thoroughly unpacked and studies that have been conceptualised through this theory should bring informed study results.

This theory is relevant to guide the present study, considering that it covers various cumulative aspects of the current study. The current study aims to explore the factors that are associated with substance use during pregnancy. Interpersonal, social or environmental influences and the bio-ecological system theory are broad enough to include all the environmental factors in relation to human behaviour. The Process-Person-Context-Time (PPCT), model and different systems levels within the theory allow the study to focus on influential factors at a deeper level. The bio-ecological system theory enriches the level of understanding in an explorative study. The theory arrangement allows the factors to be

categorised into sub-levels as defined by the system level. Furthermore, the theory brings an understanding of the environmental content as a whole, which consists of interactions.

2.5 Application of the bio-ecological theoretical framework in the current study

Bronfenbrenner does not view the environment as a general human developmental influence. However, the theory examines influential factors based on where the interaction occurs, how the interaction occurs and lastly includes when the interaction occurred. Through the bio-ecological theoretical framework, researchers are able to explore factors at all levels of human interaction. The environmental levels are complex and play a major role in human life. The decisions and the behaviour individuals' exhibit are shaped by the influential factors within our surroundings.

The bio-ecological theoretical framework the study finding to be categorised based on the systems level. Brendtro (2006) indicated that the behaviour reflects transactions within the systems level. The first objective of this study was to explore the factors that influence substance use among pregnant women, with the system level classification of Bronfenbrenner's theory. It creates a clear understanding of the factors that could be found. In addition, the individual domains and the theory model create a detailed understanding of human responses to environmental stimuli.

The second objective of the study looked at the level of knowledge pregnant women have concerning the dangers of using substances during pregnancy. The used theoretical framework outlined the linkage within the ecological systems level as the source of knowledge to the participants. Tudge et al. (1997) and Cole (1979) further pointed out that the bio-ecological theory conveys an understanding of human development through the descriptive nature of the ecological environment.

The bio-ecological theoretical framework also assisted in understanding the nature of interactions whereby pregnant women prevent and implement measures to refrain from substance use. This supports the description of the experiences of women who went through substance use interventions during pregnancy, through the acknowledgment of aspects of all fields of human development, ranging from how individuals feel in the 'individual domain' to the feelings and experiences imposed on them in the other ecological system levels. Brendtro (2006) and Bronfenbrenner (1979) convey that bio-ecological theory looks into all aspects of human development by tying together the core context of the development from the individual domain to the chronosystem level.

In short, the bio-ecological system theory gives an outlook on human development in association with the influencing factors in the environment and clearly separates the various influencing factors. It offers a unique dimension to the environmental influential factors in categories of levels, namely: microsystem, mesosystem, exosystem, chronosystem, and macrosystem. The bio-ecological theory looks at an interesting model titled Process-Person-Context-Time (PPCT), which sums up individual responses to the environmental influential factors. The PPCT model brings a clear categorisation of the environmental systems level that are influential to human development.

2.6 Conclusion

The theoretical framework of the study looked into the bio-ecological theory extensively to evade misinterpretation of the theory. Bio-ecological theory has evolved insightfully in understanding how the environment predisposes human development. Therefore, Bronfenbrenner's publications are exhausted in the conceptualisation of the current study. Tudge et al. (2009) describe Bronfenbrenner as a self-reflective theorist, due to his acknowledgment of the nature of evolution. Hence, Bronfenbrenner updated the theory, which

makes the bio-ecological theory more applicable to the current study. The theory addresses current environmental factors that align with the present lifestyle. Using the bio-ecological theoretical framework could bring understanding of the relevant factors associated with substance use among pregnant women.

The literature is reviewed in the following chapter, with other researchers' findings that are related to the study phenomenon.

CHAPTER THREE

LITERATURE REVIEW

3 Introduction

This chapter aims to provide a synopsis of the literature on substance use among pregnant women and the applicable aspects in relation to the research questions. The chapter consists of two main aspects namely; reviewed literature on substance use and the contextualisation of substance use in relation to the bio-ecological theory. It further outlines the effects of substance use during pregnancy and preventative measures that pregnant women can implement as a way to refrain from substances.

3.1 Substance use in South Africa

Adequate data concerning substance use in South Africa were limited until several cross-sectional studies about substance use started to be conducted in the late 1990's (Van Heerden, Grimsrud, Seedat, Myer, Williams & Stein, 2009). The statistics reported showed a significant increase in substance use admissions in health facilities ranging from 39% to 45% (Gilfillan, Dannatt, Stein & Vythilingum, 2018). Lussier, Heil, Mongeon, Badger, and Higgins (2006) further cited that substance use disorders (SUDs) among pregnant women has been increasing over the years. A particular indication of substance use during pregnancy is marked by the resultant neonatal abstinence syndrome (NAS) and other disorders caused by prenatal substance exposure, which is screened during delivery (Hwang, Diop, Liu, Yu, Babakhanlou-Chase, Cui & Kotelchuck, 2017).

Initiation of multiple national surveys regarding substance use began to receive more focus and one of the initiators was the South African Community Epidemiology Network on Drug Use (SACENDU) project (Parry, 1998). The SACENDU projects investigate patterns of substance use across nine provinces in South Africa (Northern Cape, Eastern Cape, Free State,

Western Cape, Limpopo, North West, KwaZulu-Natal, Mpumalanga & Gauteng). Various studies and projects have been established on substance use due to the dramatic increase of substance related problems (Megranahan, Lynskey, 2018; Acheson, Vincent, Cohoon & Lovallo, 2018). An observation shows that there is a rapid increase in substance use among pregnant women (Grant, Graham, Carlini, Ernst, & Brown, 2018). Rome, Rybicki and Durant (1998) indicated that most pregnant women engage in risky behaviours, such as alcohol consumption and taking substances during pregnancy, as validated by the problem-behaviour theory.

Interpol listed South Africa as the fourth leading country dominated by cannabis use (Gastrow, 2003). Foetal Alcohol Syndrome Disorder (FASD) (2003) showed that South Africa was rated highest in world FASD statistics with the rate in the Western Cape ranging from 43.8 % to 89.2% in 1000 people (Viljoen, Gossage, Brooke, Adnams, Jones, Robinson, Hoyme, Snell, Khaole, Kodituwakku & Asante, 2005). The United Nations Office on Drugs and Crime (UNODC) in 2012 reported South Africa to be the central hub for drug trafficking dominated by drug transactions, compared to other Southern African countries. SACENDU investigated the prevalence of substance use across the nine provinces of South Africa, and publishes reports every six months. It is tragic that in all the reports from SACENDU the substance use statistics continue to increase, including among pregnant women. The report findings confirm the influential factors insubstance use among pregnant women to be cumulative. According to Ockene, Zapka, Pbert, Goins and Stoddard (2002), regardless of the harmful effects of maternal substance use, pregnant women continue to use substances during pregnancy.

In the Eastern Cape Province, young adults below 20 years are actively using methamphetamine compared to the other substances (Lutchman, 2015). Looking at the South African reports it is evident that substance use is a major crisis in the country. One of the leading substances that are most prevalent among pregnant women in the Western Cape

Province is methamphetamine. In the study conducted by Morris and Parry (2006) the prevalence of methamphetamine use among pregnant women was found to be high. Kapp (2000), in a study aimed at investigating South African health challenges, further confirmed the dominance of methamphetamine use in the Western Cape Province. The concurrence shown by both studies on methamphetamine use among pregnant women indicates a generational trend in substance use. Many unanswered questions regarding the motivation for substance use during pregnancy arise as the pattern continues to increase. Wechsberg, Luseno and Lam (2005) stress the need to address unplanned pregnancies among coloured and black women because of the continuation in substance use during pregnancy. This might help in addressing the epidemic of drug use among women of childbearing age that Cape Town is facing. According to Everett-Murphy, Steyn, Mathews, Petersen, Odendaal, Gwebushe and Lombard (2010), substance use was found to be more prevalent among pregnant women in comparison to non-pregnant women.

According to Bulletin of the World Health Organization (2011), Riley, Infante and Warren (2011) the most common birth defects are Foetal Alcohol Spectrum Disorders (FASD) affecting one million South African infants including Alcohol-Related Neurodevelopmental Disorder (ARND), Partial Foetal Alcoholic Syndrome (PFAS) and Foetal Alcoholic Syndrome (FAS). The Western Cape Province in South Africa is reported to have the highest prevalence of 13.5% to 20.8% of children diagnosed with FASD, 9.1% to 10.0% with FAS and 4.7% of children diagnosed with ARND (May, Blankenship, Marais, Gossage, Kalberg, Barnard, Vries, Robinson, Adnams, Buckley & Manning, 2013; Olivier, Urban, Chersich, Temmerman & Viljoen, 2013).

Eaton, Kalichman, Sikkema, Skinner, Watt, Pieterse and Pitpitan (2012) further support the perception that foetal alcohol syndrome is an epidemic across the country, particularly in the townships of the Western Cape Province. Alcohol consumption has become a popular habit

and seems to be a normal pastime in the Western Cape townships. As a result, most of the pregnant women in the province also engage in substance use regardless of the pregnancy period.

FASD prevalence is evidence that shows alcohol consumption among expectant women in the Western Cape Province. Wine growing regions in the Western Cape Province have the highest number of FASD victims (Petersen Williams et al., 2014). Clinics and hospitals around the Western Cape report a high rate of babies born with prenatal substance use symptoms (Mtyala, 2008). A study conducted in 2006, investigating methamphetamine use among pregnant women, evidently found that out of 100 pregnant women, 10 reported methamphetamine use during pregnancy. It was also revealed that between 10% and 15% of those pregnant women admitted to cigarette smoking. An Everett-Murphy et al. (2010) study reports that 49% to 55% of women clearly admit to alcohol consumption during pregnancy. However, interventions for childbearing age women who are dependent on substances are still very low (Myers & Parry, 2005; Stein, Seedat, Herman, Heeringa, Moomal, Myer & Williams, 2007).

O'Connor, Tomlinson, LeRoux, Stewart, Greco and Rotheram-Borus (2011) indicate that most South African women who drink alcohol show the likelihood of being cigarette smokers as well. May et al. (2005) further indicate that most of the alcohol consuming women have more than one sexual partner and that the majority of their sexual partners have mistreated them in their relationships. This mistreatment is characterised by emotional and physical abuse. Eaton et al. (2012) indicate that the lives of alcohol drinking women are risky compared to women who do not engage in any form of substance use.

Although substance use during pregnancy is a dilemma in South Africa, recent data on the statistical figures of substance use during pregnancy is very limited. The majority of the

statistical reports outline substance use prevalence across the country without specifying use among pregnant women.

3.2 Conceptualising substance use among pregnant women

Various issues such as complex interactions of multiple factors, which include individual attributes, and interaction within different structures (Hackers & Hayes, 2017) influence substance use during pregnancy. The individual domain factors are discussed presenting individual responses and experiences (Marmot & Bell, 2009). The interactions among different structure include all systems level (microsystem, mesosystem, exosystem, macrosystem & chronosystem) discussed in Bronfenbrenner theory also have an input in substance use. Eaton et al. (2012) further cited that life experiences of pregnant women form part of the influencing factors contributing to substance use during pregnancy.

South African pregnant women residing in poor communities rarely seek medical attention during pregnancy and, as a result, these pregnant women have inadequate health knowledge concerning pregnancy care (Wechsberg et al., 2005). Myer and Harrison (2003) further indicated that inadequate health knowledge regarding pregnancy predisposes pregnant women into risky sexual behaviours. However, Wechsberg, Jones, Zule, Myers, Browne, Kaufman and Parry (2010) show that pregnant women who use substances are reluctant to seek help from the healthcare centre due to the fear of being stigmatised. This fear is induced by their concern regarding health practitioner's perceptions after disclosing their personal issues.

There are, however, women who disclose their substances use challenges when they go for antenatal care check-up (Everett-Murphy et al., 2010). The majority of pregnant women using substances fear the disclosure of their status due to their likely rejection of their environment (Uziel-Miller & Dresner, 2002). As a result, most pregnant women deny and project substance use acts as effects of everyday life challenges (Uziel-Miller & Dresner,

2002). Most studies show that pregnant women who use substances hardly open up about mental health-related issues, which might be another reason for not seeking professional help (Friguls, Joya, Garcia-Serra, Gómez-Culebras, Pichini, Martinez & Garcia-Algar, 2012; Lester, Tronick, LaGasse, Seifer, Bauer, Shankaran, Bada, Wright, Smerigli, Loretta & Finnegan, 2002). Fear of seeking help becomes a personal domain that restricts pregnant women from seeking professional help even during traumatic experiences (Sorsa, 2018).

Personal response to trauma exposure during pregnancy is a personal factor since it differs from one person to the other. Living a stressful life and being exposed to trauma during pregnancy is one of the factors that Hamad, Fernald, Karlan, and Zinman (2008) explained as a major contributor to substance use among pregnant women. Another study indicated that most women who use substances have a history of abuse from their intimate partners and suffer from substance addiction (Covington, 2008).

Mostly women who are addicted to substances reports going through traumatic experiences that include sexual, emotional and physical abuse (Ouimette et al., 2000). The Gender Responsive services further indicated that interventions for women who use substances should adopt women centred approach, acknowledging women psychosocial needs (Grella 1999; Grella, Joshi, Hser, 2000; Orwin, Francisco & Bernichon, 2001). The following section will explore levels within bio-ecological theory namely; microsystem, mesosystem, exosystem, macrosystem and chronosystem with respect to the literature.

3.2.1 Microsystem level

Microsystem level in the bio-ecological theory *(see chapter two),* is described as the immediate environmental factors that affect individuals directly (Bronfenbrenner & Ceci, 1994).

Existing relationships formed with people who use substances and the continuous attendance of functions that offer substances as alcohol; perpetuate pregnant women into substance use during pregnancy (Eaton et al., 2012). Formed relationships result in the direct interaction among individuals within the ecosystem, which is described as the microsystem level. Blieszner (2014) cited that the feeling of belonging is one of the protective factors when it comes to maternal lifestyle. However, other researchers have different reviews such as maternal age.

Pregnant women between the ages of 18 and 25 years are more likely to engage in substance use compared to other maternal age groups (Harris, Duncan & Boisjoly, 2002). However, Bull and Shlay (2005) argue that substance use during pregnancy depends on the mother's desire to maintain the pregnancy, and not necessarily on the maternal age. Based on the opinions of the above researchers' maternal lifestyle remains a concrete issue regarding pregnancy and substance use. The more pregnant women desire to maintain their pregnancy the more they refrain from any form of substance uses that can interfere with prenatal development (Buehler, 2018; Wallen & Gleason, 2018). However, it does not only end with maternal lifestyle since other close relationships play a protective and supportive role during this period (Corneau, 2018).

Marital relationships can also influence substance use during pregnancy (Bauer, Shankaran, Bada, Lester, Wright, Krause-Steinrauf, Heidi, Krause-Steinrauf, Vincent, Smeriglio, Loretta, Finnegan, Penelope, Maza, & Verter, 2002). Among pregnant women, single pregnant women use substances more frequently compared to married pregnant women (Grant, Graham, Carlini, Ernst & Brown, 2018). However, Kuo et al. (2013) argue that the lack of a satisfying romantic relationship during pregnancy is one of the principal causes of substance use. Whyte (2018) further supported that people can be married but it does not always mean that they have a satisfying romantic relationship.

Chu, (2018) expressed that despite the marital status, a satisfying romantic relationship remains a core factor that safeguards pregnant women from any form of danger during pregnancy. Havens, Simmons, Shannon and Hansen (2009) further showed that women who are not married are likely to use substances as a way to cope with loneliness and other stressors experienced during pregnancy. As a result, taking substances becomes their coping mechanism during pregnancy. Hatcher, Woollett, Pallitto and Garcia-Moreno (2018) explain emotional support during pregnancy as an essential element.

The support and love that pregnant women receive from their spouses play a significant role in refraining from engaging in unhealthy coping mechanisms during pregnancy (Duncan, Wilkerson, England, 2006; Heaman & Chalmers, 2005). Pregnant women who have supportive and loving partners are less likely to use substances during pregnancy. Similarly, Hamad, Fernald, Karlan and Zinman (2008) identified the critical role of supportive partners during pregnancy, indicates that pregnant women, who have supportive partners, have less chance of engaging in substance use during pregnancy.

Zhao, McCauley and Sheeran (2017) differs with other researchers and reported that childbearing age (20 to the early 30 years) is more likely to be the age associated with an increased rate of substance use during pregnancy and that a marital relationship is not a determinant of substance use. Livingston, Raninen, Slade, Swift, Lloyd and Dietze (2016) further supported that substance use among women who are almost 30 years of age, is more likely to increase based on the friendship cycle and sexual partners that pregnant women maintain their relationships and friendships with a continuation of common acts such as smoking cigarette together or sharing other substances.

3.2.2 Mesosystem level

According to Bronfenbrenner and Morris (2006), mesosystem level focuses on the interaction between two structures or environments. The interaction between structures, such as antenatal care structures, has a significant effect on pregnant women's responses to substances during their pregnancy Bronfenbrenner (1995) discussed this level as a companion of the different interaction of the various microsystems.

Educational attainment is a factor that Hamad et al. (2008) indicate as a role in substance use among pregnant women. Educational institutions become a connecting layer of different structures such as home and academic environment. Hamad et al. (2008) further explained that pregnant women with lower educational attainment are more vulnerable to substance use compared to those with higher educational attainment. Educational attainment enhances health risk awareness, which might directly or indirectly influence the misuse of substances (Stalker, Wu, Evans, Smokowski, 2018; Akos & Galassi, 2008).

Hacker and Hayes (2017) reported that people who are educated are likely to live better, healthier lives, have greater life satisfaction and have higher interpersonal trust compared to those who are uneducated. Educational attainment is, therefore, an example within the mesosystem since it affects pregnant women indirectly. Gubhaju, Rodgers, Butterworth, Strazdins and Davidson (2016) elaborate that educational structures provide psychological support that helps to contain some of the life stressors that influence people to use substances as a coping method.

Some of these life stressors keep compiling due to the stigma that is attached to seeking help (Shechtman, Vogel, Strass & Heath, 2018). According to WHO (2001), only 25% of individuals facing mental health challenges break the barrier of suffering in silence. The following section will conceptualise ecosystem level in respect to substance use during pregnancy.

3.2.3 Exosystem level

The exosystem level is another layer within the ecosystem that has an influence on individual development and exposure to various behaviours (Bronfenbrenner & Morris, 2006). This level can also have an influence on substance use among pregnant women. Steinberg, Darling and Fletcher (1995) indicated that the value of this level is growth enhancement and that the surrounding structures, such as society, must play a positive role in this growth enhancement. This indicates that societies that lack positive reinforcement can encourage unhealthy habits among pregnant women within the environment of that particular geographical location.

Geographical location is the larger social system that has an indirect influence on individual functioning. The World Drug Report (2016) shows a high correlation between substance use and the geographical location where certain populations reside. The specific locations that are known for high drug prevalence are linked to high rates of substance abuse amongst women, including those who are pregnant (Dada et al., 2016). Similarly, Arria, Derauf, LaGasse, Grant, Shah, Smith, Haning, Huestis, Strauss, Della, Grotta and Liu (2006) further indicate that social-geographic characteristics have an effect on maternal lifestyle during pregnancy. Moreover, pregnant women located in demographic areas dominated by the use of alcohol, tobacco and other drugs usually progress into substance use during pregnancy (Latuskie, Andrews, Motz, Leibson, Austin, Ito & Pepler, 2018).

Abbott and Payne (2018) also explained social-geographic elements as a cause of increased prevalence of substance use among pregnant. According to Aldridge, Stevens and Barratt (2018), the substance dominance varies based on countries and substance availability within certain areas. A study conducted in the United States that examined the prevalence and correlation of substance use during pregnancy in 2008, showed cigarettes as the most prevalent substance, with frequency overall use of 10%. In South Africa, particularly Western Cape

province binge drinking (alcohol) subculture among childbearing-aged women is a rating between 35–50% with increasing alcohol consumption on Fridays and Saturdays (May, Gossage, Brooke, Snell, Marais, Hendricks, Croxford & Viljoen, 2005).

The Western Cape Province is comprised of more township regions compared to rural settlements (Kalichman, Simbayi, Vermaak, Jooste & Cain, 2008). Townships are known for a high number of illegal alcohol businesses and the same applies to the Western Cape Townships, where there are many informal drinking establishments that encourage substance use (Kalichman, Simbayi, Jooste & Cain, 2007).

3.2.4 Macrosystem level

The macrosystem level includes the way the country as a whole is run, as well as the norms, ethical practices, laws and challenges that the country faces (Diezmann, 2018). In respect of all the factors associated with substance use during pregnancy, there is a commonality across different societies that drive the major cause of all behavioural practices.

One of the factors increasing substance use among pregnant women is unemployment. Havens et al. (2008) agree that the rate of unemployed pregnant women who use substances is high compared to pregnant women who are employed. Carpenter (2007) who indicates that substance restrictions on employees during working hours play a major role in workplace health behaviour further supports this. As a result, most employees, including pregnant employees, are discouraged from taking substances. Another study-highlighted unemployment as a significant predictor of substance use during pregnancy, including a study that investigated factors associated with substance use during pregnancy in the United States (Havens et al., 2009).

Looking at the influence of unemployment on substance use, one might easily say employment is a protective factor against substance use among pregnant women. Low income

and low living standards make women vulnerable to substances more particularly during pregnancy (Hamad et al., 2008). The literature on unemployment effects raises conjecture, taking into account the increased rate of unemployment in South Africa, on the incidence and prevalence of prenatal substance exposure. Lutchman (2015) indicates that the majority of women of childbearing age are unemployed and SACENDU (2001) further indicates that this group of women is at high risk of using illicit drugs. The SACENDU statistics reflect a higher number of female patients who use methamphetamine, heroin and cocaine compared to the number of male patients in substance use treatment centers. However, alcohol abuse is more prevalent amongst male patients. Findings from the above data indicate that it should be noted that the majority of both male and female patients were found to be unemployed (Havens et al., 2009).

3.2.5 Chronosystem level

The chronosystem level focusses on the periodic time and history of incidents that occurred in the past and still influence the current lifestyle (Berk, 2000).

The history of substance use increases the continuation of substance intake during pregnancy (Latuskie et al., 2018). Many pregnant women who started using substances before their pregnancy will continue with substance use even after they become pregnant (Jones et al., 2010). In contrast, Myer and Harrison (2003) state that pregnant women with a history of substance use before pregnancy intend to stop using substances but, due to a lack of treatment and inadequate information concerning their health, they continue to do so. However, Bauer et al. (2002) argue that maternal lifestyle has a huge impact on either the continuation due to chronic alcohol consumption.

According to Misri (2018), occasional use of stimulants, such as cocaine and amphetamine, can eventually progress to chronic consumption and stimulant use disorders that

can have serious consequences. A history of substance use is further linked to the continuous progression of substance use that can later develop into addiction. The substance use progression is fuelled by the occasional use of substances that can become frequent over time (Herbeck, Brecht & Lovinger, 2015).

Eaton et al. (2012) present another perspective of substance use among coloured (mixed racial ancestry and Afrikaans-speaking) pregnant women in the Western Cape Province, indicating that substance use is historically influenced by the 'dop' system, which refers to workers being paid for their labour by receiving alcohol. The 'dop' system increased alcohol intake during pregnancy and became an acceptable act since pregnant women received alcohol as a work reward during that time together with the other workers.

McKinstry (2005) is one of the researchers who agree that heavy drinking among the Western Cape women was, and still is, influenced by the 'dop' system. The 'dop' system has existed for hundreds of years as a form of compensation between wine farms and the employees in the Wineland regions. Pregnant women working in the Wineland regions continued drinking wine as it was their form of payment. Crome and Glass (2000) confirm that the current heavy drinking patterns among Cape Town township women are deeply rooted in the 'dop' system era.

As a result, even in today's generation, black and coloured women in the Western Cape Province are still actively taking substances. Similarly, Wechsberg et al. (2005) show that black (Xhosa) and coloured women residing in the townships of the Western Cape Province are highly influenced by South African social history and structure. Jones et al., (2011) indicate that if substance use remains untreated among pregnant women this might result in substance dependence with increasing detrimental consequences to both the mother and infant.

3.3 Effects of substance use during pregnancy

World Health Organization and World Health Organization Management of Substance Abuse Unit (2014) reported that there are various health-related consequences that are linked to taking substances during pregnancy. Bauer, Shankaran, Bada, Lester, Wright, Krause-Steinrauf, Krause-Steinrauf, Vincent, Smeriglio, Finnegan, Maza, and Verter (2002) also support that substance use during pregnancy is associated with many medical conditions. Exposure to various substances leads to developmental deficits of the foetus and puts the mother's health at risk (Kwiatkowski, Roos, Stein, Thomas & Donald, 2014). Kwiatkowski et al. (2014) further support the submission that risk factors for the mother and the babies can be either short-term or long-term, depending on the level of exposure.

Children born to substance using mothers tend to suffer the consequences throughout their lives due to maternal teratogens such as alcohol. There are many long-term and short-term resultants associated with substance use during pregnancy. Some of the consequences include intrauterine growth retardation (Obeney-Williams, Azhar, Wright, Bayly, Theron & Turjanski, 2014). Other results show effects that disturb the child's developmental growth throughout childhood (Costello, Mustillo, Erkanli, Keeler & Angold, 2003).

In addition, the infants can suffer from long-term implications that manifest in brain functioning after several years, mainly in school performance and activities. The cognitive deficits in later developmental stages include difficulties with decision making, judgment, planning and mental flexibility (Lester, Tronick, LaGasse, Seifer, Bauer, Shankaran, Bada, Wright, Smerigli, Loretta & Finnegan, 2002). The outcomes of prenatal substance exposure vary, based on the different substances that the expectant mother uses during pregnancy, with some of the substances having similar outcomes on both the mother and the infant. There is little information or long-term studies that investigate the consequences of prenatal substance exposure throughout the lifespan of the affected infants. Studies have shown a rapid increase

in the neonatal resultants of Substance Use Disorders among pregnant women (Behnke, Smith, 2013; Hwang et al., 2017; Andres & Day, 2000).

Most pregnant women who use substances have a strong likelihood of developing Major Depressive Disorders (Fitzsimons, Tuten, Vaidya, Jones, 2007; Martin, Arria, Fischer, Kaltenbach, Heil, Stine & Jones, 2009). Hence risk factors for substance use during pregnancy go beyond the duration of pregnancy to the postpartum period, and to health complications such as placental abruption (Pinto, Pagnamenta, Klei, Anney, Merico, Regan, Conroy, Magalhaes, Correia, Abrahams & Almeida, 2010) to psychological conditions that include depression (Kurki, Hiilesmaa, Raitasalo, Mattila & Ylikorkala, 2000). Lindahl (2005) linked substance use with a high probability of committing suicide during pregnancy. There following section will have linked different substances and its effects on both the mother and the child.

3.3.1 Methamphetamine 'tik' and its effects

There is a high increase in methamphetamine exposure during prenatal development (LaGasse, Derauf, Smith, Newman, Shah, Neal, Arria, Huestis, DellaGrotta, Lin & Dansereau, 2012). According to Kwiatkowski et al., (2014), PME is associated with functioning deficits that include memory, visual-motor integration and concentration levels. The United Nations Office on Drugs and Crime (2010) report an increased prevalence of Prenatal Methamphetamine Exposure with significant harmful consequences experienced by infants and children. Methamphetamine is one of the drugs that cause stimulation in the functioning of the central nervous system (CNS). Methamphetamine has significant effects on the foetal development due to the vaso-constrictive effect of decreased utero-placental blood flow and foetal hypoxia (Golub, Costa, Crofton, Frank, Fried, Gladen, Henderson, Liebelt, Lusskin, Marty, Rowland, 2005; Won, Bubula, McCoy & Heller, 2001). As a result, prenatal

methamphetamine exposure has a harmful effect on the developing neural circuitry of the foetus.

PME interferes with foetal development, thereby affecting the neurological functioning (Abar, LaGasse, Wouldes, Derauf, Newman, Shah, Smith,Arria, Huestis, DellaGrotta, Dansereau, 2014; Nguyen, Smith, LaGasse, Derauf, Grant, Shah, Arria, Huestis, Haning, Strauss & Grotta, 2010). There is a high prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among children exposed to prenatal methamphetamine (Foley, 2014). Some of the children exposed to methamphetamine during prenatal development succumb to learning disorders and struggle to control their level of aggression. The effects of methamphetamine exposure affect different levels of functioning in a child's development throughout his or her lifespan. Billing, Erikson, Larsson and Zetterström (1980) indicate that drowsiness and lethargy are some of the symptoms observed in the first few months in infants who have been exposed to methamphetamine. The characteristics of autism and speech impediments may begin to manifest after a year of the exposure (Bacon, Courchesne, Barnes, Cha, Pence, Schreibman, Stahmer & Pierce, 2018).

There is still a gap in long-term studies investigating the effects of PME on psychosocial and physiological development throughout the human lifespan. The existing literature focuses more on the infancy stage deficits of PME.

3.3.2 Cigarette and its effects

Cigarettes smoking is one of the most commonly used substances among pregnant women, especially in the Western Cape Province (Myers, Koen, Donald, Nhapi, Workman, Barnett, Hoffman, Koopowitz, Zar & Stein, 2018). Unfortunately, cigarette smoking during pregnancy is strongly linked to prenatal complications and poor neonatal outcomes (Kelly, 2018). Smoking of cigarettes during pregnancy negatively affects both the mother and the

infant, the negative effects on the placenta includes placenta abruption and placenta previa (Cnattigius, 2004). Another effect of cigarette smoking is among pregnant women is increasing the likelihood of pregnancy miscarriage (Fergusson et al., 1998). The National Centre for Chronic Disease Prevention and Health Promotion (2001) further relates that a higher risk of premature birth is influenced by cigarette smoking during pregnancy. Prenatal cigarette exposure also increases the risk of stillbirth (Froen, Arnestad, Frey, Vege, Saugstad, & Stray-Pedersen, 2001).

3.3.3 Alcohol and its effects

One of the most common resultants of alcohol exposure on the developing foetus is Foetal Alcohol Syndrome Disorder (FASD). Symptoms characterising FASD include pre and post-natal growth retardation, physical deformity usually of the face, and central nervous system malfunction (Chiriboga, 2003). Longitudinal studies investigating the effects of perinatal exposure throughout the lifespan of children indicate that prenatal alcohol exposure is associated with alcohol disorders that manifest during early adulthood (Alati, Mamun, Williams, O'Callaghan, Najman & Bor, 2006). Credé, Sinanovic, Adnams and London (2011) further indicate the negative impact of FASD on the economy and health systems of the Western Cape.

Alcohol exposure during pregnancy results in physical and neurological developmental deficits in the infants (Mattson, Crocker, Nguyen, 2011; Lynch, Kable & Coles, 2017). Another effect of prenatal alcohol exposure is either secondary disabilities, which manifest over the period of development, physiologically or intellectually (Streissguth, Barr, Kogan & Bookstein, 1996). Lynch et al. (2017) convey that prenatal alcohol exposure is further evident in early adulthood. Mental health problems are one of the common resultants that manifest in early adulthood due to PAE (Lynch et al., 2015).

Irvine, Flynn, Libby, Crombie and Evans (2010) indicated that substance use among pregnant women continues to increase regardless of the awareness of the harmful effects of taking substances during pregnancy. According Ostapowicz, Watson, Locarnini and Desmond (1998), one of the effects of consuming alcohol during pregnancy is increasing in chronic hepatitis among women. Ostapowicz, Watson, Locarnini and Desmond (1998) further cited that alcohol consummation increases the risk developing liver diseases.

3.3.4 Cocaine and its effects

Cocaine exposure during prenatal development causes stillbirth and high neonatal death rates (Croxford & Viljoen, 1999). Infants exposed to maternal cocaine use suffer from effects such as lower arousal, lower regulation and higher excitability (Lester et al., 2002). Cocaine is one of the substances that have many consequences, the majority of which have significant effects on the mother such as placenta abruption, which is similar to the effects of cigarette smoking during pregnancy (Oyelese & Ananth, 2006). Similar to the effects of cigarette smoking during pregnancy, prenatal exposure to cocaine can lead to stillbirth as well as increasing the chances of premature birth (Bennett, 1999; Lam, Duthie & Ma, 1992). While prenatal alcohol exposure causes Foetal Alcohol Syndrome (FAS), cocaine exposure on a foetus causes Neonatal Abstinence Syndrome (NAS) (Elliott, Cunliffe, Demianczuk, Robertson, 2004; Greene & Goodman, 2003).

3.4 Support networks

3.4.1 Education about maternal lifestyle

Most pregnant women underestimate the danger of taking substances during pregnancy this is characteristised by the poor practice of maternal lifestyle (Wabuyele, Colby & McMillin, 2018). However, it is also the health practitioners' responsibility to emphasise maternal

lifestyle education and share knowledge about healthy pregnancy living behaviours (Vythilingum et al., 2012). Education about a healthy pregnancy ensures psychologically and physiologically healthy functioning infants. Pregnancy health education is the basic information regarding healthy living during the pregnancy period. Wright, Biya and Chokwe, (2014) remarked that education of pregnant women are one of the weapons that can be used to fight substance use among pregnant women.

Education is an initial element to promote awareness, some of the methods in which healthy pregnancy lifestyle is taught are through verbal education in antenatal clinics and also through the distribution of written information known as leaflets (Crawford, 2018). However, verbal education on substance use-related challenges is not always effective due to the limitations that include ignorance and underestimation of the effects of substance use (Zapp, Buelow, Soutiea, Berkowitz & Dejong, 2018). The effectiveness of verbal education among pregnant women should be an on-going process and include campaigns presented in the promotion of a healthy lifestyle among those who are pregnant and non-pregnant (Zakrzewska, Leeson, Mcluskey & Vickers, 1997). Pregnancy healthy living leaflets that are provided at health facilities are a limitation since the information is not accessible to pregnant women who are illiterate (Nutbeam, 2006). Kravdal (2004) observed that leaflets distributed in the health facilities have made an impact on the reduction of unhealthy habits, such as substance use during pregnancy.

Although most of the pregnancy health information is distributed through leaflets that are usually written in English, this is a disadvantage to illiterate and pregnant women who cannot read English (Nakatani, 2005). The promotion of a healthy pregnancy lifestyle could reduces the high rate of mortality and other dire health effects of using substances during pregnancy (Kravdal, 2004). Unfortunately, few pregnant women benefit from such information, due to poor reading and writing skills (Nutbeam, 2006). Wright et al. (2014)

indicate that health personnel in South Africa take for granted that pregnant women are literate. Another factor under health education, raised by Boswell, Cannon, Aung and Eldridge (2004), includes instructions written in English for pregnant women going for pregnancy check-ups. These women are unable to read English, which leads to failure in being able to follow medical instructions that health practitioners write out. Health leaflets should use more images and simple language to promote healthy living among pregnant women (Parker, 2000; Rosenberg & Chopra, 2015).

With regard to all the preventative factors in reducing poor access to maternal health care services, it is clear that insufficient education, poor health status and poor use of health care services are a serious disadvantage to pregnant women (Nababan, Hasan, Marthias, Dhital, Rahman & Anwar, 2018). Pawlak (2005) also emphasises the need for the provision of basic health information and services among literate and illiterate pregnant women. There is a high need for health information in South Africa; this is shown by the maternal mortality rate among South African women (Wright et al., 2014). Maternal mortality can be reduced by informed health education among pregnant women. The South African Millennium Development Goals Report of 2010 showed that in 2001 there were 369 mortality deaths; in 2010, this had increased to 627 with some death caused by prenatal substance exposure, which clearly indicates a rapid increase of mortality across the years (Statistics South Africa, 2010). Women with low literacy levels were found to be prominent in these mortality figures (Nababan et al., 2018). Wright et al. (2014) conducted a study investigating whether the English-language pregnancy leaflets improved the knowledge of young adult females to maintain their health and prevent complications during pregnancy. The findings showed that English-language leaflets were not effective in improving healthy pregnancy knowledge among young adult females.

3.4.2 Substance use treatment facilities

The government has a legislative obligation to establish at least one substance abuse treatment centre in all nine provinces of South Africa (Lutchman, 2015). However, the public centres established are insufficient, taking into account the population and the costs for substance recovery intervention (Flores, Fuhr, Bayer, Lescano, Thorogood & Simms, 2018). The Constitution of South Africa in Section 27(1) (a) states that it is the right of citizens to have access to free healthcare. This, however, would appear to be highly impractical due to insufficient resources, as is the case with access to substance abuse treatment. According to SACENDU (2000) report in substance use treatment centres across South Africa, the age range of patients undergoing substance abuse treatment is between 27 and 34 years (Lutchman, 2015), which, it is agreed as prolific childbearing age. John, Zhu, Mannelli, Schwartz, Subramaniam and Wu (2018) cited that those childbearing-aged women are also dominating in the prevalence of methamphetamine, heroin and cocaine use.

In the light of the abovementioned information, there is a greater need for treatment interventions among pregnant women who use substances. In the Western Cape Province, the same challenge of insufficient access to substance abuse treatment is encountered. The De Novo Treatment Centre in Kraaifontein has experienced an overwhelming number of patients and, as a result, most of the individuals seeking treatment cannot be admitted (Naidoo, 2007). Admission can take six weeks to five months due to overcrowding at the centre. There is a contradiction between the regulations act that states that there should not be any criteria for admission to the public treatment centres for patients to receive health services and the actual admissions system (Naidoo, 2007). Looking at the current situation of these insufficient health care services one can fully agree that state regulations are not being met. Most of the women of childbearing age are unemployed and, as a result, they cannot afford private sector facilities for substance use intervention, while, on the other hand, the public infrastructures are

overcrowded (Lutchman, 2015). One of the studies conducted in Cape Town indicated the need for comprehensive treatment among black and coloured pregnant women regarding substance use (Jones et al., 2011). Gilfillan, Dannatt, Stein and Vythilingum (2018) highly recommended National Health System actively intervene in substance use matter and suggested obstetric and psychological interventions as some of the strategies that can be helpful.

For the past years, National Health System indicated that have been limited accessibility to substance use treatment facilities (Moore, Mompe & Moy, 2018). Hess, Ouédraogo, Bamba, Wessells, Keith, Faye, Ndiaye, Doudou, and Nielsen (2018) discussed structural barriers in the healthcare services as one of the reasons for inactive antenatal consultations and provision of quality services. Hess et al., (2018) further explained population in health facilities as another reason for quality service provision. One of the factors that seem to be of discouragement to this service is the inconvenient clinic working hours and the long wait to receive medical attention (Westaway, Viljoen, Wessie, McIntyre & Cooper, 1998).

In rural areas, pregnant women fail to access antenatal care due to factors such as transport and having to walk long distances to access a clinic (Larsen & Middelkoop, 1982). Jewkes, Abrahams and Mvo (1998) argue that pregnant women's attitude to antenatal care is the primary reason for not seeking medical attention. In contrast, Jones et al. (2011) indicated that medical care for pregnant women and intervention services regarding substance use should be implemented in healthcare facilities close to populations that show the most need. Jones et al. (2011) further indicated that attitude to medical care is the major barrier to pregnant women accessing medical attention. Jones et al. (2011) stressed that health profession providers should endeavour to reduce stigma and discrimination against pregnant women who use substances during pregnancy and assist the women rather than prejudging them.

3.4.3 Self-prevention measures

When some women fall pregnant, they try their best to implement strategies to refrain from substance use. Some of the preventative measures are unsuccessful and as a result, substance compulsion builds up. The compulsion leads to the continuation of substance use throughout the pregnancy. However, some women refrain from substance use on their own to prevent birth complications concerning the pregnancy (Ebrahim & Gfroerer, 2003). Similarly, Jones et al. (2011) show that there is a a large number of pregnant women who attempt to reduce and stop using substances during the pregnancy but, due to lack of professional intervention, the effort of giving up substance use failures (Jones et al., 2011).

3.5 Conclusion

In conclusion, the factors that influence substance use among pregnant women are driven within the ecosystem. The various bio-ecological systems levels make women vulnerable to substance use during the pregnancy period, where other systems levels serve as protective factors towards substance use, depending on factors in factors within the systems levels. In addition, the environment in which pregnant women live has a significant influence on substance use. Prior studies have shown that the Western Cape Province population experiences growing substance use behaviour among pregnant women, which can be traced to the 'dop' system during apartheid. The explored factors associated with substance use bring the bio-ecological theory by Bronfenbrenner into focus. There is a greater need for the government to intervene strongly in the psychological and medical needs of women who are victims of substance use. The majority of the studies indicate alcohol drinking, methamphetamine and cigarette smoking to be the most common substance use habits, particularly in the Western Cape.

The current chapter explored existing literature in relation to the study; the following chapter discusses the methodological approach adopted in answering the research questions and achieving the research objectives.

CHAPTER FOUR

METHODOLOGY

4 Introduction

The orientation of the study provided in Chapter one is supported by the current chapter that outlines the methodological consideration of this study. The chapter discussed the selected research approach chosen to answer the research questions and achieve the objectives of the study. It consists of sections that discuss the research approach, participants sampling, data collection, analysis method, trustworthiness and reflexivity. The chapter is wrapped up with the presentation of ethical aspects considered throughout the study.

4.1 Research approach

Research approach refers to the plan that the researcher uses in order to conduct and collect data (Bryman, 2016). The purpose of this study was to explore, understand and describe factors associated with substance use among pregnant women utilising a qualitative research approach through an exploratory design. This approach allows detailed and in-depth exploration of the study phenomenon (Denzin, Lincoln, 1994; Leedy & Ormrod, 2005). Babbie and Mouton (2007) described the qualitative approach as 'holistic' and 'naturalistic'. In this study, it is presumed that substance use among pregnant women is interconnected with factors increasing the rapid use of substances.

According to Swinton (2016), qualitative research consists of the social constructionism paradigm that has an emphasis on the socially constructed nature of reality. It records, analyse and attempts to uncover the significance of human behaviour, through meaning, experience and understanding regarding contradictory beliefs, people behaviour and their emotions. Ederies (2017) cited that selecting a qualitative approach is appropriate and suitable for a

researcher who wants to explore understanding and experiences of substance use in a natural setting.

The main reason for selecting a qualitative research approach is due to the limitation of available literature related to substance use among pregnant women. Most studies make use of quantitative approaches for different reasons, but it must be noted that the use of a qualitative approach would cover the explorative study gap of the phenomenon at hand (Wilson, Zimet, Knopf, 2018; Wernette, Plegue, Kahler, Sen & Zlotnick, 2018). The contextual model of this research setting is another factor that influenced the qualitative research approach, bio-ecological theory is contextualised in this study as a way to give a narrative description of the research background and findings.

Burns and Grove (2000) further support that a qualitative study focuses on exploring the way participants perceive the truth and not necessarily the factual objective truth. The current study seeks to explore the factors that play a role in substance use during pregnancy using a qualitative approach. It is holistic as it describes the people within their immediate environment (Polit & Hunger, 1995). The strength of the qualitative approach includes stressing the importance of context in a descriptive and explorative manner (Burns & Grove, 2000).

Terreblanche, Durrheim and Painter (2011) stated that explorative research design gives the researcher a podium to conduct a study without a clear idea of the information regarding the topic. Explorative research enables the researcher to develop a clear research concept (Visagie, 2010). In this study, the researcher gathered the information using semi-structured interviews and developed themes that answered the research questions.

4.2 Participants and sampling

Babbie, Wagner and Zaino (2018) explained sampling as a process of units or participants' selection from a certain population of interest with an aim of getting fair results of the study. In this research study, the participants have been afforded the opportunity to express their experiences within a safe environment. It was done through establishing rapport and provision of a comfortable space. After obtaining informed consent, participants were assisted to complete biographic information form. The biographic information form was used to ensure that all participants involved in the study met the selection criteria. Eleven pregnant women who use substances were selected purposively to participate in the study.

Purposive sampling is a non-probability sampling method, which focuses on the selecting samples or participants based on the subjective judgment of the researcher (Ary, Jacobs & Walker, 2018). Patton (2002) described purpose sampling as a selection element for rich information within the qualitative approach. The purposive sampling is appropriate for exploring in-depth and first-hand experienced phenomena as it answers the study questions (Teddlie & Yu, 2007). Key informants at the Department of Social Development in the selected community identified participants. This Department engages in substance use intervention programmes for substance users in different Cape Town societies. The sample included eleven pregnant women who use substances, regardless of socio-economic background status and race. This implies that pregnant women with a disadvantaged social history, homeless pregnant women as well as any type of pregnant women using any type of substance participated in this qualitative study.

A qualitative study focuses more on the depth of the information rather than the number of the participants (Green & Thorogood, 2018). The sample size validates the truthfulness of the study findings. The age range allows the researcher to explore whether younger women are more prone to substance use during pregnancy as suggested in the literature. The predefined

characteristics provide eligibility criteria for selecting the participants. In this study, the inclusive and exclusive criteria that respond to the study objectives include (Salkind, 2010) the following:

Inclusion criteria for pregnant women:

- The participants must have been pregnant during the data gathering of this study
- Participants must have been using any substances during their pregnancy
- Participants must have been residing in the Cape Town community
- Participants should be able to understand English, Afrikaans or both languages
- Participants must be females aged between 18 and 45 years
- There must be a willingness to participate in the study

Exclusion Criteria for Pregnant women:

- Pregnant women not using substances
- Pregnant women younger than 18 years
- Pregnant women not residing in Cape Town

4.3 Participants' description

Considering the study selection criteria and purposive sampling, this section gives a description of the participants who took part in the current study.

Eleven pregnant women were purposively selected to form part of the study. Their age ranged from 20 to 34 years. Participants were selected irrespective of their educational level, three of the participants ended their educational attainment at primary level and eight of the study participants went up to the secondary level. With regard to their racial affiliation, ten were colored and only one was white. The dominant race in the Western Cape Province is coloured group. According to Cornelissen and Horstmeier (2002), a coloured race is above 54%, which makes the largest racial group. One participant indicated that she was employed

full-time; two participants indicated that they were doing part-time household jobs around their residential area and eight participants were unemployed. These participants were taking different kinds of substance. Five participants were drinking alcohol, seven were smoking cigarettes, seven again was taking methamphetamine, two were smoking dagga, one was using matrix and another was using cannabis. All eleven of them indicated that they were not taking only one substance. They were combining two to three substances, as the majority was either smoking cigarette or drinking alcohol in addition to one or two other substances. The following table 4.1 presents the summary of the participants' description.

Table 4.1: Participants profile

Participant	Race	Age (Y)	Highest Education level	Number of Children	Marital Status	Substances in use	Pregnancy duration
A	Coloured	27	Secondary	2	Single	Cigarette Methamphetamine 'tik'	6 Months
B	Coloured	22	Secondary	1	Single	Dagga Alcohol Cigarette	6 Months
C	Coloured	31	Primary	4	Single	Cigarette Methamphetamine 'tik'	8 Months
D	Coloured	27	Primary	2	Single	Cigarette Methamphetamine 'tik'	6 Months
E	Coloured	27	Secondary	2	Single	Methamphetamine 'tik'	5 Months
F	Coloured	37	Secondary	3	Single	Mandrix	4 Months
G	White	29	Secondary	4	Single	Methamphetamine 'tik'	4 Months
H	Coloured	26	Primary	2	Single	Cigarette Alcohol	3 Months
I	Coloured	22	Secondary	1	Single	Methamphetamine 'tik' Cigarette	6 Months
J	Coloured	20	Primary	1	Single	Methamphetamine 'tik' Cigarette	5 Months
K	Coloured	32	Secondary	3	Married	Alcohol Cigarette Methamphetamine 'tik'	2 Months

4.4 Research setting

Ledford and Gast (2018) refer research setting as the physical, social and cultural setting where the research gathers the data of the study. The study was conducted in the Western Cape Province. The data was collected from the Department of Social Development in Cape Town. Selecting the Department of Social Development was influenced by quick assess of participants within the community. The Department of Social Development focuses on the comprehensive network of social development services assisting vulnerable citizens, empowerment of the poor and paying meticulous attention to citizens with special needs. One of the services they offer is a Substance Abuse Programme. The programme offers supportive counseling and substance use intervention through the social workers within the programme. The department was selected as a research setting to collect data and get in contact with participants who were in the Substance Abuse Programme. It also helped the researcher to get into contact with the participants coming from different areas within Cape Town societies.

Cape Town is located in the Western Cape province of South Africa. In 2011 the, population of Cape Town was counted as 3,740,026 with a growing rate of 2.57% over 10 years (Szymanski, Badri, & Mayosi, 2018). Based on the sustained growth rate, the 2018 estimated population is 3.81 million. Cape Town is reported as one of the most multicultural cities with major destinations for expatriates and immigrants. The ethnic and racial compositions of Cape Town consist of 42.4% coloureds, 38.6% black African, 15.7% whites, 1.4% of Asians or Indians and 1.9% of other races (Szymanski, Badri, & Mayosi, 2018). The Western Cape population is reported by the South Africa census. A census is often construed as the opposite of a sample as its intent is to count everyone in a population rather than a fraction. However, population censuses rely on a sampling frame to count the population. This is the only way to be sure that everyone has been included as otherwise, those not responding would not be followed up on and individuals could be missed. The fundamental premise of a census is that

the population is not known and a new estimate is to be made by the analysis of primary data. The use of a sampling frame is counterintuitive as it suggests that the population size is already known. However, a census is also used to collect attribute data on the individuals in the nation. This process of sampling marks the difference between historical census, which was a house to house process or the product of an imperial decree, and the modern statistical project. The sampling frame used by census is usually an address register. Thus, it is not known if there is anyone resident or how many people there are in each household. Depending on the mode of enumeration, a form is sent to the householder, an enumerator calls, or administrative records for the dwelling are accessed. As a preliminary to the dispatch of forms, census workers will check any address problems on the ground. While it may seem straightforward to use the postal service file for this purpose, this can be out of date and some dwellings may contain a number of independent households. A particular problem is what are termed 'communal establishments' which category includes student residences, religious orders, and homes for the elderly, people in prisons etc. As these are not easily enumerated by a single householder, they are often treated differently and visited by special teams of census workers to ensure they are classified appropriately (Dorrington, Bradshaw, Laubscher & Nannan, 2015). The background of the population in the current research setting was outlined to give an understanding of the society and the rate of growth population in the research areas.

4.5 Data collection

Data collection is defined as a method of gathering and measuring on targeted variables to the researcher to answer research questions and evaluate the outcomes (Solymosi & Bowers, 2018). Semi-structured interviews were used to collect data for the current study. The preference of semi-structured interview method was influenced by its quality of allowing open-ended questions and not restricting participants to express their experience fully on the

phenomena under investigation. The main purpose of choosing semi-structured interviews was to gather in-depth information and to create a path between structured and unstructured interviews. Semi-structured interviews enable the researcher to explore participants' thoughts and feelings, while at the same time allowing participants to engage in the conversational flow of the interview (Bryman, 2017). The researcher probed the participants' responses until the data was saturated. For example, when participants responded that substance use is influenced more by their society, the researcher continues to say tell me more about your society. Data saturation was measured by repetitive information from the participants (Bowen, 2008).

After having explained to the participants the importance of the study and obtained their informed consent, the researcher commenced collecting data. Participants were then required to complete biographic-related questions to validate whether they met the selection criteria to participate in the study. They were expected to answer a series of close-ended questions based on their age, the stage of the pregnancy, the race, the marital status and the types of the substances that were used. These questions were intended to reveal the sampling characteristics of each participant. The marital status and the race questions also highlighted the dominance of certain groups among the sample of pregnant women using substances. The status of pregnancy, on the other hand, gave an indication of the extent to which pregnant women continue taking substances during their pregnancy. The study further used a semi-structured interview guide consisting of open-ended questions aimed at guiding the researcher on questions or aspects to be included during the interview session.

The semi-structured interview guide used during interviews is attached as Appendix D. Appendices are in alphabetical order and have been given descriptive names. Babbie and Mouton (2002) indicate that the semi-structured interview guides convey appropriateness in qualitative studies. The interview guide used in this study enhanced the researcher's preparedness and competency as well as her flexibility during the interview (Cohen & Crabtree,

2006). The guide also allowed the researcher to ask to follow up questions and to probe, based on the given answers, as Mbambo (2014) maintains that the data collection method should satisfy the purpose of the study. The accuracy of collected data was achieved through the successful design and use of the semi-structured interview guide (Abawi, 2013).

4.6 Procedure

Data collection procedure commenced after obtaining ethical approval to undertake the data collection from the participants. It agreed with Guillemin and Gillam's (2004) point of view according to which research study involving humans, specifies that ethical approval should be obtained in order to validate the research integrity and good research practice throughout the study. In the current study, ethical approval was obtained from the Human and Social Sciences Research Ethics Committee (see Appendix E). The study was approved by The Senate Higher Degrees Committee based on the proposal outlining the objectives of the study and the proposed methods to be used to achieve these objectives about the rights of the individuals who formed part of the study. The first two participants meeting the participants' selection criteria were initially used for a pilot study. This pilot study aimed at verifying the questions on the semi-structured interview guide in order to make sure that the questions were simple enough for participants to understand and to give logical responses that would address the research questions. Questions that were not easily understood by participants were rephrased. The pre-test interview sessions were examined to determine whether they met the research objectives, aims and align with the research questions. The question structuring was then reformulated to achieve clearer and more understandable questions that all participants would be able to engage with easily.

Then later, other participants who met the study criteria for data collection were approached in the research setting through the Substance Abuse Programme of the Department

of Social Development. Relevant and key information outlining, in brief, the importance of the study was presented to potential participants (see Information sheet in Appendix A). Those who voluntarily accepted to participate in the study signed informed consent forms (see Appendix B) which contained their agreement declaration, their rights during data collection and the ethics concerning the confidentiality and the respect of their anonymity even after the study. Before they sign the consent forms, they were given the opportunity to ask questions regarding the study (see Appendix B). The participants who willingly accepted to take part in the study were given a biographical questionnaire (see Appendix C) to complete. After completing this questionnaire, the semi-structured interview sessions were conducted. These interviews were audio recorded and transcribed in order to maintain the credibility of the study with regard to analysis. Permission to use the audio recorder was obtained from the participants. Each interview session lasted for 30 minutes to one hour depending on the participants' pace in answering the questions. The researcher made use of an interview guideline (see Appendix D), although questions asked were not limited to the set schedule.

Participants that showed distress in discussing risks of using substances during their pregnancy were referred to the social workers and registered counselors who intervened further. During the interviews, emotional containment was also offered as a way to enable participants to engage and express themselves freely. Data was analysed following the six phases of thematic analysis as recommended by Braun and Clarke (2006).

4.7 Data analysis

Data analysis is explained as the process of arranging and structuring collected data (Chatfield, 2018). The data was analysed using six different steps referred to six phases of thematic analysis proposed by Braun and Clarke (2006). They support that thematic analysis seeks to understand the experiences of participants through six phases of analysis. One of the

advantages of using thematic analysis is to ensure reliability through consistency in the analysis phases (Clarke & Braun, 2018). Analysing perceptions of factors influencing substance use through thematic analysis can reflect various themes that could emerge from varying perceptions that pregnant women have. Thematic analysis enables all the study objectives to be met. Clark and Braun (2013) also propose thematic analysis as an appropriate method to analyse qualitative studies. Many studies have successfully used thematic analysis to interpret and analyse findings (Aronson, 1994; Attride-Stirling, 2001; Boyatzis, 1998; Joffe, Yardle, 2004 & Tuckett, 2005).

The section below discusses the six phases of thematic analysis by Braun and Clarke (2006):

Phase 1: Familiarising self with data

The first phase outlined by Braun and Clarke (2006) requires the researcher to be familiar with the collected data. In this study, to be familiar with the collected data the researcher listened to the audio-recorded interviews twice before starting the transcription. Active engagement with the recorded data was further strengthened during data transcription. The transcription of the interview was made thanks to Microsoft Word and it was complete and verbatim taking into account the flow and every word mentioned during the interview. Where the participant's voice was low, the audio was replayed to get clarity of the content of the interview. According to Braun and Clarke (2006), data transcription helps the researcher to familiarise with the collected data and to have a full understanding of the study content as well as to lay the foundation for the subsequent analysis. In respect of the participant's anonymity, as stated in the research ethics, the transcripts were renamed with alphabetical letters that were linked to the participants' identities. All the transcripts were then merged into one Word document in sequence from participant A to participant K. The transcribed Word document

was then sent to the supervisor together with the audio recordings so that the supervisor could familiarise herself with the data.

Phase 2: Generating initial codes

The second phase of thematic analysis consists of preliminary themes identification. Thematic codes were generated that were intended to provide a guide for the interview conversation. First, the researcher went through all the transcripts (From transcript A to K) and highlighted the codes in the Microsoft Word document. Next, a Google spreadsheet was created with a table of questions one to four and columns titled with participants' descriptions from A to K. Then, the highlighted codes in the Microsoft Word document were typed into the Google spreadsheet. Repetitive codes under each participant were removed from the spreadsheet. The researcher perused all the codes per participant and generated initial codes for similar codes, or codes that describe the same information. The researcher made sure that the codes represented the key information from the participants' transcribed scripts (Kings, 2004). The first questions brought out 122 codes; the second question 79 codes, the third question 52 and the fourth and the last question brought out 39 codes. The combination of codes for all the transcripts per question indicated that there were 292 codes generated from all the participants' responses.

Phase 3: Searching for themes

The third phase is about searching for the themes. All the 292 codes generated during the second phase were grouped into categories according to their similarities. Then, similar codes were clustered together to form the umbrella codes which became themes in the study. For example; brothers, cousins, aunts and mothers were grouped together under a cluster entitled family. From the 292 codes generated from all the participants' responses, 41 themes were generated. Braun and Clarke (2012) summarise this phase as the brackets of clusters for

various codes. It is for this reason, that codes were clustered together with an aim to cover codes that fall into the same category.

Phase 4: Reviewing the themes

The fourth phase is about reviewing themes found in phase three. Closely related themes were reviewed and regrouped again. Then, the researcher re-examined them to identify clear distinctions between them. This phase includes verification of the themes, spotting similarities and merging parallel themes. The themes that were identified were clustered and refined again to the main themes. In sum, from the initial 41 themes that were clustered together, eight themes were generated from all the participants' transcripts to be used in this study.

Phase 5: Defining and naming the themes

The fifth phase is about defining and naming the themes. The potential sub-themes were established from the main themes. The main themes were then given definitions to clarify the essence of each of them. The themes that were developed in the previous phase of the review were then defined and named. Out of eight themes generated during phase four, this phase brought out a total number of five main themes to the current study.

Phase 6: Producing the report

The final phase of Braun and Clarke's (2006) six phases of thematic analysis is the writing of the research report or the research analysis. In this study, this it was based on the interview findings and the themes that emerged from the developed themes. Throughout the different preceding phases of the thematic analysis, the researcher made a research journey. First, she became familiar with the information that participants shared, next she made the process easier by coding the key points of information from the Google spreadsheet, and then, she redefined the codes from the Google spreadsheet and showed five main themes of the results, with sub-themes that emerged under those main themes. The reports from the main

themes and the sub-themes are outlined in the form of tables and diagrams in the following chapter (see chapter five).

4.8 Trustworthiness

Trustworthiness or reliability of this research study was accomplished by considering and making possible the following aspects: credibility, transferability, dependability and conformability, as indicated by Gubba (2004). Equally important, the research findings were maintained neuter without undergoing the researcher's bias (Cohen & Crabtree, 2006). The stability in data analysis was considered to ensure correct analysis (Bowen, 2009 & Li, 2004).

Credibility refers to the truthfulness of the data analysis. To ensure credibility the recorded data was replayed to verify correct transcription. The participants' answers were probed to ensure understanding of their perceptions as mentioned by methodologists (Graneheim, Lundman, 2004; Lincoln & Guba 1985). Prolonged engagement during data collection also ensured credibility (Anney, 2014). Interview sessions were extended to a maximum of an hour, when necessary, to maximise understanding of participants' perceptions and realities.

Transferability is the degree to which the study respondents relate to the same study content (Bitsch, 2005; Tobin & Begley, 2004). To achieve transferability in the current study, a thorough literature revie-w was done and it showed closely related interview findings of various study respondents. Teddlie and Yu (2007) indicate that purposive sampling is also one of the elements that ensure transferability in a qualitative study. Therefore, this study used the purposive sampling to enhance trustworthiness by outlining specific criteria that participants should meet. The biographical questionnaire ensured that participants met the sampling characteristics required in the study.

Dependability measures the degree to which repetition of similar studies would produce similar results (Shenton, 2005). In this study, dependability was achieved by following the study procedures outlined in the proposal and keeping a record of all the processes. Dependability of this study was also achieved by working with two researchers who have conducted research studies within the substance use field. The supervisor allocated to supervise this research had also conducted studies and accomplished Doctor of Philosophy qualification in the same field. Working with a writing coach studying towards Doctor of Philosophy qualification also had a major influence in terms of this study dependability. The coverage of this research was highly increased by working with both informed and qualified researchers.

As a way of achieving stability in this study, participants were allowed to make recommendations and evaluate their responses (Bitsch, 2005). Tobin and Begley (2004) are inclined to agree that conformability is established through interpretation that is not fabricated. Then, in this study, the researcher has observed research standards that helped to reduce bias on the findings. Finally, to ensure conformability in this research study the thematic analysis phases of Braun and Clarke (2006) were strictly followed.

4.9 Reflexivity

According to Holland (1999), reflexivity in qualitative studies plays a major role in understanding and intervening in human relationships during data collection. This is one of the techniques that the researcher maintained from the proposal phase until the finalisation of the research draft. It created awareness of the researcher's reflexivity to validate the ethical practices throughout the study. In this context, during this research project the researcher, a single black South African Venda woman who has never been pregnant and has never used substances, had been assisted by an Afrikaans speaking social worker to collect the data in case of communication problems as the majority of participants were Afrikaans speakers. This was

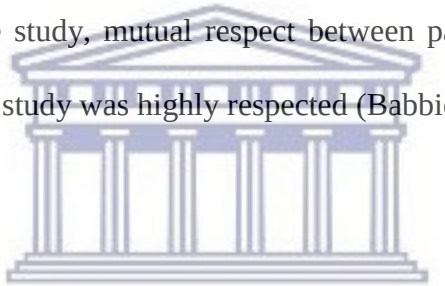
a strategy used to avoid language barrier problems during this process. Nevertheless, the researcher was able to interact actively with people regardless of their substance use background. As a researcher, she avoided her personal beliefs, experiences and perceptions to affect the research findings. Throughout the study, she was aware of the effects that her cultural norms could impose. For example, in her culture smoking by women is taboo. Therefore, her personal feelings throughout the study were consistently discussed with the Social Worker who was assisting her with data collection. According to Caloran (2003), the researcher must be aware of the reflexivity level through self-awareness evaluation. The researcher's feelings toward the research and interaction with participants were written in the journal and discussed during supervision sessions to ensure that no bias was introduced during the processes of data collection and data interpretation.

4.10 Ethical considerations

All ethical procedures pertaining to conduct a qualitative research study were followed in alignment with the Health Professions Council of South Africa (HPCSA) and the University of the Western Cape (UWC) ethical requirements. An approval from the Human and Social Sciences Research Ethics Committee (HSSREC) was obtained before the commencement of the study. The researcher adhered to the principle of informed consent. The HPCSA Ethical Generic Rules (2004) requires that the researcher must inform the participants about the study and give participants the opportunity to ask questions concerning the study. Participants were well informed about the study before signing the consent form (see Appendices A and B).

It was explained to the participants that the study adhered to the voluntary nature of participation and the right of participants to withdraw without any negative consequences. In keeping with the above, participants had the right to withdraw from the study without giving any reason for their withdrawal and were not penalised or questioned in regard to their decision.

Babbie and Mouton (2012) indicate that the researcher should safeguard the information and that the names of participants must be kept anonymous under the research ethics confidentiality and anonymity requirements. To achieve confidentiality and anonymity in the study only the researcher, the data collection assistant and the supervisor had access to data linked to the participant's identity. Collected data was saved on the researcher's personal computer that has a passcode and the hard copies of the signed consent forms were kept confidentially. The study used alphabetic letters as substitutes for participants' actual names. According to Bond (2004), a study should not cause any emotional or physical harm in any way, which includes disclosing participant's identity. Participants that showed the need for psychological interventions were referred to the Cape Town Drug Counselling Centre (CTDCC) within the Department of Social Development. Throughout the study, mutual respect between participants was ensured and willingness to form part of the study was highly respected (Babbie & Rubin, 2005).



CHAPTER FIVE

RESULTS

5 Introduction

This chapter presents the findings of the thematic analysis of the transcribed interviews as well as a brief introduction of the identified themes. Each objective has its own thematic categories that were identified together with sub-themes. They themes are aligned to address the objectives of the study, namely: the influential factors of substance use, the level of knowledge, the preventative measures and lastly, the perceptions of the intervention implications. Extracts from the interviews are presented in order to substantiate and illustrate the themes. The chapter includes the tables and diagrams of thematic categories representing the main themes and the sub-themes that emerged from participants' responses *(see Table 5.1 - 5.6 and Figure 5.1).*

5.1 Research findings

5.1.1 Factors associated with substance use

Various influencing factors associated with substance use among pregnant women were identified and grouped into four main themes, which are; socio-cultural factors, personal factors, emotional response factors and finally romantic relationships factors. The main themes were further sub-divided into sub-themes as reported in Table 5.1 and 5.4.

5.1.1.1 Thematic category: Socio-cultural factors

One of the themes that emerged under the influencing factors is the socio-cultural factors. These factors are represented by the following four sub-themes: social norms, accessibility, limited access to treatment and exposure *(see Table 5.1).*

Table 5.1: Exposition of the socio-cultural factors

Thematic Category	**Sub-themes**
Socio-cultural factors	a) Social norms b) Accessibility c) Limited access to treatment d) Exposure

Social norms: The majority of participants indicated that the use of a substance within their society is a practice that is accepted. In addition, participants highlighted that almost everyone in their society uses or exposed to substances, even young children. The following responses from two of the participants justify the above claim.

> *"In our surrounding it is everywhere, when I go to visit my mom and my sister I don't use it but here it's everywhere. When you hang out with friends that use you do not want to be left out. More especially among our race, coloured people we do use substance.*
>
> *"* ***Participant D***
>
> *"…. even young children are using drugs because it is sold everywhere"* ***Participant K***

Accessibility: Most of the interviewees corroborate the continual use of substance during pregnancy being due to the easy availability of such substances in their respective communities. For example, one of the participants' explicitly stated that:

> *"Dagga is accessible I have a lot of friends who are doing it, they even grow in the yield so it is a very easy way to get it"* ***Participant B***

"It is very available, it is everywhere. Now, it is even more than it used to be before" ***Participant D***

Three participants further states:

"There are many substances around and it does really influence me. I am already an addict you know, I cannot be myself if I do not smoke. However, if there was no a lot of substances maybe the smoking would not be as much. " ***Participant A***

"There is a lot of influence here. Like now, those drug dealers will give on credit because of concurrence in the deal. I think it is because of this concurrence of dealers in this area that encourage us to take substances." ***Participant K***

The last extract indicates how substance users also make substances accessible among themselves through sharing:

"Substances are accessible when I have money but most of the time is through my friends when I find them smoking we continue to smoke together. I hardly use my money out of my pocket to buy substances. If I do not have, I do not and I do not go out of the way for substances. I am not so desperate for smoking. If it is not there it is not and I don't worry" ***Participant C***

Limited access to treatment: Only a small number of pregnant women conveyed that a limited access to both medical and psychological treatment contributes to their continual use of substances throughout pregnancy. The participants' responses show that there is limited access to assistance due to a huge number of people in need of assistance from the substances use programmes and the time it takes to be helped. Some participants support that it is discouraging to seek for help because you have to wait for long at the treatment centres, yet

you are uncertain of receiving assistance even after that long waiting period. Some others view the treatment centres as unhelpful based on their own experience, they assume have not received the treatment that they expected. The following participants' excerpts illustrate this theme:

> *"I think counseling will help me but I'm discouraged because they will be a lot of people there and I will have to wait for hours"* ***Participant I***
>
> *"Basically, there is no help about anything"* ***Participant E***

Exposure: Some of the participants expressed that they relate the use of substance during pregnancy to early exposure to substances from childhood. One of the participants describes that:

> *"... I was still very young when I started smoking both cigarette and dagga. I was influenced by my cousin's long time ago. My aunties are still drinking and they keep sending me for beers"* ***Participant B***

5.1.1.2 Thematic category: Personal factors

After the socio-cultural factors, the following theme that emerged from the interviews is related to personal factors. Four sub-themes: personal choice, unplanned pregnancy, history of substance use and addiction *(see Table 5.2)* constitute its core. The personal factors indicate specific individualized factors that impact on substance use; the environment or the surroundings, family member, friends and society members, do not drive these factors.

Table 5.2: Exposition of the personal factors

Thematic Category	Sub-themes
Personal factors	a) Personal choice b) Unplanned pregnancy c) History of substance use d) Substance addiction

Personal choice: While other interviewees indicated how the socio-cultural environment plays, an influential role on substance use, some others revealed that the use of substance during pregnancy is based on their own personal choice and not necessarily due to socio-cultural factors. The following direct extract from one of the participants states it in a clear way:

> *"... I do not blame her though I blame myself, because being on substances today is not her decision on my behalf. I am not blaming hers because it's my own choices"* ***Participant C***

Participant C further acknowledges that peer influence and her surrounds have also played an influential role however, she blames no one but herself. This clearly indicates that despite the exposure to substances, the participant hold herself accountable for her decision to take substances.

> *"Yes my surrounding has an influence on me and most of my friends. All of us we are now using substances. I started using substances when I was in high school. I did not have children by that time. I stopped but continued using, I stopped for few months again then I do it again. However, I do not blame my friends for using substances it is myself."* ***Participant C***

"I struggle to eat food so I choose to smoke dagga so that I can feel hungry. Even before the pregnancy, I was using it to boost my appetite" ***Participant B***

Unplanned pregnancy: Among the participants, the majority agreed that unplanned pregnancies influenced their substance use. Those who supported this view explained that when they realized that they were pregnant they were stressed and therefore, they have tried to do something to forget their situation:

"When I have found out that I was three months pregnant it made me sad" ***Participant H***

"I spent my first two months of pregnancy taking substances like before because I did not even know that I was pregnant" ***Participant J***

History of substance use: The history of substance uses and addiction impacts on the continual use of substances among some participants. The longer the women have used substances, the harder it will be for them to quit during the pregnancy. The following extract clearly indicates this:

"I have been using drugs for a long time and it is hard for me to stop. I have been using these substances for about 15 years now" ***Participant D***

"I started using substances when I was in high school" ***Participant C***

Substance addiction: In addition, other participants showed how substance use has become part of their behaviour from which they cannot refrain:

"I am into alcohol now and I cannot help it" ***Participant I***

"I am already addicted" ***Participant B***

5.1.1.3 Thematic category: Emotional responses

After the two categories addressed above this section addresses another theme recognizing substance use as the participants' emotional responses to the causes of their major problems, which might be due to pressure, stress or depression of the environment. The emotional responses theme is categorised into two sub-themes, namely: stress relief mechanisms and grief, as shown in Table 5.3.

Table 5.3: Exposition of the emotional responses factors

Thematic Category	Sub-themes
Emotional responses to stressors	a) Stress relief mechanisms b) Grief

Stress relief mechanisms: The majority of pregnant women participating in the study admitted that stress is a key factor influencing them to use substances. They revealed that they use substances when they are stressed and this serves as a way to take their minds off the stressors:

"The major thing for me is stress. There is nothing else besides it. The father of this kid likes stressing me. So, I drink alcohol and smoke most of the times" ***Participant G***

"The time when my mommy was very sick I stopped for a moment but when she passed away it became worse" ***Participant I***

"Dagga makes you think a lot like you think about the past and you laugh and you don't get angry. You laugh all the times". ***Participant B***

Another participant further indicated how she has adopted substance use behaviour in her daily life:

> *"Smoking is normal to me. I cannot think of anything. Drugs are a stress relief. I do not have time to stress; it's why when I am at home I smoke"* ***Participant F***

Grief: The result indicates that some of the pregnant women use substances due to grief over the loss of loved ones, including family members, friends or boyfriends. Some of them mentioned that separation from their loved ones influenced them to use substances, which become a coping mechanism. The following are some of the participants' confessions:

> *"Using substances is influenced by everything I have being through in life from where I stay and all the stress I experience. Everything I have been through with my mom and my mommy's husband. Okay she passed away a few years ago but it still hurts so bad and led me to use substances"* ***Participant C***

> *"It is very much difficult for me. I am all alone because we separated from my boyfriend. It is very much difficult I will not lie. I do not know how I am going to get this baby out. I am not even working. Most of the time I drink to avoid thinking a lot"* ***Participant I***

5.1.1.4 Thematic category: Intimate relationships

The last theme that emerged from factors associated with substance use shows the way intimate relationships have an influence on substance use. The sub-themes included in this theme are abusive relationships and intimate partner influence *(see Table 5.4).* The results showed that there are intimate relationships that are mainly rooted in substance use; taking

substances together becomes a bonding element. However, results further show that it is not all pregnant women that use substances out of free will; some of the pregnant women are forced into substance use by their intimate partners.

Table 5.4: Exposition of the intimate relationships

Thematic Category	Sub-themes
Intimate relationship	a) Abusive relationship b) Intimate partner influence

Abusive relationship: Most of the participants indicated that being in an abusive relationship influenced their use of substances during pregnancy. Some of them have also revealed that their partners force them to take substances regardless of their pregnancies:

> *"Terrible! He is abusive. He is an abusive man. He beats me up with everything he can grab. He is crazy. I have been hospitalized because of him"* ***Participant D***

> *"I am on alcohol and cigarette and I am in an abusive relationship which keeps me into this stuff"* ***Participant H***

Intimate partner influence: Some of the participants admitted that they co-participate in substance use alongside their partners.

> *"My boyfriend and I, we smoke together; every night he goes to buy then we smoke"* ***Participant B***

> *"My boyfriend is also using so both of us we are using substances''* ***Participant C***

5.1.2 The knowledge of substance uses among pregnant women

The second objective of the study was to understand the level of knowledge that pregnant women have regarding substance use during pregnancy.

5.1.2.1 Thematic category: Level of knowledge

The category outlining the results of the second objective is illustrated by the following three sub-themes: awareness of health information, misconceptions and ignorance as presented in Table 5.5.

Table 5.5: Exposition of the level of knowledge

Thematic Category	Sub-themes
Level of knowledge	a) Awareness of health information b) Misconceptions c) Ignorance

Awareness of health information: Most participants agreed that they are not well informed about the consequences of using substances during pregnancy. However, some of them shared the little information they have about the consequences of substances use but highlighted that they still see no harm in this.

> *"Yes, I know the danger and consequences but I do not remember them. Consequently, I feel like there is no danger at all."* ***Participant A***
>
> *"I know I can get a stillborn baby or a sick baby and even myself I can get sick."* ***Participant F***
>
> *"... for my health I think it will be bad in the long run."* ***Participant D***

It appeared that many participants were not aware of dangers caused by that substance use:

> *"Yeah, I know there are dangers but I do not really understand the danger of substances on the child."* ***Participant C***

Misconceptions: The study revealed that there are many misconceptions regarding substance use during pregnancy. The participants expressed themselves about the knowledge they have and share with friends:

> *"There was another lady who told me that her unborn baby started crying in her womb because it was craving. When she gave birth it was still crying because she wanted something, she was used to before. Another woman also told me that she continued smoking throughout pregnancy and nothing happened to the baby. Another also said that another lady's baby died because she stopped smoking"* ***Participant A***

> *"I do not have any effect but some people do get very sick with this 'tik' thing. So, it depends on the people. Some people die, some others walk around looking like a corpse because of the way they are. They look so skinny. But for me, I was never skinny maybe it is due to smoking and not eating properly and not having enough rest"* ***Participant G***

Ignorance: Only a few participants showed ignorance regarding continued use of substance use. Ignorance was demonstrated in terms of knowledge of the consequences of using substances during pregnancy but the women continue to take substances as a way to show no concern for the consequesnces. Participant 'G, F and C' expressed that:

"When the baby is born there will be complications like the baby might be slow minded. So that is what people say but I do not care" ***Participant G***

"I know I can get a stillborn baby or a sick baby and even me I can get sick" ***Participant F***

One of the participants concluded the interview by discouraging the use of substances by pregnant women due to its negative effects. Her statement clearly shows she is aware of the danger of substances but continues the use of substances during pregnancy.

"Pregnant mom must not use substances since it will affect our babies" ***Participant C***

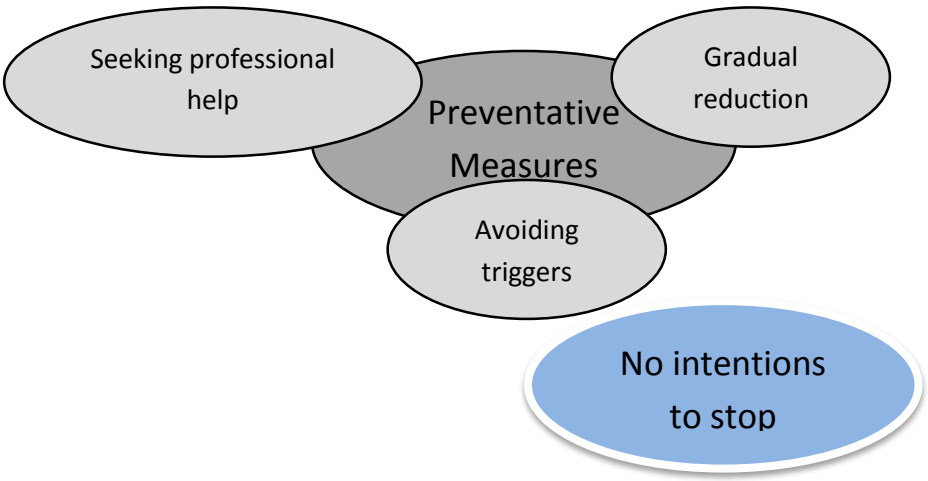
5.1.3 Implementation of preventative measures

The interview relieved different information concerning different methods that pregnant women use as a way to refrain from substances. However, the results also showed that it is not all pregnant women with the intention to stop taking substances during pregnancy. This finding answers the third objective of the study, which is to describe the preventive measures that pregnant women try to implement as a way to refrain from substance use.

5.1.3.1 Thematic category: Preventative measures

The current thematic category covers preventative measures that pregnant women use as ways to refrain from using substances. The main theme derived from the interview is the preventative measures and has been sub-divided in the following sub-themes: seeking professional help, gradual reduction and avoiding triggers. Figure 5.1 below illustrates the category theme and its sub-themes.

Figure 5.1: Preventative measures



Gradual reduction: The majority of the participants revealed that they intend to refrain from substance use even though it would not be easy for them to stop completely. They reduce the amount substances they use compared to the time when they were not pregnant. The gradual reduction shows a willing to stop taking substances although cutting down completely is difficult for most participants.

> *"I try to cut during the week because this thing of substances is not good for a mother of two. That is why I always try to reduce. As a housewife, I try to keep myself busy because I drink a lot when I do not have to do. I use drinking as my hobby".* ***Participant H***

Another participant indicated that she has developed other relaxation techniques to help herself reduce substance use:

> *"I am no longer smoking like I used to. Most of the times, I am resting and sleeping, so I smoke a little bit less."* ***Participant E***

In addition, one of the participants indicated the reduction of substances by comparing the number of cigarette packs she had been smoking before to the current number of cigarette packs she was smoking:

> *"I used to smoke six to seven packs a day all alone with nobody, so I used to smoke a lot. Now I am smoking less.* ***Participant G***

Seeking professional help: The result shows that some pregnant women went out of their ways to seek professional help regarding substance use. However, they did not find the programmes to be effective for them:

> *"Yes, I went to this other program about stuff but it did not help me at all. Because when I was coming back home I still had nothing to do"* ***Participant A***
>
> *"Aaah! Those ones is a waste of time. If I am to go will just go sit there. I have tried five years ago it was something else it was boring. I even tried to recruit my friend to go with me. I will just go there for fun and to walk away from home and the children"* ***Participant F***

Avoiding triggers: Some pregnant women have developed a strategy to prevent substance use by avoiding the triggers that influence the use of substances, such as going out with friends. However, it was noticed that these women continue with another substance that they believe is not as dangerous as the one they are trying to avoid:

> *"Now I stay inside I do not go out more very often. I do not take 'tik' a lot now I have cut a bit. I just use dagga."* ***Participant I***
>
> *"I do try just that most of the times my friends come and fetch me. If people come and fetch me I do not go. I try to cut on drinking and I believe walking away from alcohol will start by me"* ***Participant H***

No intention to stop: Very few women indicated that they do not intend to stop using substances due to the withdrawal symptoms or the pregnancy. Taking substances is their personal decision and even pregnancy cannot make them stop taking substances. The following are the expressed responses from the participants:

> *"I smoke dagga and I stop drinking. Before I found out that I am pregnant I used to smoke and drink but after finding out, I have stopped drinking I and I only smoke dagga. I cannot stop smoking. Dagga is more like craving to me. If I do not smoke, I feel like there is something eating my thought and I cough all the time."* ***Participant B***
>
> *"I do not have real intentions to stop completely since I am now more interested in the dagga, not 'tik'. The dagga is now my hobby I use it 2 times a day. But sometimes the stress gets too much so I end up using tik because it makes me not to stress."* ***Participant J***

5.1.4 The perceptions of women who went through substance use interventions programmes

The last objective of the study aimed to explore the experiences of women who went through substance use interventions during pregnancy. The section below displays the results of the last objective.

5.1.4.1 Thematic category: Perceptions of intervention programmes

This category outlines the perceptions of the intervention programmes and it is divided into two sub-themes: positive and negative implications. Under positive implications, sub-theme participants perceive intervention programmes as being helpful. Whereas under the second sub-theme dealing with negative implications participants perceive intervention

programmes as being unhelpful and boring and they also express fear of practitioners *(see Table 5.6).*

Table 5.6: Implications of intervention programmes

Thematic Category	Sub-themes
Implication	a) Positive implications b) Negative implications

Positive implication: Very few participants positively perceived intervention programmes as being helpful, they find substance use intervention to be beneficial based on their experiences and their expectations.

> *"Yes, it worked she prepared me about what will happen when I go to labour. Even with my premature baby, I knew the possibilities that might occur. So, she helped me."* ***Participant H***

> *"I think substance use program is something good and I will be able to take part of it since it will help us not to use anymore."* ***Participant H***

Negative implication: The majority of pregnant women reported that they do not find the substance use intervention programmes to be useful enough for them, due to the treatment they receive from the nurses and social workers.

> *"Nurses and social workers are supposed to help and not to put you down. The nurses will call you druggies. When you talk about it social workers put you in a spot."* ***Participant J***

Some of the participants added that they find the programmes to be boring and unhelpful to them. The following statement is one of the different negative perceptions pregnant women have towards substance intervention programmes:

> *"It is a waste of time. If I am to go, there I will just go and sit no one will care about you. I have tried five years ago but it was something else. It was boring. I have even tried to recruit my friend to go there with me. I was just going there for fun and to be away from home and the children."* ***Participant F***

One of the participants had a negative perception of the substance use program based on their failure to follow the rules as a criterion to be in the program. She sees time strictness as an obstacle preventing her to continue with the program.

> *"I have being in the substance use program for once I went to Living hope. Therefore, I had to be there every day at 8:h00 but because of my kids that I have to prepare for school, it was bad. You cannot come there late so I just stopped going so I went there once. The second time I couldn't make it on time because me and my boyfriend had some fights and I was the one who have to take kids to school since he wasn't there. Therefore, I could not make it on time. That is why I stopped.* "***Participant E***

5.2 Conclusion

This chapter presented integrated results in which the findings of the study were reported relative to the methodology employed. Four categories, influential factors, level of knowledge, preventative measures and 'implications were derived from a thematic analysis approach that was presented with illustrative quotes. Some of the major themes that were derived from quotes are the following socio-cultural factors, personal factors, emotional

responses, intimate relationships, level of knowledge, preventative measures, no intention to stop and implications. Results from this study lead to the next Chapter where results are discussed in relation to the literature reviewed and the bio-ecological theoretical framework applied to this study.

CHAPTER SIX

DISCUSSION OF RESULTS AND CONCLUSION

6 Introduction

This chapter presents an integrated discussion of the results presented in chapter five and the conclusions of the study. It consists of detailed discussion of factors that influence substance use among pregnant women and on knowledge about the risks linked to substance use among pregnant women. It also presents a discussion on preventive measures applied by the pregnant women as well as their perceptions and experiences of substance use intervention programmes. Furthermore, the themes that emerged from the participants' responses, as outlined in chapter five are extensively discussed. The current discussion aims to highlight the findings in relation to the research objectives and research questions indicated in chapter one.

The findings of this research have indicated that the majority of the influential factors lie within the socio-cultural factors, followed by the emotional response factors. To illustrate, some respondents indicated that they were using substances as a way to cope with the stress they were experiencing during pregnancy. The study found that residential environment also has influence on substance use during pregnancy together with the accessibility of substances, exposure to substances within the society and the norms, which pregnant women hold.

The findings have further indicated that some pregnant women have tried to apply preventative measures concerning substance use, and it has been noticed that some participants had reduced using one substance and continue taking another substance to which they were mainly addicted. For instance, women who were using methamphetamine and dagga had decided to cut back on methamphetamine and continue with dagga. The findings further illustrated that almost all the pregnant women interviewed found it difficult to stop using substances. From the current study findings, it has become clear that many pregnant women have a negative perception of substance use intervention programmes. Some participants have

expressed their need for practitioners (social workers and nurses) to treat them in a pleasant manner. An in-depth discussion of the study findings and the conclusion of the study are outlined in this section.

6.1 Exploration of influential factors of substance use among pregnant women

This section addresses the first objective of this study, which looks into factors that influence substance use among pregnant women. Participants in the current study have indicated various influential factors that vary from one individual to the other. The study revealed that influential factors range from socio-cultural factors, personal factors, and emotional response factors to intimate relationships factors.

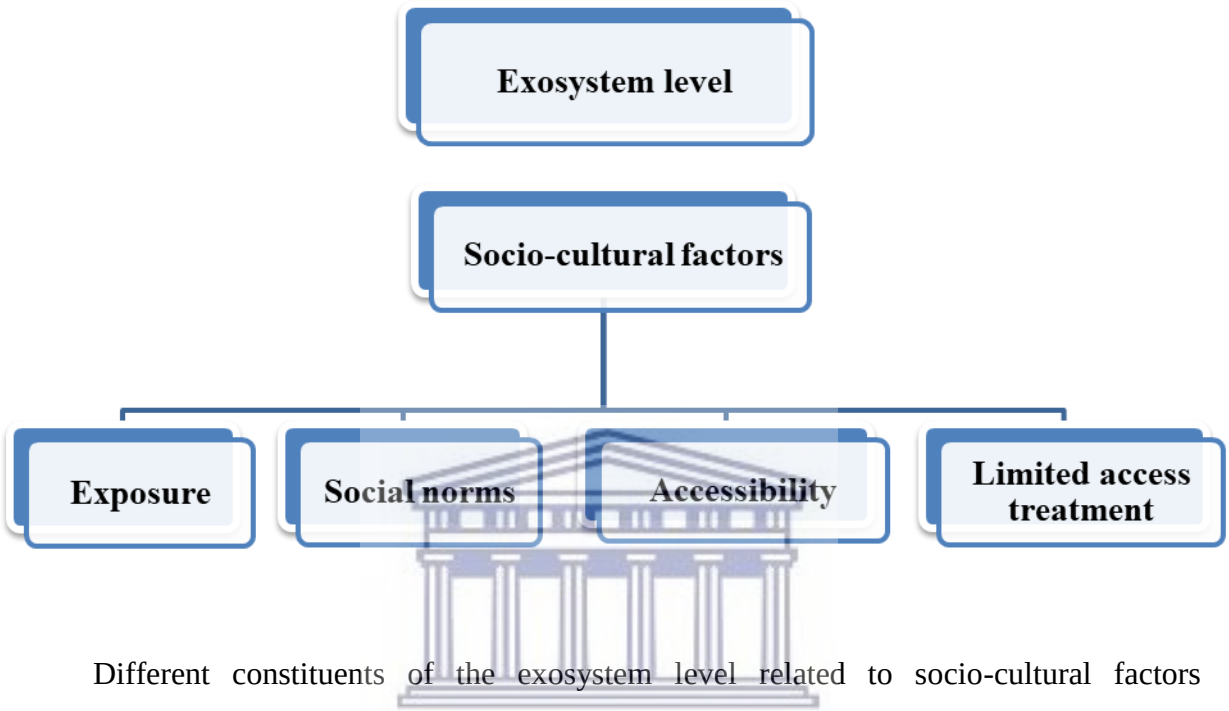
The influencing factors in the study differ from those that have emanated from a previous study conducted by Somani and Meghani (2016), which explored the determinants of substances use. The current study has found that factors such as poverty and media were influential in substance use among pregnant women. There were, however, a few shared influential factors between the two studies, some of which are the accessibility that is clustered under socio-cultural factors, the peer pressure that is also referred to as peer influence in the current study and finally the family structure, which has the same attributes as those of the socio-cultural factors in the current study. The following discussion covers the influential factors associated with substance use.

6.1.1 Exosystem level influencing factors

Reflecting on the bio-ecological theoretical framework discussed in Chapter two, the socio-cultural factors found in this study were classified under the exosystem level. The bio-ecological theory refers to this system level as having a setting that does not involve individuals as active participants but still affects them. The socio-cultural factors of the findings include

social norms, accessibility, limited access to treatment, exposure and peer influence as outlined in the diagram below.

Figure 6.1: Exosystem level among participant.



Different constituents of the exosystem level related to socio-cultural factors distinguished in this study are discussed in the following sub-sections.

6.1.1.1 Socio-cultural factors

The study corroborates that substance use among pregnant women is influenced by socio-cultural factors. Nisbett (2018) defined socio-cultural as *'customs, lifestyles and values that characterise a society'.* Socio-cultural beliefs contribute to the way the society perceives substance use and these perceptions shape substance use behaviour within the concerned social group (Abbott & Chase, 2008). A study conducted to explore the effects of substance use on different cultures has confirmed that substance use practice is encouraged by the expectations that culture and society impose upon individuals (Heath, 2001). In this section, socio-cultural factors are discussed based on social norms, accessibility, limited access to treatment, exposure

and peer influence. The themes under socio-cultural factors fall under two environmental levels of bio-ecological theory. Social norms, accessibility and limited access to treatment are covered within the exosystem level. Exposure and peer influence are included within the microsystem level. The study findings have confirmed that socio-cultural factors are a driving influence in substance use and that they consist of exosystem and microsystem levels.

6.1.1.1.1 Social norms

Social norms are a dynamic instinct in human behaviours and have various practices within societies. As a result, most human behaviours are influenced by social norms. Higgs (2015) elaborates that the social group can be identified from a peer group, family or community. For example, the use of substances during pregnancy can be a norm that is transmitted as acceptable and common in certain groups of individuals (Looy, Dunkel, & Wood, 2013). As explained, the theoretical framework indicates that the exosystem consists of the indirect factors within the environment. Social norms are one of the indirect factors that have an effect on substance use. Societies have different perceptions of substance use; some societies only allow alcoholic beverages during special occasions whereas some societies have strict restrictions on substance use, especially among women (Aliiaskarov & Bakiev, 2014). Environment and family strictness are empirical elements discouraging substance use in a society (Meghdadpour et al., 2012). Conversely, Brook et al. (2006) and Onya (20050 found that being surrounded by people, such as pregnant women who use substances can make other pregnant women think that smoking during pregnancy is acceptable.

The study findings have revealed that the majority of pregnant women use substances due to the tolerance of substance use within their respective demographic environments constituting the setting of the present study. Sometimes societal populations can develop acceptance and tolerance of unhealthy or unethical behaviour because of being overwhelmed

by outside influences (Westermeyer, 2004). The literature reviewed has explained how the 'dop' system by colonists increased the use of substances among women and men around the Winelands.

6.1.1.1.2 Accessibility

The study found that accessibility to substances occurs because of interactions between various aspects of the microsystem and the mesosystem (Bergen, 2008). Hence, the geographical location where the substances are accessed can be viewed as being on the exosytem level.

Accessibility is expressed as a degree or capacity to which certain material or information can be easily available (Merriam-Webster, 2017). In this discussion, accessibility is interpreted in terms of the availability of substances. Accessibility is another environmental influence that is classified under the exosystem level. Most studies have indicated that geographic location has a high impact on the accessibility of substances (Hart et al., 2005; Hartley, 2004; Smalley et al., 2012 & Turley, 2015). Pregnant women in this study have indicated that they were using substances because they were easily accessible and always available in their environments. Participants further elaborated that dealerships of substances around their area provide substance on credit, which confirms that access to substances encourages pregnant women to use them. The findings have further shown that substances were accessed from illegal traders within their community. This differs from various studies conducted before to explore the perceived ease and social exchange of substances. Where, it has been found that substances were mostly accessed among friends and through social networks (Johnston et al., 2013; Steen, 2010; Forster et al., 2003 & Harrison et al., 2000). Another study has also indicated that the perceived ease of access to substances was higher in urban areas when compared to rural ones (Warren et al., 2015). The geographic setting of this

study is an urban area, which confirms the results of previous studies that indicated a high prevalence of substance use in urban areas. The literature on specific geographical areas linked to substance use also shows an increasing prevalence of substance use among pregnant women within those specific areas. Accessibility and affordability of substances in a society contribute to the influential factors of substance use (Somani & Meghani, 2016).

6.1.1.1.3 Limited access to treatment

Stone (2015) have evidently found that pregnant women who use substances seldom volunteer to seek treatment in medical centres in the United State. As a result, the government implemented the so-called 'in-hospital arrests' among pregnant women who use substances during pregnancy. In contrast, the current study findings have indicated that women who use substances in the Cape Town community were willing to be treated on a voluntary basis. However, they encountered challenges, such as lack of treatment facilities and the fact that substance use treatment facilities were overcrowded. Therefore, it is observed that limited access to treatment within the community gives rise to the prevalence of substance use since access to treatment is limited. On the other hand, in one of the participants' words substance, treatment centres were overpopulated and discouraging because of a long period it was taking to get assistance in the intervention programme. This is in agreement with literature indicating the impact of insufficient access to substance abuse treatment of pregnant women who suffer from substance use.

On the contrary, the investigation conducted to explore fear, stigma, and barriers among pregnant women, showed that limited access to treatment is not the main cause but fear of seeking treatment prevents substance users from seeking help. The fear of seeking help is influenced by elements such as fear of losing custody of the children and fear of being considered as irresponsible. Furthermore, this finding is supported by a recent study that

indicates that having a limited number of effective professional support networks within the community is a restriction on pregnant women who need professional help (Lauterbach, 2017). Based on the bio-ecological theory, limited access to treatment is an indirect factor that affects pregnant women in need of help or assistance and can be classified under exosystem level.

6.1.1.1.4 Exposure and peer influence

Exposure to substances encourages one to use substances and accept this as a common act. The results of this study have indicated that pregnant women continue to use substances due to their early exposure to substances. Exposure results from system levels, various structures and interactions. Exosystem level causes an indirect effect on individuals (Kalichman et al., 2007) as indicated in the theoretical framework *(see chapter two).* Participants' exposure to substances occurred as the results of substance use within other system levels. This is similar to the finding of Kalichman et al. (2007), which shows that family influence, neighbourhood, school and exposure to friends using substances have a greater contribution to substance use. This means the decision taken by other people to use substances has subjected other participants to substance use. Women who use substances during pregnancy expose their own children to substance use, and this sustains the phenomenon, making it a generational problem. This finding is parallel to Peltzer and Ramlagan's (2009) study conducted in the Western Cape that illustrates a correlation between risky substances behaviour among learners to poor parental care and early exposure to substances. Moreover, rebellious behaviour and attraction to other peers engaged in substance use are more likely to develop from a childhood of individuals who have grown up exposed to substances (Pretorius, 2010).

Many pregnant women have reported that since their childhood they were exposed to cigarettes and alcohol. Another study has shown that childhood exposure to substances sometimes starts in the parental home, from friends or shop workers and street vendors (Haddad

et al., 2011). Childhood exposure to substances has its onset when children are growing up and observing or witnessing parents or any other family members using substances such as alcohol in the family (Haddad et al., 2011). Some of the participants in the current study have indicated that almost all their family members were substances users. Some participants have reported that when they were growing up their family members used to send them to buy substances and this has influenced them to start using these at a very young age. Besides, they have admitted that they could not cope without using substances, even during their pregnancies.

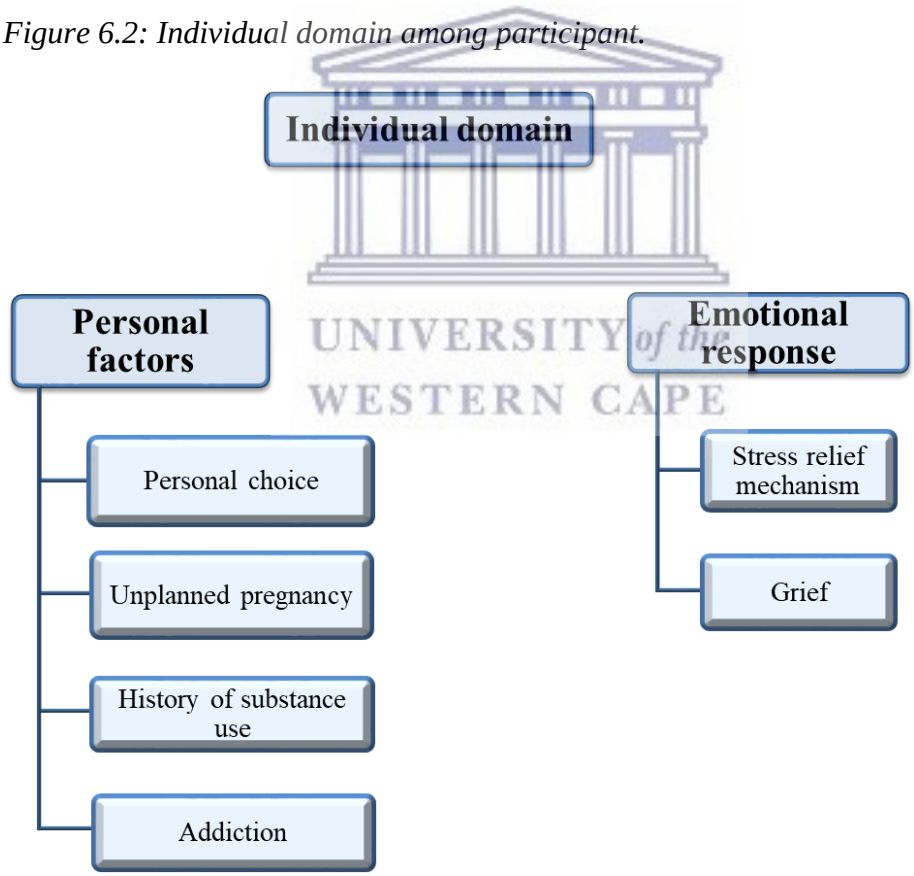
It has also been observed that exposure occurs as a form of peer influence that results from relation to and interaction with various system levels. This factor portrays the reinforcement role in terms of substance use among friends. It has been indicated in the previous chapter that their peers and family members in their continued use of substances exposed most pregnant women to substances during pregnancy. The results have shown that the fear of being left out of the friendship cycle is another influential factor among pregnant women who use the substance. This fear has constrained participants to accept in the name of friendship what they are exposed to as a way of living. In empirical studies conducted by Brook et al. (2006) and van Zyl (2013) in South Africa, it has been observed that peers' exposure has a great influence on substance use, especially, among the youth. The current study has shown that exposure, as a determinant of substance use mostly chronological to the age of the participants, ranging between 19 and 35 years. Consequently, most individuals take substances as a means of seeking social acceptance within their circle of friends (Kalichman et al., 2007). Ungar (2007) supports that people engage in risky behaviour as a way to gain recognition within groups that expose them to certain behaviour or acts.

6.1.2 Individual domain

Some developmental outcomes are highly influenced by an individual's' characters (Sung & Su 2007). The P-person and P-process are the individual domains in the PPCT model that are involved in the development of individual characters. A number of risk factors play a key role in the development and psychological adjustment, which includes neurological domain, individual domain, genetic domain, support domain, etc. (Bronfenbrenner (1977).

The following diagram illustrates personal factors and emotional response as the individual domains that have an influence on substance use.

Figure 6.2: Individual domain among participant.



6.1.2.1 Personal factors

Personal factors are highly influenced by the individual domain. Substance use within personal factors among youth is mainly influenced by; inter alia, gender, genetic predisposition, age, alcohol knowledge, low self-esteem and impulsivity (Ramsoomar, 2015). The current study found that among pregnant women the personal factors influencing substance use comprise personal choice, unplanned pregnancy, history of substance uses and addiction. This reflects that individual domains or personal factors on substance use differ. For example, the comparison of influential factors in general to influential factors among pregnant women.

6.1.2.1.1 Personal choice

Some participants have personally decided to use substance throughout their life span; this choice influences them to use substances even when they are pregnant. Those participants have clearly stated that they lacked interest in any form of treatment intervention or programme and made it clear that they were not interested in any treatment intervention (National Institute on Drug Abuse, 2014). However, not all choices lead to healthy positive living. Personal choice is also influenced by a person's mentality and how he or she views the context (micro, meso, exo, macro, and chronosystems) of life in general. The choice to use substances is immediately recognisable and can be based on emotional and mental resources that include an individual's intelligence (Tudge et al., 2009). The study has also observed that participants who have confirmed that using substances was their personal choice, had experiences of painful past emotions, such as losing parents from a young age, which they have not yet dealt with.

6.1.2.1.2 Unplanned pregnancy

In this study, it is observed that the continual use of substances among pregnant women was due to the anger of finding out that they were accidentally pregnant. Based on the study

findings, most participants realized that they were pregnant after three months. This gives a clear indication that one of the personal factors that influence substance use among pregnant women is an unplanned pregnancy. Steinman and Zimmerman (2004) observe that pregnancy goal fulfillment has a significant influence on structuring healthy and goal-oriented behaviour. Women who fail to achieve their short-term goals, such as giving birth to a certain number of babies within a given period, see no reason for practicing a healthy pregnancy lifestyle due to anger and frustration over the unplanned pregnancy. Unplanned pregnancy forms part of the individual domain since it is based on personal decisions.

6.1.2.1.3 History of substance use

The early use of substance has a huge effect on the continuation of substance during pregnancy due to the uncontrollable compulsion of substances (Gil, Wagner, & Tubman, 2004). The results have indicated that the participants connected the difficulty of refraining from substances during pregnancy to the long history of substance use. Similarly, Zhao et al. (2017) have noted that pregnant women with no history of substance use have little chance of taking substances during pregnancy when compared to pregnant women who were previously engaged in substance use before pregnancy. Women with substance use history are also reported to suffer from perinatal mental health. As an illustration, they have reported that one of the participants has been involved in substance use for 15 years and fail to stop taking substances during pregnancy. In 2012, Eaton et al. (2012) have researched a particular community in South Africa and they have observed that the history of substance use in that community was influenced by the 'dop' system. This is in line with the current study, which shows that the history of substance use is reflected in the individual. Essentially, the longer a person uses substances, the more difficult it becomes to stop during pregnancy. The foregoing

is consistent with the finding of Barry and Petry, (2008) which notes that the life history of substance use increases the likelihood of struggling with substances recovery.

The Bronfenbrenner bio-ecological model named the PPCT can better explain the history of substance use among pregnant women as an influence of continuous substance use. According to this model, the history of substance use among pregnant women is defined on the basis of time and duration of substance use by individuals. Therefore, it explained 'Time' as a sub-divided element of microtime, mesotime and macrotime. History of substance use is, therefore, an influence that can be clustered within the mesotime due to the stability and predictability of substance use over time (Hacker & Hayes 2017).

6.1.2.1.4 Substance addiction

Addiction remains one of the major causes of the continuation of substance use during pregnancy, as indicated in Chapter five. The majority of pregnant women participants in this study were addicted and could not cope without substances, due to their fear of withdrawal symptoms. The American Society of Addiction Medicine (2011) classifies addiction according to the following characteristics: difficulty in abstaining from substances, uncontrollable cravings, dysfunctional interpersonal relationships and emotional response due to substances. Addiction is a personal domain that influences the use of substances. However, this does not form part of the environmental system level but fits into the personal domain influence. The current study found that pregnant women within the study's geographic setting were addicted to methamphetamine, *'tik'* and cigarettes. This is similar to a study conducted in Cape Town by Jones et al. (2011) which investigated the prevalence of substance use among pregnant women and non-pregnant women. The study showed that the most common addictive substances used by women were methamphetamine and cannabis. Forray (2016) has also reported that the most commonly used substances in South Africa among pregnant women

were methamphetamine and cannabis. The findings confirm that addiction is an influential factor in substance use during pregnancy.

6.1.2.2 Emotional response

Emotional response is influenced by an individual's reaction to various situations. The PPCT model explained the 'P-Person' as the character shaped by development, demand, resources and force (Hacker & Hayes, 2017). The demand element includes an individual's reactions, expectations and present assumptions, besides how the individual responds to various situations and experiences them. The above parts of the element shape the individual.

Substance use has been linked to the emotional response, to feeling overwhelmed by stressors related to families, to personal matters and to society in general (Mohasoa, 2010). Emotional response is another category of influential factors that make pregnant women prone to substances use during pregnancy. For example, pregnant women might stress about financial income and at how to look after a baby. Zhao et al. (2017) stated that perinatal mental health and psychological well-being during pregnancy determine the health of the infant, which is due to the unhealthy pregnancy lifestyle that is mainly influenced by maternal stress condition. Kumar et al. (1995) and Witt et al. (2012) further convey that pre-existing mental illness among pregnant women has an influence on the risky pregnancy lifestyle caused by substance use. The emotional response as a way to relieve stress and deal with grief over the loss of or separation from their loved ones is a strong indicator in this study. In this perspective, Kalichman et al. (2007) have indicated that substance use can be used as a strategy to boost confidence when one is dealing with stressful life challenges.

The study findings confirm that substance use among pregnant women is influenced by the way individuals react to situations emotionally, and the bio-ecological theory confirms the

manner in which individuals develop and adopt behaviours within the ecosystem through the PPCT model.

6.1.2.2.1 Stress relief mechanism

The results have shown that most pregnant women use substances as a stress relief mechanism. Participants have emphasised that substances make them forget about their challenges. Individual difficulties and challenges are major contributing factors to the drastic increase in substance consumption (Dawson, Grant & Ruan, 2005). Substance use during pregnancy is one of the maladaptive ways of stress reduction (Pilling et al., 2012).

6.1.2.2.2 Grief

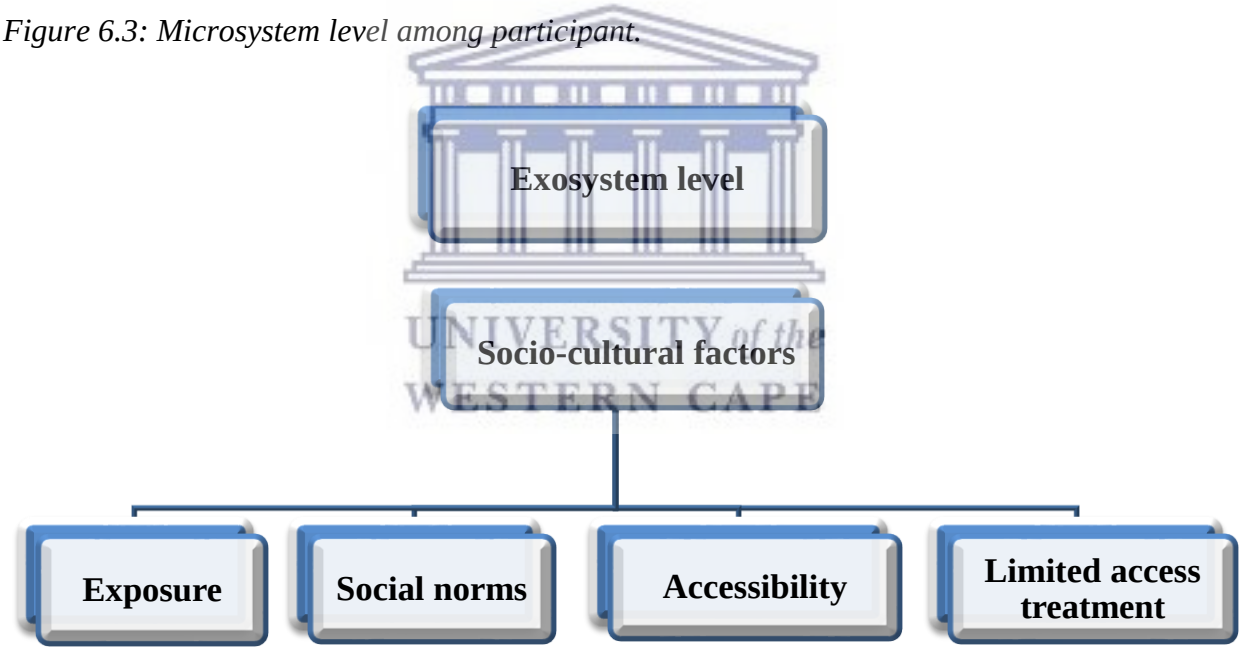
Grief is the psychological and physiological response due to disruption in attachment with a close individual as result of death or separation (Bonanno, Robinaugh & Shear 2009;Boerner, Schut & Stroebe, 2010; Neimeyer, Prigerson & Davies, 2002; Shear, 2010). Substance consumption increases due to the loss or death of a loved one (Conger, 1956; Perreira & Sloan, 2001). The results have indicated that pregnant women, who have lost their loved ones during the pregnancy period, have embarked on substances used as a way to deal with the loss. Separation from intimate partners was also found as another main cause of grief in this study. Participants have reported that separation from a responsible father had a consequential effect on the pregnant women and result in the use of substances during pregnancy. The period of grief influences risky behaviour and disturbs mental functioning (Lichtenstein, 1998). It is worth to note that grief is not just related to loss of intimate partners but also to the loved family members. For example, a participant has explained that she lost her parents two years back and she is still struggling to cope with the loss. This is a clear indication that the participants did

not get the necessary psychological intervention and, as a result, they have turned to substances as a way to comfort themselves and ease their emotional pain (Creighton et al., 2016).

6.1.3 Microsystem level influencing factors

The microsystem level consists of the close relationships that individual have with direct interaction (Berk, 2000). In this study, the direct interaction relationship that participants have is their intimate partners. The study has found that intimate partners play a role in influencing pregnant women to take substances during pregnancy. The diagram below indicates abusive relationships and intimate partners as influences in substance use during pregnancy.

Figure 6.3: Microsystem level among participant.



6.1.3.1 Intimate relationships

Intimate relationships have an impact on decision-making and the behaviour choice of various aspects of the relationship. Among pregnant women, intimate relationships are an influential factor in substance use. In this study, intimate relationships are discussed under two aspects, namely: abusive relationships and intimate partner influence. Participants have

explained that their intimate partners influence them to use substances during pregnancy directly and indirectly. Intimate partners are considered as the direct factors within the environment of pregnant women. These direct factors are included in the microsystem environmental level (De Haan & Trageton, 2001). In addition, the literature reviewed has indicated how existing relationships drive women to substance use during pregnancy (Havens et al., 2009).

6.1.3.1.1 Abusive relationships

Romantic relationships have a major effect on substance use during pregnancy. Pregnant women need emotional support from their partners or responsible fathers of their unborn babies. In opposite situations, pregnant women become overwhelmed by the abusive treatment they face from their partners and turn to use substances. The World Drug Report (2016) indicates that substance use is also a risk factor that increases violence in the household. The majority of participants who engage in substance use during pregnancy had experience of physical and emotional abuse from their partners. In Afghanistan, the physical abuse experienced by women from their partners who use substances has been highlighted and emphasised (United Nations Office on Drug and Crime, 2014). In addition, this study has found that women who use substances during pregnancy were in relationships with partners who were using substances. Some of the participants have highlighted that their partners were coercing them to take substances. Nabia et al., (2005) observe that women are more likely to increase substance use because of the rapid occurrence of abusive behaviour received from the intimate partners.

6.1.3.1.2 Intimate partner influence

Anderson (2001) observes that women and men have different influential factors with regard to substance use, albeit men are more likely to be the influencing factor to women. This was confirmed by the study results where the majority of pregnant women viewed their partners as influencing agents in substance use. Taking substances among pregnant women and their partners develops into a lifestyle that keeps the relationship going.

The risk factor of women using substances with their intimate partners is that they might engage in sex work in exchange for substances if their partners stop making provision for them (Tasnim et al., 2015). As a result, pregnant women become vulnerable to sexually transmitted infections. The study has found that other participants are directly influenced by their intimate partners to use substances. This intimate influence is mostly driven by a relationship in which the two individuals share certain characteristics such as a likeliness to use similar substances. It becomes difficult for both parties to stop taking substances together when the woman becomes pregnant they continue using substances as usual regardless of the pregnancy.

Bauer et al. (2002) have shown the correlation between substance use and marital status. They have indicated that single women tend to use substances more during pregnancy compared to those who are married. However, the current findings convey that intimate partners play an influential role in pregnant women taking substances. For example, it has indicated that ten pregnant women have disclosed that they were single but they have intimate partners and some of them are in cohabiting relationships. This finding is contradictory to what Havens et al. (2009) have found indicating that pregnant women use substances due to their loneliness.

In sum, Hamad et al., (2008) believe that supportive intimate partners are the protective factors against substance use for pregnant women. Yet, in this study, participants have

expressed the negative effect of their partners. They have mentioned their partners as encouraging agents to substances use.

6.2 Level of knowledge

Based on the second objective of this study which intends *'to understand the level of knowledge pregnant women have concerning the dangers of using substances during pregnancy'* this section provides informed answers to the research question based on the findings.

It has been established that substance exposure during the prenatal developmental stage is implicated in long-term cognitive effect on the infants (Green et al., 2014). The discussion enlightens the level of knowledge pregnant women have on the consequential effects of substances on their health and that of their babies. Awareness of health information and misconceptions were explored among the interviewed participants and their findings were found very similar to the existing literature that was explored. They are discussed in the following section to give the reasons for this similarity.

6.2.1 Awareness of health information

The participants in this study revealed that they were not fully aware of the dangers and consequences of using substances during pregnancy. On the other hand, some of them have indicated a slight knowledge of the danger the unborn baby incurs when its mother is using substances. As an illustration, they have talked about giving birth to underweight babies. However, when asked about the health effects on the mother, the participants have confirmed that they were not aware of the health problems but they have indicated that they knew that there were health consequences. It has been discovered that the majority of participants had not started attending their pregnancy check-ups. In keeping with the above, the World Health

Organisation invites countries to increase antenatal care clinic visits as a way to prevent avoidable health effects to both the mother and the infant. In response to the above invitation, since April 2017 South Africa has implemented a change in the antenatal care clinic visits, the number of clinic visits has been increased to eight times (Horwood et al., 2017). This change aims at providing health information guidelines to pregnant women. However, unfortunately, the majority of pregnant women who use substances during pregnancy avoid attending antenatal check-ups. Participants in this study, who had babies, have explained that they were usually doing the clinic bookings for check-ups when they were about to give birth. The above findings have demonstrated that a lack of health information among pregnant women was also caused by the fact that these women were not attending antenatal clinic check-ups during pregnancy.

Very few participants have mentioned that they were aware of the unhealthy effects on the baby and that they were taught a healthy lifestyle during pregnancy. Those participants have revealed that the nurses at the clinic mainly talked about alcohol and not about other substances. This confirms that verbal information enriches pregnant women with healthy lifestyles. If pregnant women avoid the sources of verbal information, the objective for reducing avoidable health dangers among pregnant women and infants are not likely to be achieved (Wright et al., 2014).

6.2.2 Misconceptions

According to Hoberg (2003), it has been founding that peers prefer to share information concerning health with their friends rather than with medical practitioners. The findings in this study confirm Hoberg's (2003) observation because it has been observed that women rely on their peers' opinions more than the doctors' information. This behaviour is seen as one of the handicaps to the development of countries in general and of the adequate medical and social

support and wellness of patients in particular. Lucky and Johan, (2017) believe that the development can only be reached when the country's underlying social and health challenges are fully resolved. In South Africa, there is a great need for the health department to educate the communities about health-related matters regarding substance use during pregnancy. The current study has found that there are misconceptions and unproven stories linked to the use of substances during pregnancy. Some of the pregnant women stick to these misconceptions and continue using substances based on unreliable shared stories in communities. These fake stories tend to defend the reason for the use of substances during pregnancy.

Bronfenbrenner and Morris (2006) state that the PPCT model in the bio-ecological theory of human development is enhanced by the proximal process, which is the influence of development through sustained interaction with other multiple individuals and the immediate contexts. Therefore, considering the effect of shared misconceptions on pregnant women it can be noted that misleading information hinders human development as a whole.

6.2.3 Ignorance

Despite the misconceptions that many pregnant women share among themselves, there are those women, who are informed about the dangers and the consequences of using substances during pregnancy. Some of the participants have confirmed that they were taught about the dangers of using substances during pregnancy. However, these pregnant women continue with substance use because they do not see the importance in ceasing to take substances. The current study differs to that of Vythilingum et al. (2012) in that indicates that it is up to the health practitioners to stress to the community the dangers of using substances and to refrain from doing so themselves. In this regard, the health practitioners can only play their part and it is worthwhile for the individuals to act in the interests of their own health.

The PPCT model of the bio-ecological theory under 'person' element explains demand, resources and force characteristics of individuals as the personal characteristics that influence human development. As mentioned by Hacker and Hayes (2017) this discussion wants to enlighten participants' ignorance concerning the individual's persistence, motivation or temperament. Therefore, the ignorance of the consequences of using substances during pregnancy can be subjected to a lack of motivation to live a substances-free life and loss of control over temperament.

6.3 Implementation of preventative measures

Based on the third objective that seeks to describe the preventive measures that pregnant women try to implement as a way to refrain from substance use this section conducts a discussion, which provides informed answers to the research question based on the findings.

Three different indicators that show the willingness of pregnant women to stop taking substances during pregnancy were noted in this study. They include seeking professional help, gradual reduction and avoiding triggers. The ecological system level and the immediate relationships that include family members, social and community networks have a huge impact on the implementation of the preventative measure. Bronfenbrenner (1979); Bronfenbrenner and Morris (2006) confirm that interplay between multi-person systems has a subsequent impact on individual development. In this finding, development is regarded as a success in the implementation of preventative measures. The discussion below outlines how the ecological system level affects the prevention measures of substance use.

6.3.1 Seeking professional help

It has been noticed that only a few participants sought professional help regarding substance use in this study. The findings share similarity with the studies conducted by

Hartwell et al. (2013); Treolar and Holt (2008) which show that very few substance users and addicts seek treatment, which is mainly influenced by their families and loved ones. Some pregnant women who have agreed to seek professional help attribute this as the result of encouragement from children, partners and family members. Some others have indicated that they had lost hope in their addiction condition as they had tried to seek professional help for themselves and their babies, but to no avail. Motta-Ochoa et al. (2017) report that individuals who portray help-seeking behaviour are affected by their past experiences with addiction and substance use, which is similar to current findings where participants have explained that they were seeking for professional help due to their past experience of miscarriage and pre-mature babies attributed to substances use during pregnancy. However, the study has also found that other participants who sought professional help did not get the necessary assistance. As an example, one of the participants has indicated that she has started attending substance use programme but feels that the intervention was not helping because she was still binge drinking. Substance users who seek help have remarked that practitioners should use effective treatment intervention methods that would address their challenge of substance use (Motta-Ochoa et al., 2017). The process of seeking help is when substance users create positive interaction with the system level that provides assistance; bio-ecological theoretical framework describes this system as the microsystem and the mesosystem. Therefore, the interaction within the ecological system level can either be beneficial to an individual or cause harm. The immediate relations of interactions can influence substance users positively by referring and encouraging substance users to seek professional help. The study findings have revealed that some of the participants have decided to seek professional help for the sake of their children and to be good mothers to their dependents.

6.3.2 Gradual reduction

In this study, gradual reduction describes the act of pregnant women trying to cut substances by reducing use in small amounts. Based on the results it has been observed that pregnant women, who were willing to stop substances use, have failed to stop completely. However, they have managed to reduce the number of substances consumed per day. Participants have described this as 'cutting down'. This gradual reduction was more common among pregnant women who have shown slight knowledge of the danger of substance use during pregnancy. The findings have also confirmed that the knowledge of substance use can be a warning to refrain from substances during pregnancy. Jones et al. (2011) further stressed that the willingness to stop taking substances is shown by reducing the amount and the number of substances. The pregnant women who have gradually reduced substance use were the ones who have had a positive perception of substance use intervention programmes.

6.3.3 Avoiding triggers

It has been found that some of the pregnant women were avoiding triggers that influence the use of substances as a measure to limit substance use during pregnancy. Another participant has explained that she has limited going out with friends who were influencing her to take substances and she has found it effective as a substantial reduction method. This is further portrayed by the limited interaction of an individual and the system level, such as the microsystem. In the microsystem, it has been observed that participants who 'avoid trigger' as a way to deal with substance use were more likely to return to substances once faced with immediate influences (Bronfenbrenner and Morris 2006).

6.3.4 No intention to stop

The newly evolved version of the bio-ecological theory highlights two fundamentals that include the phenomenon under investigation, the continuity and the bio-psychological change of characteristics in human beings (Bronfenbrenner & Morris, 2006). The evolvement of this theoretical framework simply indicates the evaluations that the theory has undergone during its life course (Bronfenbrenner, 2005). Based on the unchanging characteristics of human behaviour, the current study findings have discovered a compulsion of the continuous behaviour of substance taken without the willingness to stop.

The interviews have revealed that there were other pregnant women with no intentions to stop using substances. This was an indication that substance use among such participants has become part of their life in such a way that they see nothing wrong with taking substances, regardless of the pregnancy or the effects on their health and their babies. Another participant has reported that she had been using dagga alongside her partner who was her source of encouragement since they were both Rastafarians. This shows that the way pregnant women perceive substances has an effect on their intention to stop or not to stop. Hayatbakhsh et al. (2012) showed that some of the pregnant women perceive substances as not being associated with any dangers, which in turn influences their use of substances. Substance use during pregnancy is associated with many health defects that include physical and psychological effects on both the mother and the baby. The literature reviewed in this study has outlined the effects caused by various substances on both the mother and the baby.

6.4 Implication

This discussion addresses Based on the fourth and last objective of this study that seeks to explore the experiences of women who went through substance use interventions during

pregnancy, this section wants to provide informed answers based on the findings categorised as implications.

All substance use programmes work toward the same goal, which is to help substance users and addicts to get treatment. However, the effectiveness of such programmes depends on the individual undergoing the treatment. The subsequent sections 6.6.1 and 6.6.2 present the discussion on the positive and negative implications of substance use intervention programmes as analysed from the participants' responses. Few participants have indicated that the intervention programmes they attended were positive and helpful; while several participants have perceived the programmes negatively based on various reasons and treatment they received from the practitioners.

Bronfenbrenner and Morris (2006) describe an early critical element of the bio-ecological model as the base of 'experience', which can be either objective or subjective depending on the environmental properties. The study findings have shown objective and subjective feelings of participants because of the experience of the intervention programmes. The participant s' experiences regarding interventions are discussed below under the positive and negative implication sub-themes.

6.4.1 Positive implication

Countless intervention strategies aim to treat substance users. The standard psychological intervention includes supportive counseling and verbal therapies (Jhanjee, 2014). Bazzoli et al. (2004) argue that as a way to provide effective and helpful service, the intervention structures have undergone different dimensions of change to bring the highlighted services to the community with the few available resources. Participants who have supported substance use treatment programmes have mentioned that the information received has created awareness of the danger of using substances during pregnancy. In addition, the programme

prepares them for the future expectations of their health. Based on the bio-ecological theoretical framework, positive experience of the intervention programmes has also influenced other participant's feelings towards the implication judgment of the intervention strategies.

6.4.2 Negative implication

Several participants have indicated that the intervention programmes for substance use were not effective. Motta-Ochoa et al., (2017) have indicated that the barriers to substances treatment include participants' negative perception of the treatment received from the practitioners and their fear of being labeled by the practitioners. This means that participants have perceived treatment as an ineffective psychological intervention. This is in agreement with findings from a study by Hartwell et al. (2013) which supports that stigma and labeling are a limitation when seeking treatment. Another participant has indicated that she was discouraged to continue with the substance use programme as she had experienced labeling from the practitioner. She has mentioned that the nurses used to refer to her as a 'druggie' and, as a result, it was not worthwhile anymore to attend the treatment intervention programme. Motta-Ochoa et al. (2017) and Choi et al. (2014) emphasise that stigmatisation of mental health and addicted patients, increase the individual's fear of going through any form of the treatment process. Bio-ecological models emphasize experience as the effect of personal feelings that emerge and continue through life (Bronfenbrenner & Morris, 2006). In relation to the study findings, participants, who have had negative experiences in the substance use treatment facilities, have held on the hopeless feelings and consequently, they have perceived the interventions negatively. The current study discourages poor treatment from health practitioners on patients that seek professional help. Hohmann et al. (2017) further highlight that there is a greater need for the treatment intervention for substance addiction to be improved.

6.5 Summary of the findings

This study has explored the factors associated with substance use among pregnant women and sought to understand the level of knowledge those pregnant women have about the consequences of substance use during pregnancy. The study has revealed that substance use during pregnancy is linked to many influential factors such as personal and environmental domain. However, mental health care among pregnant women has been seen as a major influential factor in substance use during pregnancy. It was found that socio-cultural factors, personal factors, emotional response and intimate relationships play a major role as perpetrators of substance use.

The study has also sought to find out what preventative measures pregnant women implement as a way to refrain from substances and what are their perceptions toward substance use treatment programmes. It has observed that many pregnant women in the study have had a slight knowledge about the danger associated with substance use, whereas some pregnant women were oblivious to the health risks caused by substance use during pregnancy. Very few participants knew the consequences of substance use during pregnancy, which reflects the level of ignorance on the effects of substance use.

Despite the level of knowledge regarding substance use, the study has revealed that some women who were trying to take preventative measures against substance use, and women who did not have any intention to stop using substances. Participants who have developed preventative strategies against substance use implement various methods such as limiting the use of substances by restricting their movements and decreasing the daily dosage. It has also been observed that was difficult for those pregnant women to stop taking substances completely, and the majority who endeavour to stop substances use were struggling to do so, due to addiction, peer influence, stress and poor access to treatment.

Pregnant women who use substances have shown varied perceptions of substance use treatment programmes. Most of them have had negative perceptions towards the treatment programmes, based on their own experiences and nature of treatment received in the programmes by practitioners.

6.6 The conclusion of the study

This study has contributed to broadening the knowledge about substance use during pregnancy. It has also created awareness on the danger associated with substance use among women in general, as well as on particular factors that influence specifically pregnant women to take substances. The knowledge emanating from this study could educate the community about substance use during pregnancy, including its applicability to men. This could further enlighten the community on the influence of substance use and its resultant effects.

The findings of the study can also be useful to various stakeholders across all systems, particularly the Department of Health, by providing further information regarding substance use among pregnant women. The study could also help in refining the intervention strategies and in the planning of strategies to resolve substance use among pregnant women. The rehabilitation centres that deal with substance use treatment, in general, may benefit from this study too. The findings of this study provide in-depth information based on the influential factors of substance use that could be useful in rehabilitation centres.

The findings could lead to effective treatment intervention; education programmes about substance use during pregnancy, and it could broaden and create awareness of the rapid increase in substance use during pregnancy. Stakeholders, health department officials and future researchers could also obtain enlightenment to the global challenge of substance use. The above aligns with the growing need to understand the consequences of substance use during pregnancy on the mother and the child, as well as the need of being aware of the

influential factors of substance use during the pregnancy period. The findings are therefore available indications the whole community could use to educate other community members about consequences of substance use during pregnancy and how to avoid them.

6.7 Limitation of the study

The barrier in this study was in applying the study only to people living in South Africa. These people include coloured, whites and Africans women who use substances during pregnancy. However, only two racial groups (coloured and whites) were covered. The coloured population formed the majority of the participants in this study.

Since the design of the study was exploratory, with only eleven participants purposively selected, the study has focused primarily on certain information related to factors associated with substance use among pregnant women that could provide informed answers to the research questions in an acceptable manner.

6.8 Recommendations

To ensure effective strategies to resolve substance use among pregnant women, the following recommendations are deemed necessary for multi-disciplinary programmes and future researchers within the same field.

6.8.1 Recommendations for multi-disciplinary intervention strategies

Unhealthy lifestyles among pregnant women were found to be one of the challenges among pregnant women. Unhealthy lifestyles include substance use during pregnancy. To this end, the current study recommends 'healthy pregnancy lifestyle campaigns' within the communities as a way to educate pregnant women and childbearing-aged women about the

importance of a healthy lifestyle during pregnancy. Through these campaigns, women would be encouraged to be responsible for their health and that of their children.

Another way to educate pregnant women about substance use can be through focus groups to discuss the effects of substance use. The antenatal care nurses or other health practitioners can conduct the focus groups during clinic check-ups. This can be possible by regular antenatal check-up at least once a week, depending on the demand for antenatal clinic check-up. The focus group should encourage knowledge sharing among pregnant women; on the other hand, the health practitioners can assist in answering questions regarding substance use. This would create a platform for the health practitioners to identify pregnant women who need substance use treatment. The myth and the misconceptions that women have about using substances would be addressed during the focus group meetings. Pregnant women who require one-on-one consultations or interventions could be encouraged to seek confidential engagements.

The rehabilitation centres are one of the main causes for pregnant women not to seek professional help. Pregnant women who seek treatment are discouraged by the long waiting period before being assisted. The waiting period for treatment encourages substance users and addicts not to come for consultation and as a result, they continue using substances. An increase in the number of rehabilitation centres would resolve the waiting period challenge and a larger number of substance addicts and users would then be able to receive treatment. The government-owned rehabilitation centres should be designed in such a way that they can accommodate low-income and middle-income substance users and addicts.

The study also recommends that there should be access to free supportive counseling within the communities since stress was found to be a significant factor. This could help in managing the stress levels, effective decision making and goal oriented lifestyle common to community members in general. Stress is found to be the root cause of various social challenges

within societies, including health challenges. Supportive counseling enhances the elimination of such challenges, including substance use during pregnancy.

Creating employment for registered counselors to offer primary psychological intervention within the health care centres, clinics, rehabilitation centres, schools and Non-Governmental Organisations is urgently needed. This will enable pregnant women and society, in general, to seek professional help about substance use, stress and many other factors. Abel and Louw (2009) reveal that employment for registered counselors is limited in South Africa. In 2005, only 15 % of Bachelor of Psychology graduates that completed their studies between 2000 and 2004 from the University of Stellenbosch and the University of the Western Cape reported that they are employed as registered counselors (Kotze & Carolissen, 2005). Kotze and Carolissen (2005) further reported that most of B. Psych graduate that were not employed revealed that they are limited work opportunities within the profession when you have an honours degree only. Creating employment for registered counselors not only benefits counselors but also the society a whole and those who need psychology interventions in both rural and urban areas.

The study has found that most pregnant women have started taking substances from an early age. This study recommends that there should be high school education programmes about substance use. This will provide a precautionary measure for high school learners to refrain from substance use and engagement.

Due to negative perceptions of substance use intervention programmes from pregnant women, this study recommends that the intervention strategies and the treatment for substance use should be revised. Revising of substance use treatment strategies should be aimed at bringing improved and effective treatments to substance users and addicts.

Through substance use screening tests, pregnant women who use substances can be identified during an antenatal examination in hospitals and clinics. However, clinics and

hospitals should take substance use screening very seriously. Treatment interventions for pregnant women who use substances can easily be initiated for identifying substance-using pregnant women (Moeller & Paulus, 2017).

6.8.2 Recommendations for future research

It is recommended that similar studies be conducted in various areas within South Africa to broaden and increase available information in relation to substance use among pregnant women. Further research that provides quantitative data regarding the extent of substance use in different South African communities will provide valuable statistics on the consumed substances among pregnant women. This includes both rural and urban areas, considering the fact that substance use among pregnant women is increasing rapidly.

Studies on the effects of substances use during pregnancy on the mother remain very limited. Most studies conducted to investigate the effects of substance use during pregnancy on the infant and very few studies discuss the effects or dangers to the mother's health. Long and short-term medical and physiological dangers of substance use during pregnancy to the mother's health still require detailed exploration. It is recommended that qualitative studies about the development of effective substance use and addiction treatment be fully exhausted to increase the treatment knowledge. This would result in increasing treatment quality.

6.9 Conclusions

This study has explored the factors associated with substance use among pregnant women, by gathering qualitative data based on semi-structured interviews conducted with some of them who have willingly accepted to take part in this study.

The study has pointed out various factors that influence substance use. These factors were categorised under the main themes that emerged from the thematic analysis. The study

has ascertained the information pregnant women have regarding the danger of substance use during pregnancy. The preventative measures implemented by pregnant women using substance were outlined and discussed. The study has also explored experiences of pregnant women in substance use programmes. The discussion has fully exhausted the study findings by engaging and exploring literature and the guiding theoretical framework. The potential success of this approach has brought an understanding in classifying influential factors of substance use into various ecological system levels, including individual domain influences. A positive aspect of this research is that it serves as a contribution towards existing literature. Substance use is a complex public health challenge. The environment, personal domain and support networks play a major role in this challenge. The influential factors in substance use during pregnancy vary based on the demographic location and, more importantly, socio-cultural factors. The study relates to the existing literature and differs from the findings of other studies.

The study has further confirmed that weaknesses and the strengths individuals develop within the ecosystem are based on the reciprocal processes that occur because of interaction among individuals and multiple contexts over time. Various factors such as understanding consequences of substance use, substance prevention measures and overall perceptions on implications of substance use prevention programmes have attempted to increase the development process within the microsystem and interaction within systems level. The positive implementation of the substance use prevention programmes has highlighted the potential of reconceptualising the bio-ecological system with regard to future substance use interventions programmes.

The study has further outlined practical and future research recommendations to address the intervention strategies in the rapid growth of the substance use dilemma. It would indeed be a welcome undertaking if adequate free access to substance use treatment centres,

psychological counseling and informed education were introduced to reduce the rapidly increasing statistics of pregnant women using substances.

This discussion has added new insights and views to the literature and increased knowledge about substance use among pregnant women by explaining the influential factors of substance use and discussing the information that pregnant women had regarding the danger of using substances during pregnancy. The study has further discussed the preventative measures pregnant women use as a way to abstain from substances during pregnancy, and lastly, it has given descriptions and explanations of pregnant women's perceptions of the substance use intervention programmes.

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Appendices

Appendix A

INFORMATION SHEET

Project Title: Exploring factors associated with substance use among pregnant women in a Cape Town Community

What is this study about?

This is a research project being conducted by Manguvhewa Mutshinye, a Masters in Psychology (Thesis) student at the University of the Western Cape. I am inviting you to participate in this research project because your experience as a pregnant woman is of great value to this study. The purpose of this research study is to explore and build knowledge about substance use among pregnant women.

What will I be asked to do if I agree to participate?

You will be asked to complete a biographic questionnaire and to participate in an interview. The biographic questionnaire includes questions that are biographic-related. The interview will take a minimum of 30 minutes depending on how the interview will run. The maximum time the interview will last is 1 hour. You are allowed to agree or disagree to the use of an audio recorder during the interview.

Would my participation in this study be kept confidential?

The researchers will protect your identity and the content of your contribution. To ensure your anonymity, the information that you will provide will not be linked with your identity to the public. Your name will not be included in the study. Only the researcher will have access to the audio recording of the interview including the entire identification key. To ensure your confidentiality, the files, including the participant's information and the audio record will be kept in a safe cabinet that locks. The computer that will be used to store the collected data will be a password-protected computer.

What are the risks of this research?

There may be some risks from participating in this research study. You may experience embarrassment in sharing some of your personal information concerning substance use. There is a high possibility that you may feel guilty and uncomfortable in answering some of the questions that may be posed to you during the interview. Emotional feelings may arise during the interview session.

All human interactions and talking about self or others carry some amount of risks. I will avoid such risks and act carefully to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

This research is not designed to help you personally, but the results may help the investigator learn more about factors associated with substance use among pregnant women. We hope that, in the future, other people might benefit from this study through improved understanding of the topic. Your participation will help the researcher to successfully complete the study. Other people who want information about the topic will be able to acquire knowledge. Your participation will add great value to the currently existing information related to the topic.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be blamed or questioned about your decision.

What if I have questions?

This research is being conducted by Manguvhewa Mutshinye (Department of Psychology)at the University of the Western Cape. If you have any questions about the research study itself, please contact Manguvhewa Mutshinye at 3744733@myuwc.co.za. Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Dr. Maria Florence

Head of Department: Psychology

University of the Western Cape

Private Bag X17

Bellville 7535

mflorence@uwc.ac.za

Prof R Swart

Dean of the Faculty of Community and Health Sciences

University of the Western Cape

Private Bag X17

Bellville 7535

chs-deansoffice@uwc.ac.za

Appendix B

Consent Form

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 959 2283

Email: 3744733@myuwc.ac.za

Title of Research Project: Exploring factors associated with substance use among pregnant women in a Cape Town Community

The study has been explained to me in a language that I properly understand; I was given the opportunity to ask questions about things I do not understand in relation to the study. I am aware of what the study is about and my rights as a participant. I freely volunteered to form part of the study and I understand I can withdraw my participation without being obligated to give reasons. I understand that my identity will be kept confidential.

Participant's name & surname……

Participant's signature…….

Witness…….

Date……

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Study Coordinator's Name: Manguvhewa Mutshinye

University of the Western Cape

Private Bag X17

Bellville 7535

Contact number: 063 6011 801

Email: 3744733@myuwc.ac.za

Appendix C

Biographic Questionnaire

Age (Years & Months)				
Pregnancy period (Months & weeks)				
RACE ***(Please Mark with an X)***				
BLACK	**COLOURED**	**WHITE**	**INDIAN**	***PLEASE SPECIFY OTHER:***
MARITAL STATUS ***(Please Mark with an X)***				
Education level	**Primary level**	**Secondary level**	**Higher education**	
MARRIED	**SINGLE**	**DIVORCED**	**WIDOWED**	**COMPLICATED**

Most used substance ***(Please Mark with an X)***

Alcohol

Dagga

Tik

Cannabis

Cigarette

Please specify other:

Appendix D

Semi-Structured Interview Guide

Title of Research Project: Exploring factors associated with substance use among pregnant women in a Cape Town Community

Interview questions

1. Can you please explain the factors that led you to use substances during pregnancy?
2. Explain your awareness of any dangers/effects /consequences associated with the use of substances during pregnancy.
3. Explain any measures you took to prevent the use of substances during pregnancy.
4. What are your experiences and perceptions regarding intervention programmes aimed at curbing/stopping substance use during pregnancy?

Appendix E

Ethical clearance letter

UNIVERSITY of the WESTERN CAPE

OFFICE OF THE DIRECTOR: RESEARCH
RESEARCH AND INNOVATION DIVISION

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24 July 2017

Ms M Manguvhewa
Psychology
Faculty of Community and Health Science

Ethics Reference Number: HS/17/5/21

Project Title: Exploring factors associated with substance use among pregnant women in a Cape Town community.

Approval Period: 18 July 2017 – 18 July 2018

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval. Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

PROVISIONAL REC NUMBER - 130416-049