

Naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention of heroin dependent individuals: A South African perspective

by

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DECLARATION

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I declare that

**NALTREXONE MAINTENANCE THERAPY WITH PELLETT IMPLANTATION AS
AN AID FOR RELAPSE PREVENTION OF HEROIN DEPENDENT INDIVIDUALS:
A SOUTH AFRICAN PERSPECTIVE**

is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete reference.

Mr. Hugo Denton van der Walt

.....

DATE:

SIGNATURE

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ABSTRACT

Heroin use and dependency is a growing concern within South Africa, individuals face difficulty in remaining abstinent from the use of heroin due to constant relapse. The opioid antagonist known as the naltrexone pellet implant offers an alternative form of aid to relapse prevention in the recovery and abstinence from heroin dependency. This qualitative study explored the subjective experiences and perceptions of heroin dependent individuals, that made use of the naltrexone pellet implant. This study was rooted in the interpretive, qualitative paradigm where a phenomenological research design was used. Participants were selected using a purposive, snowball sampling technique and four individuals who had made use of the naltrexone pellet implant for the aid in heroin dependency for a minimum of three-months were interviewed. Interpretative Phenomenological Analysis (IPA) was used to extract recurrent themes across participants. The findings suggested that the use of the naltrexone pellet implant was beneficial in the aid for relapse prevention from heroin use. Furthermore, the exploration of difficulties that were faced in remaining abstinent, the attempt to make use of the naltrexone pellet implant and the physical and psychological aspects regarding the use of this alternative method of remaining abstinent were explored in this study.

KEY TERMS

abstinence; antagonist; heroin; illicit substances; interpretative phenomenology; Marlatt's relapse prevention model; naltrexone pellet implant; relapse prevention; South Africa; substance dependence.

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CHAPTER 1: INTRODUCTION

1.1 Background

Heroin abuse and dependency has become a significant concern in South Africa. It has developed into a major problem, which is on the increase. Substance abuse and dependence, has broken out of well-defined localised dependent communities and evolved into a global problem, which infiltrates all strata of society.

The changing nature of substance abuse has shifted from so called 'soft' to 'hard' drugs in the past thirteen years. Data presented by the South African Community Epidemiology Network on Drug Use (SACENDU) indicates that overall 26% of in-patients, those that receive treatment, reported heroin as a primary or secondary drug of use in the whole of Gauteng area, South Africa. It has been reported that in the Gauteng area 34% of heroin patients had previously been in rehabilitation for this substance without achieving abstinence from heroin abuse (Plüddemann et al., 2013).

According to the South African Community Epidemiology Network on Drug Use (2013) heroin is still the most commonly abused illicit opioid in South Africa. South Africa is believed to be a major consumer market for heroin, deriving its supply from South-West Asia via East and West Africa and close to the Middle East, making it one of the major drug trafficking waypoints for heroin (Davis, Niaz, Pietschmann, Shelton, & Vella, 2014). It was also noted that Afghanistan had increased their production of heroin, which has led to increased availability of affordable heroin within South Africa.

Various forms of heroin can be found within South Africa, the most pure form called 'Thai white' is sold, in 2016, for between R30 and R50 per bag. Another form called 'Sugars' is a cheaper version of an illicit substance which consists out of a mixture of cheap heroin and cocaine, however, this substance is usually cut with a variety of other substances that may include rat poison or other household detergents. This is then usually sold for a price that ranges between R10 and R35 per bag. One of the most popular drugs found in the Gauteng area is called 'Nyaope' which is a mixture of heroin and other products that include rat poison and antiretroviral medication, this substance is usually smoked with cannabis (Weich, Perkel, van Zyl, Rataemane, & Naidoo, 2013). The accessibility of the drug has raised concerns of relapse rates within the Gauteng area and a necessary treatment strategy to aid heroin abstinence.

Numerous procedures and interventions have been integrated into the clinical practice of treating heroin use disorder within South Africa. Public healthcare policies designed to reduce the harmful consequences associated with heroin use and developing dependent behaviour, still needs to be implemented in the South African context. However, there are concerns regarding the difficult process that heroin dependent individuals face which involves the ‘coming off’ or ‘staying off’ of the substance known as abstinence. The recovery process of a heroin dependent individual is a complex issue due to individual differences and various pathways of recovery (Dos Santos & van Staden, 2008). Thus, for heroin dependent individuals to be able to cease the use of this particular illicit substance, it is vital to prevent relapse after the detoxification and rehabilitation procedure.

One of the most fundamental features found in drug dependence is the tendency to relapse, this may occur in various periods of abstinence whether it is short or long term. Various factors that seem to have an effect on relapse are drug-associated environmental stimuli that tend to provoke drug-seeking behaviour and cravings which are known as triggers to the use of illicit substances (Giuliano, Robbins, Wille, Bullmore, & Everit, 2013). These so called ‘triggers’ could also be explained in a more theoretical concept developed by Marlatt and Gordon (1985a) in that individuals that attempt to remain abstinent from the use of an illicit substance would be faced with what he called high-risk situations during their attempt to remain abstinent. The opioid neurotransmitter system tends to play a significant role in the mediating conditioned incentive effects of stimuli associated with drugs of abuse (Zubieta et al., 2005).

The recovery and abstinence process from heroin dependency remains a difficult task that may take several years to master, with occasional relapse and setbacks during the recovery process; therefore heroin dependency can be seen as a chronic, relapsing disease (McLellan, Lewis, O’Brien, & Kleber, 2000). Most of our present knowledge of opioid dependence comes from experience with illicit heroin users, all types of opioid agonists such as methadone and suboxone tend to share the same basic neurophysiological pathways and thus the risk of dependence, tolerance, withdrawal, intoxication and abuse increases (Kunøe, Lobmaier, Ngo, & Hulse, 2012).

This may call for the consideration of alternative treatment methods, such as a maintenance or substitute substance, in the treatment process of heroin dependence. One of the most important factors in treating addictive behaviour is the use of psychopharmacological strategies. Naltrexone, as an opioid antagonist intervention in the

field of pharmacotherapy might be an alternative method of aid when it comes to the treatment process of heroin dependence and relapse prevention (Gorman, 2007). Naltrexone hinders the activity of opioids by blocking the μ opioid receptors, thus taking away the euphoric and analgesic effect of opioids such as heroin (Kirchmayer et al., 2002). According to Gorman (2007) the use of naltrexone would result in less discomfort, including a decrease in the trauma and agony being experienced by the dependent individual during the withdrawal phase and should therefore benefit the heroin dependent individual in the recovery process and sustaining abstinence. The use of naltrexone implants have been investigated for the use in treating opioid dependence under the motivation that the use of opioids will be reduced if an individual is unable to experience the pleasurable effects of opioid use known as the euphoric effect (Larney et al., 2014).

The naltrexone pellet implant is not available for purchase within South Africa due to the reason that it has not yet been approved by the Medicines Control Council (MCC). The channel that various practitioners follow in the procedure of access to this implant is currently only available under Section 21 approval from the MCC. The patient would individually apply for the administration of the drug through the practitioner that will send their application for assessment and approval if deemed appropriate. This procedure would be followed only if the patient seeks to remain abstinent but has the inability to do so even after multiple inpatient rehabilitation admissions have been unsuccessful (Weich et al., 2013).

It is recommended that only experienced physicians in the field of substance disorders treatment should prescribe naltrexone for their patients. Specifically, the naltrexone pellet implant is not registered in South Africa, therefore each patient needs MCC approval before it may be prescribed. There are a limited amount of professional practitioners that prescribe and conduct the medical procedure of insertion of the naltrexone pellet implant within South Africa due to the medication's unavailability in the country. The naltrexone pellet implant can be obtained from other countries outside of South Africa via an online pharmacy. These countries include, but is not limited to Hong Kong, Russia and India (Weich et al., 2013).

Naltrexone was initially approved as an oral medication for the management of opioid dependence in countries such as Russia, China, Israel and the USA. However the effectiveness of the use of oral naltrexone was limited due to poor adherence and low retention in treatment during the period that these studies were conducted. Due to these circumstances various other methods have been developed such as the sustained-release formulations of naltrexone that could be injected or implanted (Larney et al., 2014).

The current study focused on the use of the sustained-release formulation of naltrexone which would also be referred to as the naltrexone pellet implant. The study of the use of naltrexone pellet implant in the treatment of heroin dependence is fairly new within a South African context, where a lack of local evidence may lead to uncertainty about the use of this substance as an opiate antagonist in aiding with the recovery process.

Interview data was gathered from heroin dependent individuals' own perspective in an explorative manner, where the subjective experiences of these individuals were examined, transcribed and analysed. The aim was to provide a better understanding of the use of the naltrexone pellet implantation as an aid for heroin dependent individuals for relapse prevention from the use of heroin. This was done in order to answer the overall research question regarding the subjective experiences of individuals that made use of the naltrexone pellet implant as an aid for relapse prevention.

1.2 Research Problem

According to the SACENDU report (Plüddemann et al., 2013) the use of heroin in the South African context remains a growing problem across many treatment sites. Heroin is mostly smoked although there is a steady increase of patients reporting that they inject heroin in the past year. This poses is a major threat not only to the vast dependent properties associated with the use of heroin, but to the concern of the sharing of needles which is associated with health and social harms such as hepatitis and other infectious diseases such as HIV. Many infectious diseases may be transmitted to individuals that are non-heroin users, whereby it poses as a public health concern if not controlled, regulated or treated.

There seems to be a lack of valid information when it comes to knowing about certain medications in aiding or assisting in treatment of heroin related disorders, specifically the use of the naltrexone pellet implant in the local context. Individuals that suffer from substance use disorders may go to many lengths to try and find a way to cope with their dependent lifestyle. For them to be able to deal with the psychological aspects of substance abuse, they need to find some way to deal with the physical factors that come with being dependent upon a substance such as heroin (Dos Santos, Fourie, Rataemane, & Trathen, 2010).

Due to a high rate of relapse and poor social readjustment possibilities when it comes to the use of heroin, the combination of both psychological and pharmacological factors would contribute in a meaningful way to a better understanding and intervention of individuals affected by continuous heroin abuse (Gorman, 2007). Customary practices in the

treatment process of heroin dependency were limited to three main alternatives that include: detoxification followed by long-term residential treatment; opioid maintenance treatment; and oral naltrexone (Kunøe et al., 2012). The process of detoxification followed by a long-term residential treatment has been found to be successful in some reduction in the use of illicit substances for some patients, however they tend to suffer from difficulties with maintenance in treatment and have a major risk for overdose upon discharge from the long-term residential facility (Gossop, Stewart, Browne, & Marsden, 2002). Opioid maintenance treatment involves agonist medications that include methadone, buprenorphine, suboxone, or medically dispensed heroin that are administered under controlled supervision and is seen as substituting or maintaining dependence to heroin. The opioid maintenance treatment has been found successful in reducing mortality, morbidity and drug-related criminal activity, however, there remain concerns around the dropout rate during the initial months of treatment and that only a minority of these patients are able to achieve normal vocational and social functioning (Verthein et al., 2008).

The focus of this study was to explore and understand the subjective experiences of heroin dependent individuals regarding the naltrexone maintenance therapy with pellet implants as specifically suited for withdrawal difficulties, cravings and obsessions in order to prevent relapse from occurring. This study has aimed to provide understandings of the use of naltrexone maintenance therapy with pellet implantation and to enhance the knowledge of medical healthcare professionals and the general public regarding this treatment method. It may offer an alternate form in future treatment where substance abuse problems and difficulties of abstinence to various substances will not interfere with the process of psychological as well as physical rehabilitation. The researcher set out to gain an in-depth understanding in the use of this aid from the perspective of dependent individuals and their experiences of the recovery process with the naltrexone maintenance therapy with pellet implantation as it was the participants' personal journey that informed a rich description of their attempted recovery process.

1.3 Grounds From Where the Topic Emerged (Experiences of the researcher)

During the researcher's honours degree a six-month internship was required in order to be able to register with the Health Professions Council of South Africa (HPCSA) as a Registered Counsellor. During this period the researcher had gained some experience at SANCA in working with individuals that suffer from addictive behaviour. It was noted that

the group of individuals that tend to suffer the most from various drug-related problems, both during abstinence and use, was the opioid dependent individuals. In fact, the worst case noted was an male client that had extreme withdrawal symptom from the use of “Nyaope”, he was sick, confused and scared and wanted to leave as soon as possible in order to return to using.

During this period, at honours level, a fellow student was working on a paper regarding the use of naltrexone implants in the South African context that sparked the interest of the researcher. After a few readings on the use of naltrexone implant the researcher asked the opinion of the fellow colleagues at SANCA if they were aware of the “miracle drug” known as naltrexone. Their response was a form of disapproval and disappointment regarding the use of the naltrexone implant that led the researcher to believe that there is more to be explored regarding the use of this “miracle drug” known as naltrexone.

When the researcher asked various heroin dependent individuals regarding their awareness of the substance known as naltrexone, it seemed that they were not aware of this specific aid to recovery. Some of these individuals mentioned that they have heard of a friend or a family member that had this “implant”. However, soon enough the researcher noted that individuals tended to confuse the naltrexone implant with a substance that is used for alcohol recovery know as Antabuse. This led to the believe that the people tend to become confused with a drug that was not yet registered or freely advertised in general public.

From these initial experiences, the researcher became interested in the experiences of individuals who have utilised naltrexone implants during their recovery process from heroin dependence, including the different processes that they went through in order to remain abstinent from heroin use.

1.4 Research Questions

Maree (2014), advised that a good research question relates directly to the selected research topic at hand where it is linked logically and conceptually by using the same terms as used in the research topic. A research question should be easy to understand and be able to be implemented on its own. With this in mind, the research question for the purpose of this research project is:

What are the subjective experiences and perceptions of individuals who made use of the naltrexone maintenance therapy with pellet implantations as an aid for relapse prevention from heroin use and dependency?

1.5 Research Aims

The aim of this proposed study was to explore the use of naltrexone maintenance therapy with pellet implantations as a suitable option in aiding individuals who suffer from attempting to remain abstinent from the use and dependency to heroin. Such an exploration was pursued to gain a better understanding of the subjective experiences of patients who receive naltrexone maintenance therapy with pellet implantation in preventing relapse and maintaining abstinence from the abuse of heroin. This would provide a description and form a platform of what it entails to be on the naltrexone pellet implant in aiding individuals with heroin abuse problems.

1.6 Chapter Contents

This study consists of five chapters, each serving its own purpose for the totality of the research project. Chapter one provides an overview of the study that includes the aim, problem and purpose of the study. Chapter two reviews the literature of the topic and outlines the theoretical framework pertaining to the study. Chapter three describes methodology of the current study with the Interpretative Phenomenological Approach as the paradigmatic perspective. Chapter four discusses the findings that arose from the analysis process of the study regarding the participants' subjective experiences and perceptions regarding the use of the naltrexone pellet implant as an aid to relapse prevention of heroin use. Lastly, Chapter Five concludes the study by means of an elaboration of the limitations of the current study and recommendations for the field of heroin dependence.

Chapter One forms the introduction to the study at hand, providing a summary of the relevant factors included in the study. It describes the problem statement regarding the use of naltrexone maintenance therapy with regards to relapse prevention of heroin addiction in a South African context. It includes a brief description of the need for alternative methods to deal with the problem of heroin use in South Africa and its emerging availability to the general public. The aim and purpose of this introduction is to provide an overview of what the study entailed and how the researcher decided to approach the research question. This chapter included the research question that forms the benchmark of this particular study in the collection of the relevant data in order to have answered it appropriately.

Chapter Two forms the basis of the understanding of the relevant literature. This chapter serves the purpose of introducing and elucidating the reader to the relevant factors of heroin and the use of the naltrexone pellet implant in aiding individuals with heroin

dependency. The literature review chapter aimed to provide informative background on relevant topics that are related to the distribution, availability, use, concerns, psychopharmacology, dangers of the use, health implications and administration of heroin. This chapter focused on various aspects regarding the use of naltrexone maintenance therapy with pellet implantation, portraying various factors related to naltrexone which include different forms of naltrexone, the availability, the process of administering, previous studies, psychopharmacological factors and other relevant information pertaining to the use of naltrexone maintenance therapy with pellet implantation. Focus was given on a South African perspective regarding the relevant factors pertaining to the use of naltrexone pellet implantation therapy and heroin dependency. Furthermore, this chapter included the theoretical framework related to heroin dependency and relapse prevention that was used in various processes in conducting this study. Moreover, this theory is known as the relapse prevention theory which was integrated to the use of naltrexone as an aid to relapse prevention with the focus of exploring the subjective experiences of individuals that went through this type of therapy.

Chapter Three focuses on the methodological approach of the research study, in that a focus was given to the paradigmatic approach of Interpretative Phenomenological Analysis (IPA) as the lens through which this study was conducted. Furthermore, this chapter outlined the research design, the method of sampling, the data collection method and the process of how the data was analysed according to the IPA format. Moreover, this chapter stipulated the measures the researcher took in order to ensure the trustworthiness of this particular study at hand. The ethical considerations throughout the process of conducting this study were also included in this particular chapter, together with the significance of this particular study at hand.

In Chapter Four the researcher discussed the findings that arose during the analysis process of this particular study. This chapter included a brief narrative of each participant as to provide a wholistic picture of each participant. This chapter continues to discuss five superordinate themes together with twenty four subordinate themes regarding these participants' subjective experiences and perceptions regarding the use of the naltrexone pellet implant as an aid to relapse prevention to heroin use and dependency.

Chapter Five concludes the current study by presenting the overall findings of this study. The final chapter aimed to sum up the research process of conducting this study together with a conclusion of the findings that arose from the gathering of information from

the participants in this study. Furthermore, this chapter outlines some of the limitations that the researcher became aware of and faced during the researcher process. This chapter ends of with future recommendations for studies in this particular field.

1.7 Summary

This chapter provided an overview of the research problem to the current study together with a brief background in order to inform the reader of the use of the naltrexone pellet implant in the aid of relapse prevention from heroin use within the South African context. Furthermore, this chapter outlined the purpose, aim and outline of the study.

CHAPTER 2: LITERATURE REVIEW: AN OVERVIEW ON NALTREXONE MAINTENANCE THERAPY WITH PELLETT IMPLANTATION, HEROIN DEPENDENCE AND PHARMACOLOGICAL INTERVENTIONS

2.1 Introduction

A literature review involves the identification and analysis of information resources and literature related to one's own research study at hand. The process of a literature review comprises of identifying potentially relevant sources, an initial assessment of these sources and the construction of an account that integrates and explains relevant sources. It tends to put the research study into context by showing how it fits into a particular field (Terre Blanche, Durrheim, & Painter, 2006).

This study focused on the use of naltrexone maintenance therapy with pellet implantation with regards to relapse prevention to heroin dependence, with special focus on the subjective experiences of the individuals regarding the use of naltrexone pellet implantation as a method to aid the process of recovery from heroin dependency. It aimed to provide an indication to what these individuals experienced when making use of this treatment method.

A holistic approach towards this study was adopted to ensure that a rich description of these individuals' experiences could be explored in order to form a platform of information of what it is to be on this specific treatment method from the perspective of the recovering dependent individual.

The researcher was aware that it would be more appropriate to speak of the person with heroin use disorder, rather than of the 'addict'. Furthermore, it is important to note that the researcher took a stance of curiosity in terms of the study of the subjective experiences of individuals who made use of the naltrexone pellet implant as an aid to relapse prevention. The research did not intend to sell or advertise this specific form of treatment, but rather the intention was to explore the use of this treatment modality which may benefit healthcare professionals and the general public by informing them regarding the use of this particular aid from the perspective of the individual who made use of this aid.

The particular literature review focused on the use of naltrexone maintenance therapy with pellet implantation, providing an in-depth description of the origins of this treatment method. Previous research regarding the use of naltrexone in various formats including the pellet implantation form was discussed in order to form an overview of the use of naltrexone.

A description of the procedure of accessing this form of treatment was included together with the procedure of administering (surgically) this form of treatment within the Gauteng province of the Republic of South Africa. Previous research regarding the use of naltrexone maintenance therapy with pellet implantation was included in this review. Epidemiological information regarding the use of heroin and its different formats was explored, including a more concrete discussion on the use, availability, and effects of heroin within the South African context, and why it is necessary to explore this alternative form of treatment in South Africa. Various treatment methods related to the recovery and maintaining abstinence from heroin abuse were explored as the use of naltrexone maintenance therapy with pellet implantation involves a psychological treatment procedure that needs to be followed when individuals with heroin dependence are making use of the naltrexone implant.

2.2 Substance Abuse as a Worldwide Problem

It is estimated that globally 243 million individuals, which corresponds to 5.2 per cent of the world's population, between the ages of 15 and 64 years of age had previously used an illicit drug. These illicit substances consist mainly of cannabis, opioids, cocaine or amphetamine-type stimulants (ATS) which were used at least once in the previous year of 2012. Globally, cannabis users comprise the largest number of illicit drug users with an estimate of 177 million people. The amphetamine-type stimulants was ranked as the second most common type of substance with an estimate of 34 million users globally, followed by cocaine and opiates. It has been reported that since 2009 there has been an increase in the use of opioids and cannabis (Davis et al., 2014).

The one main focus of substance abuse is the 'problem drug user': who are individuals who engaged in the high-risk consumption of illicit substances. There is no standard definition of a 'problem drug user'. However, a workable definition includes individuals that tend to inject illicit substances, people who use these substances on a daily basis, and who are diagnosed with substance-related disorders based on clinical criteria. With regards to the injecting of illicit substances, there still seems to be a gap in service provision when it comes to the treatment of 'problem drug users', it was found that only one in six 'problem drug users' have had access to treatment services globally, these include the injection of cocaine and heroin (Davis et al., 2014).

2.3 Substance Abuse as a Problem in South Africa

Since the mid-1990s the price of illicit substances has demonstrated some change which contributed to an increase in demand and availability of the less customary drugs of choice. The South African Rand price remained stable, however, when expressed in US dollars, the price of illicit substances such as cocaine and heroin fell by more than 75% between 1992 and 2001. This allowed for a much wider consumer market of these particular substances. Drug users were more able to finance the use of these more dependent prone substances which could not previously be afforded. This price drop caused the likelihood of drug use among lower income and youth within South Africa (UNODC, 2006).

The massive increase of the role of illicit substances within South Africa is of significant concern. Findings from the South African Community Epidemiological Network on Drug Use (SACENDU) indicates that the use of cannabis still remains one of the most often used illicit substances among youth that attend specialist treatment centres. However, in the Western Cape the amount of adolescents admitted to in-patient clinics for the abuse of methamphetamine-related (known locally as ‘tik’) problems remain dominant when it comes to this province. The use of heroin remains a growing problem in most parts of South Africa, except for KwaZulu Natal (KZN) where it seems to have remained stable. Of concern is that though heroin is most commonly smoked and snorted, there is evidence that indicates the increase of the injection of this substance which poses various health related problems such as infectious diseases including the transmission of HIV/AIDS due to the sharing of needles (Dada et al., 2014).

2.4 Heroin

Heroin can be referred as a narcotic, an opiate, or an opioid. The term ‘narcotic’ is derived from the Greek word for ‘narkōtiskos’ which means numbing or stupor. It originated from the fourteenth century where the term was used to refer to certain substances that produced stupor or sleep that was associated with pain relief. The term referred mainly to opium and its derivatives such as the morphine like analgesics, or opium like compound (Korsmeyer & Kranzler, 2009). The term ‘narcotics’ is used to refer to a variety of illegal substances and is used mostly in legal context. There are government laws that prohibit the use, selling, buying and distribution of these substances, so contravening these laws is punishable by law.

Opioids can be seen as biochemical synthetics that are usually prescribed by physicians to help patients with the alleviation of pain and can also be used to suppress coughing. Opioids have morphine-like action when it enters the body. Opioids are also used in postoperative situations where it acts as an analgesic for pain management. Furthermore, opioids are also used for the therapeutic purposes in cancer and terminal illnesses. They act by binding to receptors in the brain and limit the release of neuro-transmitters involved with pain (Gulmatico-Mullin & Cross, 2009).

The term 'opiate' can refer to as any psychoactive substance of either natural or synthetic origin that has an effect similar to morphine. Opium, however, is the raw efflux of the opium poppy (*Papaver somniferum*) that is scraped from the scored seed head of the poppy (a herbaceous plant). This sap that is collected contains a number of alkaloids, including morphine and codeine. Morphine and codeine are extracted from opium, and heroin is manufactured chemically from morphine. Morphine is used in variety of medical incidents in order to stop pain and is legal when prescribed by a medical practitioner (Rassool, 2010). Opiates are distinguished from opioids, in that opiates are known as narcotic alkaloids and are derived from opium. Such derivatives include morphine, codeine, and thebaine (Gulmatico-Mullin & Cross, 2009).

Diacetylmorphine, better known as heroin, is an illegal and highly dependent substance that is synthesized from morphine, a naturally occurring substance that is extracted from the seed pod of the Asian opium poppy plant. Heroin is usually found in a white or brown powder, it can also take the form of a black sticky substance that is known as black tar heroin. This substance has various street names depending on the region that it would be found in, some of these names may include smack, horse, junk, tai white, shag etcetera (Kleiman & Hawdon, 2011). As an imitator of endorphins, heroin is well known for creating a sense of euphoria and well-being a short time after being introduced into the bloodstream of the individual that tend to use or abuse this substance. One of the notable dangers in the use of heroin is the fact that it tends to have an extremely high potential for addiction, as tolerance can occur rather quickly with constant use of heroin. Although heroin is illegal in various countries, heroin is a legal prescription in other countries under the name diamorphine and is used for various medical purposes (Wessel, Martino-McAllister, & Gallon, 2009).

2.4.1 The Distribution of Heroin

Globally, the cultivation of illicit opium poppy plants in 2013 was estimated to be 296,720 hectares. This was the highest amount since the estimates became available in 1998. The cultivation of poppy plantations has increased in both Afghanistan and Myanmar where the main increase was found to be in nine provinces of the southern and western part of Afghanistan, where the poppy cultivation increased by 36%. This caused an increase from 154,000 hectares in 2012 to 209,000 hectares in 2013. South-East Asia, specifically the Lao People's Democratic Republic, is another country that has a massive contribution towards the cultivation of opium poppy production with an estimate of 3,900 hectares being produced in 2013 alone. However Afghanistan still produces the largest amount of opium globally with an estimate of 80% of the world's heroin being produced in Afghanistan.

South Africa tends to be affected by the increase in the opium and heroin trade as South Africa is one of the regional hubs for drug trafficking, and the largest zone for illicit drugs. Various drug cartels have established contacts with Asia and far Eastern producers to use South Africa as a conduit for smuggling heroin and opium to Europe and the United States of America (USA). The World Drug Report of 2013 showed that Afghanistan, Pakistan and South East Asia are some of the biggest sources of opiates worldwide. East Africa has been reported to be the point of entry for heroin entering the African continent, intended for South Africa and trafficked through countries on the East African and South African coast. The estimate use of heroin in West and Central Africa is above the global norm with small scale trafficking occurring by air, notably through Nigeria (Davis et al., 2014).

The prevalence of heroin use is seen as very low when compared to other illicit substances such as cannabis. According to the UNODC (2009) it was estimated that between 15 and 21 million people aged between 15 and 64 years used opioids in the preceding year globally. This indicates that between 0.3% and 0.5% of the global population have made use of an opioid during 2010. Rates appear to be highest per capita in Europe ranging from 0.6%-0.7%, followed by the Americas and Oceania with 0.4%. Africa falling within the 0.2%-0.5% margin and Asia between 0.3%-0.5%. As these proportions indicate, opioid use is truly an international phenomenon. Heroin constitutes a large proportion of global opioid use, with at least 9 million estimated users globally. Recent use estimates that major heroin markets include the United Kingdom (0.1%), the United States (0.2%) and Australia (0.2%) (UNODC, 2009).

The misuse and abuse of illicit substances emerged in South Africa during the 1960s and the 1970s, where globalisation has caused a widespread introduction to potent dependent drugs such as heroin, cocaine and ecstasy in the South African context. According to Leggett (2002) access to these type of highly dependent substances was not readily available to society prior to the lifting of political and economic sanctions in 1994. The development of South Africa's communication, transportation and advanced banking systems during the country's reintegration into the worldwide community during the 1990s, has opened certain pathways for the trafficking of a number of illicit commodities that includes illicit substances. Thus the end of the Apartheid era marked a new opportunity for the trafficking, consumption and distribution of various illicit substances between the source countries such as Asia and South America and the major consumer markets such as Western Europe and North America. Although South Africa is not the most direct route between the areas for major trafficking, it is used for trans-shipment of illegal substances. This is due to the opportunity that has now been open due to the end of Apartheid, where quality air and sea travel connections via South Africa to many areas of the world offer the trafficking world an attractive drug transit country (Davis et al., 2014).

2.4.2 Heroin Epidemic in South Africa

South Africa has a reported increase in the use of heroin, where treatment facilities across the country have reported that the use of this substance is of growing concern. Heroin use has nearly doubled since 2012 in Southern Africa, with the price of heroin being lowered dramatically causing the drug to be more affordable for heroin users and heroin dependent individuals. It has been specifically marketed in certain townships and areas around the country (Davis et al., 2014).

Data presented by SACENDU (Dada et al., 2014) of in-patient treatment centres indicate that within the Gauteng region the amount of in-patient treatment admission has been decreasing significantly since 2009. The most common primary substance of abuse in 2013 was found to be cannabis with a 40% of the population preferring cannabis as their primary choice of drug. The concern regarding the use of cannabis is that the illicit cocktail known as 'nyaope' which main component of illicit substances is a form of cheap heroin, is usually smoked with cannabis. However, it is unclear from the data whether the same percentage of users had made use of 'nyaope' and cannabis as a drug cocktail. The use of nyaope recorded from 2012 and the data indicates that in the Gauteng province the use of nyaope has been

stable up until the recent findings of 2013 with an indication that only 4% of the population had made use of nyaope as their primary substance of abuse.

In southern suburbs of KwaZulu-Natal known as Chatsworth, heroin is referred to as ‘sugars’ and affects at least 70% of households. In the area of Tshwane people are especially vulnerable to nyaope which has become very popular.

Evidence from SACENDU that was sourced from 2684 individual admissions to 17 different treatment centres recorded in the first half of the year 2010 showed that within the Gauteng area, 44% of the patients’ primary substance of abuse was alcohol, followed by cannabis with 27% and heroin with 12%. Admissions for various drugs have remained fairly stable except for an increase in the use of heroin (Dada et al., 2014). Treatment centres within the Johannesburg area are already overwhelmed with people seeking help, where it has been reported that a lack of staff as well as a lack of funds contribute to the lack of recovery rates from substances such as heroin (Gosh, 2013).

2.4.3 Heroin Administration

Heroin is one of the most popular opiates of use in the South African context. Due to its ability to cross the blood-brain-barrier more rapidly as compared to other opiates, it tends to result in instant intoxication. There are three main routes of administering heroin into the human body. Firstly, heroin can be smoked by means of carefully heating the drug on the surface of a piece of tin foil, resulting in the inhalation of the volatile drug vapour (referred to as ‘chasing the dragon’). Secondly, a method consists of insufflating the substance directly into the nasal cavity (‘snorted’), and finally the substance can be injected by means of the use of a hypodermic needle that is put into the skin of various parts of the body (called skin-popping). The other method of administration is intravenous consumption (which is referred to as spiking or mainlining), where the user will heat the heroin within water (typically a spoon) in order to obtain the injectable solution. The ‘spiking’ method is favoured due to the type of opiate ‘high’ that is caused within a few seconds (Iversen, Iversen, Susan, Bloom, & Roth, 2009). The intravenous administration of heroin is also seen as the most practical and efficient method of use for low-purity heroin.

With the injection of heroin, users describe four different components of intoxication that may overlap over time. The *first* component has been noted by various users as an intense feeling of euphoria called a ‘rush’ that usually tends to occur within ten seconds after the heroin has been administered. This euphoric feeling is described by the users in sexual

terms as an ‘orgasmic wave’ of euphoria. The euphoria is followed by a high that is associated with a general feeling of well-being that lasts for hours after the ‘rush’ has occurred. Corresponding with the high is the ‘nod’, which consists of a state of sleepiness that represents a state of escaping from reality. During the phase of the ‘high’ and ‘nod’ the external world tends to become uninteresting to the user, calmness and detachment from reality then starts setting in. In the last stage of ‘being straight’ the user stops experiencing the ‘high’, ‘nod’, ‘euphoric feeling’. Subsequently, the physical and psychic feelings of the withdrawal stages, usually occurs eight hours after the last administration of the substance (Iversen et al., 2009).

According to SACENDU the primary method of administration of heroin is smoking, although there seems to be a steady increase of patients reporting injecting heroin. Patients from treatment centres have also reported the injecting of other drugs such as cocaine, methcathinone (CAT), methamphetamine and over-the-counter/prescription medication (Dada et al., 2014). There seems to be no results or records on the various methods of heroin consumption within South Africa.

A study conducted in London interviewed a sample of 408 heroin users regarding their predominant route of heroin administration. Clear preferences of heroin administration indicated that there were two predominant routes of administration which indicated that injecting (54%) was the primary route of administration and that smoking or ‘chasing the dragon’ (44%) was second in line for the preferred method of administration. More than a third of the sample reported changing their primary route of administration. There was only one transition reported from the administration of smoking to injecting, however the transition to injection was not inevitable: the majority of individuals that had used chasing as a method of administration had never moved to injecting despite reporting that they had been using large amounts of heroin for many years. It was found that many chasers give up heroin and tend to remain abstinent without moving to injecting. When it came to gender it was indicated that women were less likely to move from chasing to injecting. A small group of injecting user (16%), both male and female, had shifted from injecting to chasing heroin (Griffiths, Gossop, Powis, & Strang, 1994).

2.4.4 Heroin Pharmacology

Heroin tends to have various street names that include Thai white, horse, black tar, junk or smack, however, the more accepted term for heroin in the medical community is

diacetylmorphine. The production of this illicit substance starts off by collecting the raw opium obtained from the poppy plant (*Papaver somniferum*). Collecting the milky exudate from the incising capsule after the flower has bloomed, this milky substance is then air-dried and rolled into balls that has a resin like consistency. This raw opium is dissolved in hot water where it is then 'purified' by the addition of lime salts, the addition of this substance causes the precipitation of organic waste which leaves a suspension of morphine. The process following filtration and reheating consists of the addition of ammonia as a precipitant, and the morphine is re-filtered and packaged for shipment. In this process the morphine base has been reduced to one-tenth the volume of the original raw opium. This extraction process is a simple process and can be performed at almost any location (Stimmel, 1975).

The process involving the synthesis of heroin from a morphine base, however, involves several steps which requires a laboratory for its production and may even take up to 24 hours to complete. Synthesising heroin starts off by treating the morphine base with acetic anhydride in equal amounts and is then heated for six hours, wherein the conversion to heroin or diacetylmorphine occurs. Impurities are removed by means of treating the substance with chloroform, this is then followed by precipitation of the heroin with sodium carbonate. This step is repeated several times until the desired purity is then achieved. This repeated process results in a cocoa-coloured substance that is bleached with activated carbon and alcohol. It is then neutralised with hydrochloric acid with conversion to the hydrochloride. The heroin is then baked and sifted which results in a white coloured substance that is ninety percent free from impurities. Alternatively, the morphine base may be initially treated with acetone, bleached and purified prior to the addition of acetic anhydride to produce the heroin (Stimmel, 1975).

When heroin is injected into the bloodstream of the human body it is rapidly diacetylated at the third position to 6-monoacetyl morphine (MAM), which in turn is 6-deacetylated to morphine at a slower rate. Levels of MAM are detected within minutes after injection and are followed shortly thereafter by the appearance of morphine in increasing concentrations. This indicates that deacetylation of heroin probably precedes its specific pharmacologic effect with MAM and morphine becoming subsequently responsible for most of its pharmacologic effect. Within a short period of time, cerebral levels of heroin are not present although the pharmacologic action of the drug continues unabated. Heroin appears to have a greater lethal effect than morphine when used parenterally. This may be due to the greater ability of MAM to transverse the blood-brain barrier due to its increased lipid

solubility (Stimmel, 1975). The rush that is experienced by the injectable use of heroin is almost immediate, which is due to the heroin reaching the brain before the drug has had time to be diffused through the bloodstream and changed into morphine. It is this effect that accounts for heroin's greater power (Kaplan, 1983).

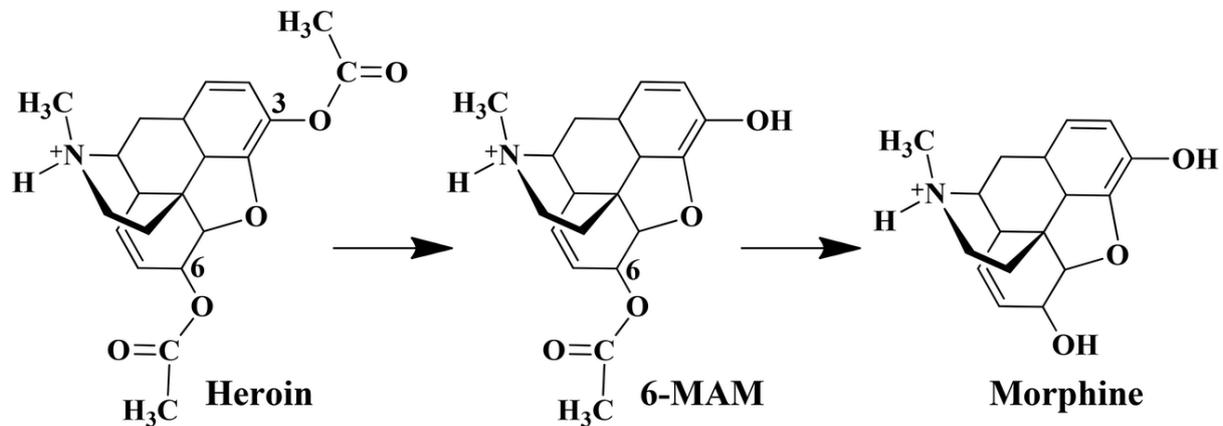


Figure 1. The metabolic pathway to morphine (Qiao, Han, & Zhan, 2014, p. 2215).

Opioid receptors have been demonstrated in all vertebrates. The primary effects of opioids are mediated through the opioid receptors. The μ -opioid receptors are involved in the regulation and mediation of analgesia, respiratory depression, constipation and dependence; the κ -opioid receptors, with analgesia, diuresis and sedation; and the δ -opioid receptors, possibly with analgesia. In 1974, an endogenous pentapeptide with opioid-like actions called enkephalin was identified. The discovery of this pentapeptide led to the identification of three classes of endogenous opioids within the brain, these included the endorphins and the enkephalins. These endorphins are responsible for neural transmission and pain suppression. These endorphins are released naturally when an individual is physically hurt and experiences pain symptoms, where these natural endorphins are then responsible for controlling the pain during acute injuries. These opioids also have some effect on the dopaminergic and noradrenergic neurotransmitter systems. Data has indicated that the dependent rewarding properties of opioids are mediated through the activation of the ventral tegmental area dopaminergic neurons that project to the cerebral cortex and the limbic system (Sadock & Sadock, 2007).

Heroin as a highly addictive narcotic imitates natural chemicals in the central nervous system. Endorphins tend to activate the body's opioid receptors which are proteins in the cell membrane. Heroin is an antagonist that binds to the receptors in order to initiate the receptors' effects. A high level of these natural receptors are located in the limbic system of

the brain-this is the region of the brain that controls memories, emotions, smell and hunger. Other opioid receptors are found in other regions of the body including the spinal cord, intestinal tract, and other regions of the brain such as the periaqueductal gray region and the medulla oblongata (Gottås et al., 2013).

Heroin modifies the action of dopamine in the nucleus accumbens and the ventral tegmental area of the brain – these areas form part of the brain’s ‘reward pathway’. Once crossing the blood-brain barrier, heroin is converted to morphine, which acts as a powerful agonist at the mu opioid receptors subtype. This binding inhibits the release of GABA from the nerve terminal, reducing the inhibitory effect of GABA on dopaminergic neurones. The increased activation of dopaminergic neurons and the release of dopamine into the synaptic cleft results in sustained activation of the post-synaptic membrane. Continued activation of the dopaminergic reward pathway leads to the feelings of euphoria and the ‘high’ associated with heroin use. Morphine is a weak agonist at the opioid kappa and delta receptor subtypes and activation of these receptors has a weak activating effect on the dopaminergic reward pathway (Gottås et al., 2013). This process can be viewed in Figure 2.

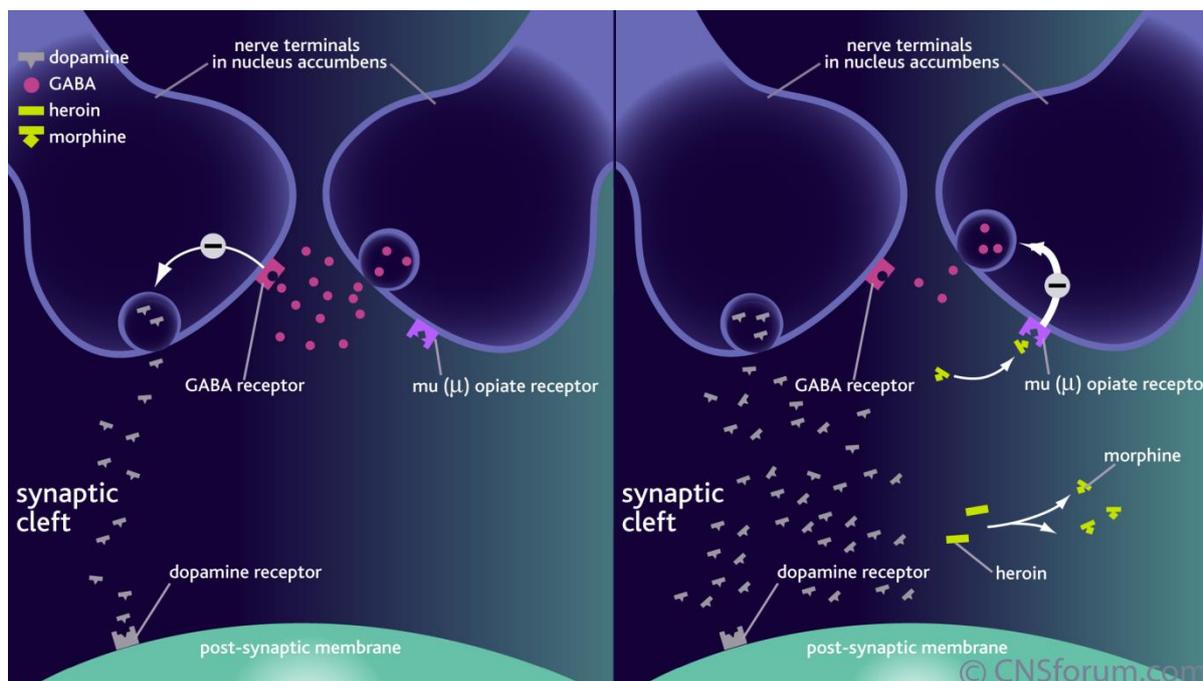


Figure 2. The mechanism of action of heroin at the mu (μ) opiate receptors (CNS forum, 2014).

Given the crucial role of reward, motivation and emotion in learning and information processing that are associated or linked to these neurological systems, it therefore seems likely that the endogenous opioids affect even the highest cognitive functions in humans.

Under natural conditions, the releasing stimuli for the endogenous opioid system are probably emotional. Exogenous opioids like morphine and heroin presumably operate by taking the place of endogenous opioids at the opioid receptors. Such unnatural ligands cannot match the fine tuning that the system shows when it operates under natural conditions, using its own endogenous chemicals. The effect of exogenous opioids is inflexible. Since their administration is under external rather than situational control, opportunities for 'misuse' are much greater (Krivanek, 1988).

2.5 Heroin Dependence Potential

A psychoactive substance is any substance that, when taken into the living organism, may modify one or more of that organism's functions. This in return produces mood-altering changes and distorted perceptions. Many psychoactive substances involve a direct activation of the brain reward system which produces reinforced behaviours. This causes normal activities in the brain to be neglected, thus causing the reward pathways to be directly activated when the substances are abused, resulting in a feeling of pleasure or often called a 'high' (American Psychiatric Association, 2013). One of the significant long-term effects of heroin is the physical dependency that the person may develop which causes a chronic relapsing disease (National Institutes of Health, 2014).

Illicit substances tend to be extremely rewarding, which promotes continuous or repetitive use. In some individuals, those whom are prone to the development of substance use disorders, repeated use of an illicit substance can lead to the development of severe substance-related disorders whereby the individual loses control of the use of the illicit substance. As the individual continues to use the substance in a chronic manner, the dependent individual's nervous system adapts to repeated exposure. Indeed, when the drug is then withdrawn from the system, similar unpleasant emotional reactions and changes in the brain will occur, regardless of the specific drug. It is these effects that are responsible for craving and relapse, even after long periods of abstinence (Julien, Advokat, & Comaty, 2011).

Almost all substances of abuse have a similar effect on the neural system of the human body that tends to serve as a reward circuit. This system constitutes one of the major brain pathways for dopamine, called the mesolimbic dopamine pathway. This pathway begins with a structure that is located in the midbrain known as the ventral tegmental area (VTA) which consists out of a group of dopamine neurons. The axons of these dopamine neurons

extend to several other brain structures, where they release dopamine when the VTA is activated. The most relevant structures are the nucleus accumbens (NAc), the amygdala, the hippocampus, and the prefrontal cortex. In addition to the dopamine neurons, there are also other types of neurons within the VTA that interact with dopamine neurons. Some release the neurotransmitter known as GABBA, this inhibits dopamine neurons and under baseline conditions, reduces dopamine release (Julien et al., 2011).

A converging body of evidence has indicated that, regardless of the specific effects of abused drugs, they share a common action with respect to this mesolimbic dopamine pathway. Each drug increases dopamine transmission in this pathway, this means that most abused drugs increase the amount of dopamine transmission that is released from the VTA onto the NAc, amygdala, hippocampus and the frontal lobe. Opioids tend to act on the receptors that are located on the GABBA neurons and inhibit GABBA release. When GABBA release is reduced, there is less inhibition of dopamine neurons and dopamine release increases (Julien et al., 2011).

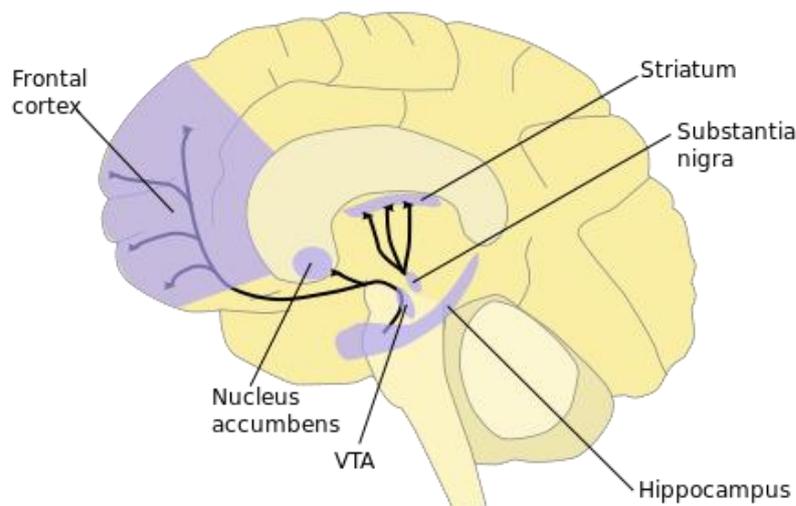


Figure 3. Dopamine pathways (Okinawa Institute of Science and Technology, 2013).

Specifically, heroin use tends to be extremely dependent, which causes regular users to seek for higher doses in order to experience the same effect. The most worrisome property of the use of heroin is the related effects of tolerance and dependence. Tolerance starts to develop as soon as the effect of a certain dose diminished with repeated use. As an individual becomes more tolerant to the use of a certain substance, the dosage of use needs to be increased in order to obtain the similar effect of the substance (Kaplan, 1983). Therefore a

much larger dose of heroin would be required in order to obtain the same euphoric effect as previously experienced and this causes fatal respiratory-depression in the drug experiencing individual as compared to the non-heroin user (Siegel, 2001).

Heroin dependency can be viewed as a severe condition to suffer from, however it is not so easy to become dependent to the use of heroin as people believe. Numerous 'rookie' users become violently ill after the first time that they try heroin (Kaplan, 1983). Studies indicate that injecting heroin is seen as the end stage of a long opioid-use career that dependent individuals reach after 2-12 years of non-parenteral opioid use (Jafari, Movaghar, Craib, Baharlou, & Mathias, 2009). There seems to be at least two key transitions in the progression from opium smoking to non-injecting heroin use to injecting heroin use. The transition from opium smoking to injecting heroin can be explained by the built up of one's drug use tolerance with the increase of dosage that tend to cause switching to a more potent opioid preparation, eventually switching to the injecting of heroin (Malekinejad & Vazirian, 2012).

The long-term use of opioids results in changes in the number of sensitivity of opioid receptor cells, which tend to mediate at least some of the effects of tolerance and withdrawal. Although long-term use is associated with the increased sensitivity of various neurotransmitter systems that include dopaminergic, cholinergic, and serotonergic neurons, the effect of opioids on the noradrenergic system is the primary mediator of the symptoms of opioid withdrawal (Sadock & Sadock, 2007). Heroin dependent individuals can however inject a large amount of heroin that results in death. Fatal overdoses are usually evident by individuals with a history of long-term heroin abuse. It would be expected that they would be very tolerant to the use of heroin (Siegel, 2001). There may be various factors contributing to the overdose of heroin, one factor highlighted by Darke and Zador (1996) is that the cause of an overdose may likely be attributed to the synergism between the opiate and other drugs that are concomitantly administered, or from the adulterants in the heroin. Another explanation that can contribute to the causation of a heroin overdose is the opiate dependent individual's tolerance, where they would usually be able to tolerate huge amounts of heroin and are on the last occasion unable to tolerate a large amount of heroin (Siegel, 2001).

2.6 The Epidemiology and Aetiology of Heroin Use

A study by Van Etten and Anthony (1999) indicated that 20% of those individuals who had an opportunity to use heroin did so, and 17% did so within 12 months of the initial

offer. Results showed that males were twice as likely as females to have had the opportunity to use heroin. There seemed to be no sex differences in the likelihood of use once an opportunity arose, with 18% of males and 26% of females using after being given the opportunity. It seemed that gender differences in the epidemiology of heroin use are due to opportunity and that it is not due to any differences in susceptibility in the transition of use.

When it comes to the psychosocial factors associated with the aetiology of heroin use disorder it can be seen that opioid dependence is not limited to the low-socioeconomic classes as one would assume, although the incidence of opioid dependence is greater in these groups than in higher socioeconomic classes. An estimated 50% of urban heroin users are children of single parents or divorced parents, and tend to be from families in which one or other family member suffers from a substance-related disorder. Children that are exposed to these settings tend to be high at risk for the development of opioid dependence, especially if the child expresses some sort of behavioural problem in school or other signs of Conduct Disorder (Sadock & Sadock, 2007).

Evidence from previous studies has indicated that common and drug-specific, genetically transmitted vulnerability factors increases the likelihood of developing drug dependence. It was evident that individuals that tend to abuse a certain substance from one drug category is most likely to abuse a substance from another category. Monozygotic twins are more likely than dizygotic to be concordant for opioid dependence. Multivariate modelling techniques that not only was genetic contribution high for heroin abuse in this group, but also a higher proportion of the variance because of genetic factors not shared with the common vulnerability factor- that is, it was specific for opioids. It was found that a person with an opioid-related disorder may have had genetically determined hypoactivity of the opiate system. A biological predisposition to an opioid-related disorder may also be associated with abnormal functioning in either the dopaminergic or the noradrenergic neurotransmitter system (Sadock & Sadock, 2007).

Studies conducted on populations of heroin users have suggested that genetic factors may be one of the most associated with the risk for the development of opioid use disorders and heroin dependence. These studies indicated that one particular polymorphism of the mu receptor gene, this gene is called the A118G SNP, which was found in 90% of heroin users in a European Caucasian population. Other studies have pointed to polymorphism in the gene encoding proenkephalin that leads to the increased expression of the neuropeptide precursor that can be found in 79% of heroin users. These various studies have indicated that

dysfunction in the mu opioid receptor system may be a key factor underlying heroin dependence (Iversen et al., 2009).

Two major socio-demographic factors tend to stand out from the backgrounds of heroin users. The first factor is that they are likely to have a disadvantaged background. It is documented that that social disadvantages are associated with poorer physical and mental health. Each increment in socio-economic status reduces the odds of the child becoming substance dependent and moreover children from more disadvantaged backgrounds tend to experience more abuse, neglect, depression and hopelessness. The second factor of relevance concerns their parents, indicating that a third or more of the general population of heroin users' parents had at least one substance-dependent parent (Graham & Power, 2004).

2.7 Dangers of Heroin Use

The use of different kinds of opioids, including heroin, is not very common when compared to other illicit substances such as psychostimulants, alcohol and cannabis. The numbers of opioid users are also found to be low in many populations around the globe, however, it is of great clinical and public health importance to deal with these cases regardless of its low commonality within society. Of all the illicit substances and opioids tend to carry the highest degree of harm as well as the highest demand for treatment. These harms are articulated with extremely high amounts of death seen amongst heroin and other opioid users. Some of the major harms that are associated with regular use include the direct effects of the substance itself, serious life-threatening psychopathology and the indirect effects such as the involvement of criminal activity and the marginalisation of society that arise from the use of this illicit substance. Many of these effects are associated with the high dependency level of heroin and the consequent longevity of dependence in individuals (Darke, 2011).

One other major direct harm that is associated with the use of heroin is that of overdose. Heroin and other opioid overdose is one of the major contributors to premature death, and non-fatal overdose is associated with a range of serious health sequelae that includes brain damage and cognitive impairment. Heroin users also tend to have very poor health in general, much of this that is related to injection of the drug as a route of administration which in return may cause viral disease transmission. There is also the risk for vascular collapse and pulmonary diseases due to injecting and smoking of the substance (Darke, 2011). There are many functional consequences that are related to opioid use disorder. Opioid use is associated with a lack of mucous membrane secretions that causes dry

mouth. It tends to cause problems with the gastrointestinal functioning where it slows down the function causing decrease in gut motility that in reaction causes severe constipation. Visual perception can also be affected where as a result of pupillary constriction with acute administration of opioids. Individuals that inject opioids or heroin tend to be affected by sclerosed veins and puncture marks on the lower portion of the upper extremities. The acute injection of opioids may also cause severe sclerosis of the veins that causes peripheral edema, this causes the acute user to switch from injecting into the veins to legs, neck or groin. In severe cases where the individuals no longer has access to veins they tend to inject into the subcutaneous tissue also known as 'skin-popping', which results in cellulitis, abscesses, and circular-appearing scars from healed skin lesions (American Psychiatric Association, 2013).

When contaminated needles come into play, it tends to cause very rare cases of Tetanus and Clostridium botulinum infections, which is a life-threatening illness that is associated with food poisoning. Infections may also occur in other organs within the body resulting in hepatitis, bacterial endocarditis and HIV infection. Hepatitis C infections may occur in up to 90% of persons who inject opioids. In addition, the prevalence of HIV infection can be high in individuals that inject opioids, a large proportion of these individuals that are diagnosed with opioid use disorder. It has been reported that HIV infection rates have been as high as 60% among heroin users with opioid use disorder in some areas of the United States and Russian Federation (American Psychiatric Association, 2013). There seems to be a growing concern regarding the emerging epidemic of HIV among Injecting Drug Use (IDU) in several countries in sub-Saharan Africa against backdrop of high HIV prevalence in the general population (Reid, 2009).

The burgeoning number of drug injectors is believed to be linked to the role of African countries now playing a role in trans-shipment routes in the global trafficking networks of heroin, cocaine, and many other drugs (Reid, 2009). HIV epidemics among IDUs exist in Nigeria, Kenya, Tanzania, South Africa and Mauritius (Strathdee & Stockman, 2010). Injecting drug use in South Africa is low when compared to other countries, however with the increase over time in the use of drug such as heroin, the potential exists for this to change rapidly (C. D. H. Parry, Plüddemann, & Myers, 2005). According to a study done by Parry et al. (2008) IDUs in South Africa have reported that they tend to engage in a number of high-risk injecting practices, even though the majority of them were aware that HIV could be transmitted through the sharing of needles and exchange of blood. Some of these factors including the sharing of needles with people that they know or close friends; re-use of

needles that was quite common; cleaning of the needles and syringes, where they claim that they have washed the needles after use.

Tuberculosis is a severe problem among individuals that inject drugs, especially those who are dependent on heroin; infection is usually asymptomatic and evident only by the presence of a positive tuberculin skin test. Many cases of active tuberculosis have been found in individuals who are infected with HIV; these individuals often have a newly acquired infection but also are likely to experience reactivation of a prior infection because their immune system is impaired. Snorting or sniffing of heroin into the nose often causes irritation of the nasal mucosa that is usually accompanied by preformation of the nasal septum. Another difficulty experienced by individuals using this illicit substance is sexual dysfunction where males often experience erectile dysfunction during intoxication and might even cause permanent erectile dysfunction due to chronic use of opioids. Females commonly have disturbance of the reproductive system and might also experience irregular menses (American Psychiatric Association, 2013).

As with most substance use disorders, heroin dependent individuals are at risk for suicide attempts or suicide ideations. Something that is also quite notable is both accidental and deliberate opioid overdoses. Some suicide risk factors overlap with risk factors for an opioid use disorder. Evidence suggest that repeated opioid intoxication or withdrawal may be associated with severe depression, this might even be temporary depression, however it can be so intense that it may lead to suicide attempts and completed suicides (American Psychiatric Association, 2013). The mental health of heroin users also seems to be at risk. At least half of any group of heroin users will qualify for a psychiatric diagnosis other than drug dependence, with the most common diagnoses being mood, anxiety and personality disorders.

2.8 Diagnostic Criteria of Heroin Use

2.8.1 Opioid Use Disorder

The following diagnostic criteria provide medical description of what it entails for an individual to be diagnosed with Opiate Use Disorder. It should be noted that the individuals that took part in this study were not diagnosed during the research process. In the Diagnostic Statistical Manual of Mental Disorder Fifth Edition (American Psychiatric Association, 2013), opioid use disorders, like all substance use disorders, have been changed to a spectrum of pathology and impairment. The criteria for opioid use disorder remain relatively the same as in DSM-IV-TR. The diagnostic criteria for DSM-IV-TR abuse and dependence were

combined in DSM-5 except for two changes: (1) the criterion for recurrent legal problems has been removed and (2) a new criterion for craving, or a strong desire or urge, to use opioids has been added. In DSM-5, the two disorders of opioid abuse and opioid dependence are replaced by a category of opioid use disorder. A patient must meet at least 2 diagnostic criteria to qualify as having an opioid use disorder. Severity is characterised as "mild" if 2 or 3 criteria are met, "moderate" if 4 or 5 criteria are met, and "severe" if 6 or more criteria are met (Brezing & Bisaga, 2015).

The diagnostic features associated with Opioid Use Disorder include signs and symptoms that reflect compulsive, prolonged self-administration of opioid substances that are used for no legitimate medical purpose or, if another medical condition is present that requires opioid treatment, these opioid substances should however be used in doses that are greatly in excess of the amount needed for that medical condition. People with Opioid Use Disorder tend to develop such regular patterns of compulsive drug use that their daily activities are planned around obtaining and administering opioids. Opioids are usually obtained on the illegal market but may also be purchased from various physicians by falsifying or exaggerating general medical problems. Most individuals with Opioid Use Disorder have significant levels of tolerance and will experience withdrawal on abrupt discontinuation of opioid substances. Individuals with opioid use disorder often develop continued responses to drug-related stimuli. These responses are seen as contributing to the cause of relapse, are difficult to extinguish, and typically persist long after detoxification is completed (American Psychiatric Association, 2013). Table 2.5.1 indicates the Diagnostic Criteria for Opioid Use Disorder

Table 2.5.1 Diagnostic Criteria for Opioid Use Disorder

<u>Diagnostic Criteria: Opioid Use Disorder</u>
<p>A. A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:</p> <ol style="list-style-type: none"> 1. Opioids are often taken in larger amounts or over a longer period than was intended. 2. There is a persistent desire or unsuccessful efforts to cut down or control opioid use. 3. A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects. 4. Craving, or a strong desire or urge to use opioids. 5. Recurrent opioid use resulting in a failure to fulfil major role obligations at work, school, or home. 6. Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.

- 7.** Important social, occupational, or recreational activities are given up or reduced because of opioid use.
- 8.** Recurrent opioid use in situations in which it is physically hazardous.
- 9.** Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
- 10.** Tolerance, as defined by either of the following:
a. A need for markedly increased amounts of opioids to achieve intoxication or desired effect.
b. A markedly diminished effect with continued use of the same amount of an opioid.
 Note: This criterion is not considered to be met for those taking opioids solely under appropriate medical supervision.
- 11.** Withdrawal, as manifested by either of the following:
a. The characteristic opioid withdrawal syndrome (refer to Criteria A and B of the criteria set for opioid withdrawal, pp. 547-548).
b. Opioids (or a closely related substance) are taken to relieve or avoid withdrawal symptoms.

Source: (American Psychiatric Association, 2013, p. 541).

2.8.2 Opioid Intoxication

The most typical features presented in opioid intoxication are seen when the individual presents clinically significant problematic behaviour or psychological changes that develop during, or shortly after, opioid use. These problematic behaviours or psychological changes may include initial euphoria followed by apathy, dysphoria, psychomotor agitation and impaired judgement. The course of the intoxication process is accompanied by pupillary constriction and signs of drowsiness, slurred speech, and impairment in attention or memory. Inattention to the environment is also common in opioid intoxication, even to the point of ignoring potentially harmful events (American Psychiatric Association, 2013). Symptoms of opioid intoxication may last for several hours, where severe intoxication following an opioid overdose can also lead to coma, unconsciousness and eventually death of the individual (American Psychiatric Association, 2000).

In a well-known novel of *The Wizard of Oz* (Baum, 1900), the wicked witch of the west puts the main character Dorothy, Toto, and their friends to sleep by misdirecting them through a field of poppies. Just as the poppies lull the bunch of them drop into an opiates induce euphoria, drowsiness and slowed breathing. High doses may in fact lead to death if respiration is completely depressed (Barlow & Durand, 2012). The extent to which behavioural and physiological changes occur due to opioid use depends on the dose being used as well as the characteristics of the individual that include tolerance, chronicity of use and the rate of the absorption of the substance in the body (American Psychiatric Association, 2000). Table 2.5.2 indicates the Diagnostic Criteria for Opioid Intoxication.

Table 2.5.2 Diagnostic Criteria for Opioid Intoxication

Diagnostic Criteria: Opioid Intoxication

- A.** Recent use of an opioid.
- B.** Clinically significant problematic behavioural or psychological changes (e.g., initial euphoria followed by apathy, dysphoria, psychomotor agitation or retardation, impaired judgment) that developed during, or shortly after, opioid use.
- C.** Pupillary constriction (or pupillary dilation due to anoxia from severe overdose) and one (or more) of the following signs or symptoms developing during, or shortly after, opioid use:
- 1.** Drowsiness or coma.
 - 2.** Slurred speech.
 - 3.** Impairment in attention or memory.
- D.** The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication with another substance.

Source: (American Psychiatric Association, 2013, p. 546).

2.8.3 Opioid Withdrawal

The result of regular drug use can be the development of a delayed, cumulative rebound reaction known as withdrawal symptoms that waits for the cessation of the drug use. The reactions to the cessation of regular drug use often seem to be the opposite of the drug's effects. Opioid withdrawal symptoms are related to our everyday use of language, one of these withdrawal symptoms is a contraction of the muscles just beneath the skin which causes waves of 'goose flesh' which resembles the skin of a plucked turkey. This gave rise to the well-known expression of 'cold turkey' that is present with the abrupt withdrawal of opioids. In addition to the explanation above, the muscle spasms in the long muscles of the leg produce kicking movements, which may be the basis for the expression 'kicking the habit' (Kaplan, 1983).

The severity and time of onset regarding withdrawal symptoms in individuals dependent on opioids depend on the half-life of the opioids used. Withdrawal symptoms starts to surface within 6-12 hours after the last dose, this occurs when the individual is physiologically dependent on short-acting drugs such as heroin. Symptoms may take 2-4 days to surface in the case of longer-acting drugs that were used such as methadone or LAAM (L-alpha-acetylmethadol). Acute withdrawal symptoms for short-acting opioids will peak within 1-3 days and gradually subsides over a period of 5-7 days (American Psychiatric Association, 2013). Biochemical and subclinical differences that are usually unnoticed by the dependent individual, last up to twelve additional months after the date of cessation (Kaplan, 1983).

One of the main reasons that compulsive users of opioids such as heroin tend to continue the use of this drug is to avoid the unpleasant withdrawal syndrome that they experience if they discontinue the use of the substance. The opioid withdrawal process consists of both physical and mental components. The physical component involves major disturbances of autonomic nervous system origin that include lacrimation, rhinorrhea, perspiration, tremor, gooseflesh, dilated pupils, anorexia, nausea, emesis, diarrhea, dehydration, elevated temperature and blood pressure, and yawning. These physical symptoms tend to accompany a negative mental state of dysphoria, depression, and anxiety (Iversen et al., 2009).

Table 2.5.3 Diagnostic Criteria for Opioid Withdrawal

<u>Diagnostic Criteria: Opioid Withdrawal</u>
<p>A. Presence of either of the following;</p> <ol style="list-style-type: none"> 1. Cessation of (or reduction in) opioid use that has been heavy and prolonged (i.e., several weeks or longer). 2. Administration of an opioid antagonist after a period of opioid use. <p>B. Three (or more) of the following developing within minutes to several days after Criterion A:</p> <ol style="list-style-type: none"> 1. Dysphoric mood. 2. Nausea or vomiting. 3. Muscle aches. 4. Lacrimation or rhinorrhea. 5. Pupillary dilation, piloerection, or sweating. 6. Diarrhea. 7. Yawning. 8. Fever. 9. Insomnia. <p>C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.</p> <p>D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.</p>

Source: (American Psychiatric Association, 2013, p. 547).

2.9 Heroin and Relapse

Definitions regarding relapse are varied, ranging from a dichotomous treatment outcome to an ongoing, traditional process (Brownell, Marlatt, Lichtenstein, & Wilson, 1986). A large volume of research has yielded no consensus operational definition of the term. Therefore, for the purpose of this study, relapse can be defined as “a setback that occurs during the behaviour change process, such that progress toward the initiation or maintenance of a behaviour change goal is interrupted by a reversion to the target behaviour” (Hendershot,

Witkiewitz, George, & Marlatt, 2011, p. 2). Relapse is also best conceptualised as a dynamic, ongoing process rather than an isolated or terminal event when it comes to a compensatory model view to relapse.

Relapse tends to be one of the most problematic areas to the recovery process of abstaining from heroin. As a fundamental feature of the dependency to illicit substances after short or even prolonged periods of abstinence, relapse remains as problematic as the idea of dependence (Giuliano et al., 2013). As a result of chronic use, the dependent nervous system of the individual user adapts to repeated exposure. If the drug is withdrawn, similar unpleasant emotional reactions and changes in the brain will occur, regardless of the specific drug. These effects are responsible for the craving of the substance and relapse, even after long periods of abstinence from the use of the drug. After all traces of the specific abused drug are absent from the body by means of going through a detoxification process, the dependent individual experiences urges to use the drug again and is at risk of relapsing. As a result of long-term drug use the brain has changed by means of neuroadaptation which explains the development of cravings and the need to use again (Julien et al., 2011).

Relapse is extremely common in the first few days after opiate withdrawal. Reasons related to this is the doubt associated with becoming abstinent from opioids, other factors might include the persistence of withdrawal symptoms, insomnia and many other physiological factors. Other opiate free responses take time to become established as opposed to medications that replace heroin such as methadone. So the ability of the individual to resist temptations and ignore drug-related cues is not easily learned (Foster, Brewer, & Steele, 2003).

Relapse can be viewed as a modal outcome for individuals who receive substance abuse treatment. It is determined that approximately 40% to 60% of individuals that have had a substance use disorder tend to return to substance use within a year of treatment. In a study of relapse of heroin users after residential treatment, Gossop et al. (2002) found that one third (34%) of the sample used heroin within three days of leaving treatment, 24% used within seven days of treatment and 50% used within 14 days after leaving treatment. After 30 days after leaving treatment 57% of the sample of 145 individuals had used again. Understanding the process of relapse is central to treatment of substance dependence and use disorders and can help clinicians and their clients to intervene in the process to guard against relapse or to reduce the severity or length of relapse (Brownell et al., 1986). One particular theory and also one of the most prominent among psychological models is the cognitive behavioural

approach that looks at relapse and dependent behaviour including contemporary factors such as high-risk situations that may have an influence on the relapse process as a whole (Marlatt & Gordon, 1985b).

2.9.1 Marlatt's Relapse Prevention Theory

As mentioned above, relapse tends to present a fundamental barrier to the treatment of dependent behaviours. Preventing relapse or the minimising of its degree is an essential task in attempting successful, long-term changes in dependent behaviours (Hendershot et al., 2011). Relapse prevention is seen as a tertiary treatment strategy that enables individuals to remain abstinent and reduce the likelihood of relapse after the cessation or reduction of problematic behaviour (Hendershot et al., 2011). Relapse has been described as an outcome consisting of a dichotomous view that the individual is either ill or well which stems from the disease model. This perspective originated with the belief that the development of dependent behaviour is due to heredity, physiology and genetics that is beyond the individual's control. The disease model viewed relapse as a reactivation of a progressive disease which is the dependent behaviour, where some sort of medical treatment would be necessary, such as pharmacotherapy. In contrast, cognitive-behavioural theory has described relapse as a process that encompasses any transgression in the process of behavioural change (Witkiewitz & Marlatt, 2004). So for the purpose of this study relapse can be viewed as a dynamic, ongoing process rather than a discrete or terminal event. Following is a description of the historical foundation and overview of the Relapse Prevention Model (RPM) developed by Alan. G. Marlatt. Furthermore, this theory informs and guides the process of the study which will be discussed throughout.

The Relapse Prevention (RP) model developed by Marlatt is based on social-cognitive psychology which provides a conceptual framework for understanding relapse together with a set of cognitive and behavioural treatment strategies designed to limit relapse likelihood and severity. However, for the purpose of this study the focus would remain on the understanding of the process of relapse prevention as described by Marlatt in order to give foundation to the findings of the current study.

Relapse is also seen as a highly individualised treatment approach that attempts to target proximal and distal factors that are related to relapse in order to prevent the actual relapse from occurring (Dimeff & Marlatt, 1998; Larimer, Palmer, & Marlatt, 1999; Marlatt & Gordon, 1985a). Relapse prevention was initially used in order to denote the clinical

intervention programmes (Marlatt & Gordon, 1985a), however it has now formed an integral part of many psychosocial treatment strategies targeting substance use (McGovern, Wrisley, & Drake, 2005). Relapse prevention stems from the cognitive-behavioural model of relapse and was primarily regarded as a product of the traditional behavioural approaches to understanding and treating dependent behaviour. The evolutionary changes that were brought on from the cognitive-behavioural theories in relation to substance use and abuse have had an enormous change in the thought of relapse, most of which were originally drawn from the traditional models of dependence that included the disease-based model which are seen as defunct. The reason for this being that traditional disease-based models attributed relapse to internal factors such as withdrawal and cravings, where the symptoms that these individuals were experiencing were interpreted as an underlying disease state that could be treated by making use of medication. In contrast, the cognitive-behavioural approach emphasises the contextual factors of relapse that includes environmental stimuli and cognitive factors as proximal relapse experiences (Witkiewitz & Marlatt, 2004).

The main theoretical innovation of the conceptualisation of relapse from Marlatt's perspective rests upon: (a) the distinction between a lapse and relapse in order to insert a wedge between the all-or-nothing disease model beliefs and the cognitive-behavioural approaches, and, (b) the outlining of a specific cognitive-behavioural model of the relapse process as produced in *Figure 4*. Furthermore, relapse is not viewed as an endpoint that is understood as a failure in treatment, which causes an Abstinence Violation Effect (AVE) that will be discussed further.

Marlatt's model is quite revolutionary in that relapse is rather viewed as a fluctuating process that begins before and extends beyond the return to the individual's target behaviour (Witkiewitz & Marlatt, 2004). From this standpoint, Marlatt proposed three outcomes to an attempt to change problematic behaviour (such as staying abstinent from the use of heroin). The first is known as a lapse or as Marlatt termed it as 'falling off the wagon', which is the first instance of a transgressive behaviour where there is a chance that an individual would return to the target behaviour after a period of volitional abstinence. This is viewed as an initial setback and not a dead-end road or the signalling of failure on the part of the individual attempting to change their drug use behaviour. The model does acknowledge the possibility that a lapse might prompt a full-blown relapse, however, the other possible outcome would be that the problem behaviour would be corrected and the desired behaviour would then be re-instantiated- a term that is known as prolapse or 'getting back on the wagon'. Compellingly,

this model introduced a comprehensive, flexible and optimistic alternative to traditional approaches by means of viewing relapse as a common event through highlighting contextual antecedents over internal causes, and distinguishing relapse from treatment failure (Hendershot et al., 2011; Witkiewitz & Marlatt, 2004).

A central aspect to the outline of the cognitive-behavioural model to relapse prevention as proposed by Marlatt and Gordon (1985a), is the detailed classification of certain factors or situations that can trigger potential relapse episodes known as high-risk situations. High-risk situations can be defined as any context in which an individual's attempt to refrain from the use of a substance is threatened and might trigger the individual's vulnerability for reengaging in substance use. These situations might include emotional or cognitive states (for example, negative affect such as anger and anxiety or diminished self-efficacy), environmental contingencies (for example, interpersonal conflict, conditioned drug cues, exposure to drug related stimuli, social pressure) and physiological states (for example, acute withdrawal, chronic pain). So in short, high-risk situations can consist of people, places and events that could greatly hinder one's recovery process due to its ability to remind one of substance use. According to this model, an individual who has initiated a behavioural change should start to gradually experience a growing sense of personal control and self-efficacy in order to master his or her behaviour in a high-risk situation. With this in mind, one of the key factors of the relapse prevention model is how an individual is then able to respond to this high-risk situation. An effective coping response defined as a cognitive or behavioural compensatory strategy that reduces the likelihood of lapsing would be able to view a high-risk situation as a potential lapse and therefore eliminate the tendency to give in to the temptation of substance use and decreasing the probability of a relapse. In turn, an ineffective coping response may decrease self-efficacy and a return to target behaviour will increase the probability for future lapses (Hendershot et al., 2011; Larimer et al., 1999; Witkiewitz & Marlatt, 2004). For example, when an individual has decided to stop the use of a certain substance (stay abstinent), he or she creates a 'rule' for themselves where they would refrain from the use of a substance. If this individual breaks this 'rule' (they have a lapse), the way the individual thinks about this situation of 'breaking the rule' would have an influence on whether or not they will continue the use of the substance in an uncontrollable manner and would lead to the abandonment of the abstinence 'rule' (a full-blown relapse).

Marlatt and Gordon (1985a) have termed this type of reaction the abstinence violation effect, which may influence whether an initial lapse may lead to a relapse. This reaction

focuses on the individual's emotional response towards an initial lapse and on the causes to which the individual attributes the lapse. Individuals who tend to attribute the lapse to their own personal failure are most likely to experience negative emotions and guilt which may then lead to the increase of substance use as an attempt to escape the feelings of guilt and failure. Individuals that attribute lapses to stable, global and internal factors beyond their control are most likely to abandon the abstinence attempt which may result in a full-blown relapse. Individuals who are more likely to attribute their lapse to the inability to cope effectively with a high-risk situation are more likely to recover or prolapse than the later.

With this in mind, the coping factor plays a vital role in the recovery process, specifically in relation to the RP Model. Although it was mentioned that the high-risk situation is the cause to the relapse trigger, it was found that the individual's response to the high-risk situation is the determinant for the experience of relapse (resume the use of heroin). The individual's coping behaviour in a high-risk situation is noted to influence outcome behaviour. Therefore, if an individual is able to execute effective coping strategies they are less likely to experience a relapse as compared to individuals lacking an effective coping strategy (Larimer et al., 1999). An effective behavioural coping strategy may include the individual leaving the high-risk situation, or utilising a cognitive strategy such as positive self-talk. It is assumed that individuals that tend to cope effectively with high risk situations experience a heightened sense of self-efficacy (Bandura, 1977).

The concept of self-efficacy introduced by Bandura (1977) was found to be a final common pathway that mediates behavioural change which can be linked to relapse in dependant behaviour. Self-efficacy can be defined as the degree to which an individual feels confident and capable of performing certain behaviours in a specific situational context. In other words, self-efficacy refers to individuals holding the belief that one is capable to cause some effect on one's environment-that one is indeed effective. According to the cognitive behavioural model of relapse, a higher level of self-efficacy is a predictor of improved treatment outcomes across various types of dependent behaviours. Accordingly, the self-efficacy theory verified that behavioural changes produced by different types of treatment are mediated by a common cognitive mechanism called efficacy expectancy. The expectancy of being able to cope with successive high-risk situations as they develop is closely associated with the idea of self-efficacy. So when an individual feels confident to cope effectively with a high-risk situation, they would then indirectly influence their perception of their own self-efficacy.

Another important factor to the RP model would be the outcome expectancies that individuals experience. These are typically described as an individual's notion regarding the consequences of substance use, which might influence an individual's ability to use a substance depending on the strength and behaviour of the expectancy which includes the previous effects that the substance had on the individual. These types of expectancies consists of both short- and long-term expectancies with both positive and negative outcomes attached to them, where they may have varying levels of pertinence to the individual. Furthermore, short-term reward contingencies tend to reduce negative mood states, inducing the sense of euphoria from making use of the psychoactive substance, including a change in the individual's cognition where it tends to create a positive sense of self and then tends to reduce the stress whether physical or emotional. Short-term negative consequences consist of a loss of behavioural inhibition that may result in various social problems that consist of legal and financial problems as well as impaired functioning. In contrast to short-term negative consequences are the long-term contingencies of abstaining from the use of illicit substances that will result in improved role functioning, improved interpersonal relations, better health and greater stability (Marlatt & Gordon, 1985b).

According to Marlatt and Gordon (1985a), the extent to which short-term rewards tend to predominate over short-term negative consequences or long-term rewards of maintaining abstinence depends on the effect of the situational factors that the individual is faced with. As an example, the importance of long-term versus short-term rewards may fluctuate with the decision of preference from one over the other relying on reasons such as stress levels, mood states and social pressure. So in other words, if short-term positive expectancies for making use of a substance are high and the long-term negative expectancies of substance are less important and the illicit substance is available at that moment, the likelihood of a relapse to occur tends to increase. It is also noted that an individual's low self-efficacy combined with heightened positive outcome expectancy would also increase the probability of a lapse.

A considerable amount of research has focused on identifying the predictors of the causes of relapse in order to develop treatment strategies for the prevention thereof. It was found that one of the strongest predictors of the causes of relapse in substance dependence is the occurrence of cravings (Breese, Sinha, & Heilig, 2011; Shadel et al., 2011). The tolerance in the act of the desire of the use of a substance may be expressed as urges or cravings which are hypothesized to be mediated by the positive outcome expectancies of engaging in the

prohibited behaviour. Cravings can be defined as an individual's subjective experience of an urge or desire to make use of a substance. Numerous models conceptualising the phenomenon of craving have consistently acknowledged that it can be experienced as intrusive thoughts and their elaboration, an impulse drive or motivation, a stress response, an emotional state, a physical sensation, substance wanting or any other manifestation that is relevant for an individual who endorses experiencing a craving or urge to make use of a substance (Cox & Klinger, 2002; Kavanagh et al., 2006; Paulus, 2007; Robinson & Berridge, 1993; Sinha & O'Malley, 1999; Tiffany & Wray, 2009). The roots to craving can be attributed to biological, affective, or cognitive motivators of the individual. In the biological models of craving, the dependent behaviour of individuals can be seen as a brain disease whereby the causes of such cravings and use of the substance are born from neurobiological and physiological states (Witkiewitz, Bowen, Douglas, & Hsu, 2013). Cravings can be reflected in neural states where neurotransmitters such as dopamine, serotonin and gamma-aminobutyric acid (GABA) can be linked to drug use. It is evident that dopamine in the dorsal striatum has been associated with reported cravings and that GABA dysregulation has been associated with a craving drive that has been described as a relief of tension. From a cognitive perspective of craving, it is suggested that craving originates in cognitive processes such as memory, that reflect higher order information processing that evolved into automatic processes of use. Marlatt and Gordon (1985a) suggest that cravings are a result of cognitive expectancies for drug use as mentioned previously.

In sum, the relapse prevention model proposed by Marlatt and Gordon (1985b), consists of a cognitive-behavioural approach to the relapse process that centres around the high-risk situation and how the individual tends to respond to the high-risk situation. If the individual does not have an effective coping response or some form of confidence in order to deal with the high-risk situation, the probability for the individual to resume drug use would be high. The individual's decision to make use of a substance or stay abstinent is then mediated by their outcome expectancies for the effect of the use of the substance. Individuals that tend to make use of a substance may be susceptible to the abstinence violation effect which causes self-blame and the sense of loss of control over the use of a substance. This may then result in the increased probability to make use of a substance and therefore increase the probability of a full-blown relapse. On the other side, if the individual posits an effective coping response towards high-risk situations through means of an increased or higher self-efficacy, the probability of the occurrence of a full-blown relapse is then decreased.

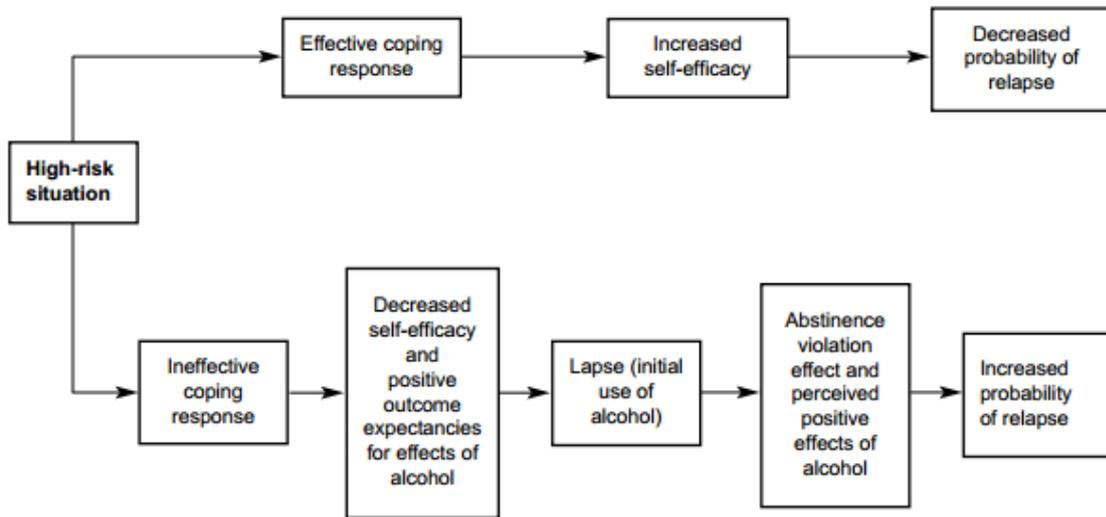


Figure 4. Cognitive-behavioural model of relapse (Marlatt & Gordon, 1985b).

Although Marlatt and Gordon's view focuses on behavioural intervention modalities, pharmacotherapies are increasingly used to treat and prevent relapse to dependent behaviours. Various psychosocial methods that may include therapeutic modalities such as therapeutic communities, 12-step programmes and group therapies were some of the most common and effective therapies that were available for the treatment of various substance abuse disorders.

Yet, evidence suggests that pharmacotherapies have a powerful effect on treatment outcomes, especially when combined with behavioural intervention strategies for relapse prevention (Brandon, Vidrine, & Litvin, 2007). The use of opioid replacement therapies (such as the use of methadone) has been in place since the late 19th century, this was the only real expectation to the treatment of opioid misuse. To date pharmacotherapies are widely used in the treatment of substance dependence, however, as with the process of treating various chronic psychiatric conditions the use of medications are far less effective when used alone (in isolation to cognitive behavioural therapeutic modalities). Therefore it can be argued that full efficacy is attained when the medications are used in combination with psychological treatments (Welsh & Liberto, 2001).

Pharmacological treatments that are associated with preventing relapse differ and tend to be specific to certain substances that have been abused. These can be divided into two broad categories: a) approaches that aim to reduce relapse from substance use by means of extending treatment effects instrumental in the initial achievement of cessation, and b)

approaches that have certain mechanisms of action with particular relevance to relapse. The former includes the use of agonists such as methadone maintenance and nicotine replacements (for example, nicotine patches) for the treatment of opioids and tobacco dependence respectively. The latter includes methods such as the use of aversives and antagonists. Aversives such as Disulfiram (Antabuse) is intended to prevent relapse by means of creating extreme discomfort upon the consumption of alcohol, which means that this reaction to the use of alcohol might cause anticipation and eventually inhibits relapse to alcohol use. Antagonists are a form of pharmacotherapy that tends to attenuate the reinforcing effects of substance use. So according to theory, they should contribute to the extinction of drug use when taken prior to cessation. As such, once a lapse occurs, the attenuated reinforcement should inhibit the reinstatement processes (Brandon et al., 2007).

In relation to the above mentioned, the administration of a pharmacological intervention such as the use of naltrexone pellet implantation (which is a form of antagonist-based treatment) together with some form of therapy, will ensure a more positive outcome in terms of relapse prevention. However, for the purpose of this study, the research was interested in the subjective experiences that these individuals went through while on the naltrexone maintenance therapy with pellet implantation. Moreover, this study explored various experiences that included their physical, psychological as well as social experiences with the use of naltrexone maintenance therapy with pellet implantation. The goal of this study was, however, not to prove that naltrexone did in fact prevent relapse from occurring by means of measuring blood-serum levels in clinical trials as many other studies (Colquhoun, 2013; Hulse et al., 2004; Mannelli, Peindl, & Wu, 2011) have tried to indicate. Rather the goal was to explore what these individuals subjectively experienced while going through their period of treatment with the foundation and guidance of the relapse prevention theory as suggested by Marlatt and Gordon (1985b).

2.10 Pharmacological Intervention for Heroin Use Disorder

As mentioned previously, drug treatment modalities tend to traditionally consist of three main domains: detoxification, inpatient residual rehabilitation and outpatient pharmacotherapies. In this section the focus will consist of the pharmacotherapies that would traditionally be implemented for heroin misuse with special attention on the two main forms of pharmacotherapies namely, agonist and antagonist treatment.

2.10.1 Agonist vs Antagonist

This section will explore the difference between an agonist and antagonist including their functions and properties when being used for opioid dependence. The purpose of this section is to inform the reader as to outline the different pharmacotherapeutic modalities that can be made available for the treatment of heroin misuse. An agonist is a substance that binds to (has an affinity) the cell receptors of the neurotransmitter system which induces changes in the cell characteristic of the neurotransmitter chemical for the receptor on the neuron. Substances such as morphine and methadone are prototypical opioid analgesics, however, methadone is usually an orally active, long-acting opioid that is used to treat opioid dependence. These strong opioids tend to bind to the mu receptors that cause the same effects as if one would be making use of an illicit substance such as heroin. These effects include analgesia, respiratory depression, and euphoria which has a tendency to cause dependence (Julien et al., 2011).

Antagonists tend to also have an affinity to the mu receptor sites, however, after attaching to the receptor sites they tend to elicit no change in cellular functioning due to the reason for lacking intrinsic activity on the receptor sites. This means that they compete with the mu agonist for the receptor which hastens withdrawal in an opioid-dependent individual and reverses the analgesic response that would originally be caused by the agonist. The one example of such a substance would be the use of naltrexone that is clinically used for the treatment of heroin dependence as this causes the individuals to experience no analgesic effects of heroin after the administration of the antagonist (Julien et al., 2011).

Simply put, agonist therapy is the administration of long-acting opioid receptor agonists with the aim of reducing or eliminating illicit drug use. This therapeutic technique is controlled by means of supervision when the substance is administered. The aim is to increase the retention rate in treatment and to help reduce many of the risk factors that are associated with illicit drug use (Soyka et al., 2011). One of the most common pharmacological treatment modalities for the treatment of heroin and other opioids consist of maintenance treatment. The basis of pharmacological intervention and maintenance modalities for heroin dependence is to minimise withdrawal symptoms and attenuate the reinforcing effects of illicit heroin, leading to the reduction or even cessation of the use of heroin. Internationally opioid maintenance treatment has been one of the most common medical treatments since the 1960s, therefore, it is a well-established method of treatment for

heroin dependency internationally (Bell, 2014). The current most common therapies used for opioid dependence consist of methadone (Dolophine and Methadose), buprenorphine (Subutex and Suboxone) and then one that is less frequently used, levomethadyl acetate.

The use of Methadone treatments became the first available agonist treatment, in the 1960s, this was followed by the use of buprenorphine that was available in doctors' offices by the year 2000. These therapies showed promising results and it was concluded by the World Federation of Societies of Biological Psychiatry and the World Health Organisation that there is a rather large evidence base that supports the efficacy of both methadone and buprenorphine for the treatment of opioid maintenance and withdrawal in human subjects (Soyka et al., 2011; World Health Organization, 2009).

Surely enough, there is evidence to suggest the efficacy of the use of agonist based treatment in opioid dependence and in the reduction of various social-related problems such as crime and its ability to reduce HIV transmission through keeping the individual away from the use of needles in the use of "street heroin". Methadone produces minimal euphoria and rarely causes drowsiness or depression when taken for a long time. Methadone also tends to allow patients to engage in meaningful employment instead of criminal activity. Many countries and various US states have made the use of agonist therapies unavailable or have severely restricted their access to the general population for reasons unknown. Even when agonist treatments are in fact available for use in certain countries, the supply of methadone itself is of great concern, also the ability to have access to these type of treatments seem to be problematic. Furthermore, not all patients tend to agree on this method of treatment due to barriers associated to treatment entry which includes a ubiquitous waiting list for methadone due to the lack of funding for the supply of methadone, lack of identification and lack of fees in order to purchase the methadone due to poverty. There has also been evidence to suggest that various other factors have had an influence in individuals deciding whether to make use of agonist therapies. Influential factors included the fear of withdrawal from the agonist treatment, beliefs that methadone is far worse than heroin in terms of health and that it may be used as a form of self-medication due to its similarity of effect that are related to the use of heroin (Mathers et al., 2010; Peterson et al., 2010)

In addition, some practitioners are concerned with the prescription of agonists to patients due to the long-term side effects with the prolonged use of agonists such as methadone. Research has indicated that the chronic use of opioids can in fact affect the functioning of the immune system which then in return makes heroin dependent individuals

susceptible to a variety of infectious diseases (Toskulkao, Pornchai, Akkarapatumwong, Vatanatunyakum, & Govitrapong, 2010). A vast amount of research has indicated that agonist treatments are deemed effective however, the concerns and limitations that are associated with this form of treatment had led to the need to introduce other effective antagonist treatment methods. All in all, pharmacotherapy of opioid dependence can be effective for opioid dependent individuals when treated effectively which in return has major benefits for the patient and society. However, society should be able to offer effective treatment for opioid dependent individuals, who should have the right to gain access to both agonist and antagonist therapies where governments enable access to these therapeutic modalities (Julien et al., 2011).

2.10.2 Antagonist-Based Treatment for Opioid Dependence

There are three major opioid antagonists that are clinically available to the general public internationally by means of prescription: naloxone, naltrexone and nalmefene which are the structural formulas, it should be noted that various pharmaceutical companies have different brand names when it comes to the manufacturing and distribution of these substances. Each one of these substances are a derivative of oxymorphone which is a pure opioid agonist, they also tend to have an affinity for opioid receptors so when they bind to the receptor sites they do not exert agonistic effects but rather antagonise the effects of opioid agonists (Julien et al., 2011).

Naloxone is a prototype opioid antagonist which injected into opioid dependent individuals that has an effect of rapid withdrawal. This substance is not subject to abuse but rather its use would be to reverse the respiratory depression that is caused by acute opioid intoxication (overdose). This substance has a limitation to use due to its short duration of action and its parenteral route of administration. Nalmefene, has similar components of action as naloxone where the only difference is the increased half-life of the substance that consist out of 8 to 10 hours which could be effective for relapse prevention purposes in a therapeutic setting. Naltrexone, on the other hand, has a longer half-life than any of its antagonist brothers which is deemed more effective for the purpose of treating opioid dependent individuals in a more long term situation (Julien et al., 2011).

2.10.3 Naltrexone

In order to understand how naltrexone works when consumed by the human body, a focus is needed on the way that the human brain functions in relation with the neurotransmitter systems and the affects these endorphins have on human behaviour in daily functioning. When a human engage in activities it causes the brain to release chemicals that impact mood, feelings and behavioural aspects of daily functioning. When an individual engages in a certain activity that is enjoyed, the brain releases certain chemicals called endorphins or neurotransmitters, some of these endorphins tend to make an individual feel good. These endorphins tend to attach to opioid receptors which in return unlock the receptors and when these receptors are unlocked they tend to release a chemical known as dopamine. Dopamine is associated with certain pleasure principles that are linked to behavioural aspects, which tends to induce a good feeling (euphoria) in individuals partaking in pleasurable activities. This reward is what prompts individuals to repeat these behaviours in order to receive the euphoric effect. So in relation, when an individual makes use of opioids or more specifically opioid-based street drugs such as heroin, they tend to attach to same receptors sites but in a way that result in release of greater amounts of dopamine release. This enormous amount of dopamine that has been released into the human brain causes pleasure that is more intense than the brain's natural sensation without the use of any illicit substance. This sensation created by the increased amount of dopamine release is also very well known as the 'high' (euphoria) that individuals experience when making use of illicit substances, specifically in the use of heroin. In terms of the development of opioid dependence, many factors do play a role in whether or not a person would become dependent, however it has been indicated that individuals that continue the use of opioids tend to have an increased risk of becoming dependent due to the intense feeling of pleasure they can cause. Hence, the popular use of heroin known as 'chasing the dragon', which also refers to the chasing of the euphoric effect that heroin produces when ingested by the user (Vivitrol, 2015).

Naltrexone, also known as naltrexone hydrochloride is sold under the trade names Revia, Depade or Vivitrol is a highly specific, non-dependent μ -opioid receptor antagonist which has a high attraction and combines to all opiate receptor sites. Naltrexone has an active metabolite, 6- β -naltrexol, that tends to be a competitive antagonist at the μ -opioid receptor sites. These receptor sites are involved with the development of opioid dependence, so the naltrexone will be the mechanism of action for the management of opioid dependence (Ling

et al., 2011). This means that it tends to attenuate or completely block the effects of exogenous opioids such as heroin, which causes the blocking of the euphoric and physiological effects of opioids which in return displace the euphoric effect of opioids when ingested by the human body (Kjome & Moeller, 2011; Tucker & Ritter, 2000). This potent antagonist has shown to have valuable properties for the effective treatment of the dependence to opioids such as heroin and methadone. It has shown to make relapse to regular opiate use almost impossible during the period of compliance. So far, research has indicated that a dose of 50-100 mg of naltrexone in oral form can block the effects of opiates for about two to three days. The plasma concentrations tend to peak one hour after the oral format of naltrexone has been administered, where the half-life varies between 2 and 6 hours (Krupitsky & Blokhina, 2010). The opioid receptor blockade cannot be overcome even by four or five times the average daily heroin dose of most dependants. It is the only treatment for heroin abuse for which it is possible to give patients a virtual guarantee that if they take it regularly in the prescribed dose, they cannot become dependent on heroin (Kenny, 1999). Research has indicated that naltrexone has an anti-craving effect in individuals with opioid use problems; this means that naltrexone tends to eliminate the cravings caused by obsessions and compulsive thoughts of the illicit substance once individuals have ceased the use of opioids. The precise mechanism for craving reduction has not quite been determined, however, it is most likely linked to the antagonistic mechanism of the opioid pathways to the nucleus accumbens, which in return reduces the total amount of dopamine being released (Kunøe et al., 2012). The rationale behind the use of naltrexone for Opioid Use Disorder as a treatment method lies behind the idea that it tends to motivate the reduction of the use of opioids such as heroin when the individual is unable to experience the pleasurable 'euphoric' effects of the illicit substance (Larney et al., 2014).

Looking at the history concerning naltrexone, the development of this substance started in the early 1970s where it was tested in early studies with heroin and other opioids in the USA. It was originally approved as an oral medication for the management of opioid dependence, but its effectiveness was limited by poor adherence and low retention in treatment. In this study of the medical literature oral naltrexone, with or without psychotherapy, was no better than placebo or no pharmacological treatments with regard to retention in treatment. According to Larney et al. (2014) the medical literature regarding oral naltrexone with or without psychotherapy, was no better than a placebo or no pharmacological treatments with regard to retention of re-incarcerations by about a half,

however these results were only found evident in two studies. At that time there was only a small demand for the drug, it was not initially registered for use in various countries.

During the 1990s, there was an increase in the prevalence of opioid use disorders, and increasing interest in using naltrexone (Martin, Jasinski, & Mansky, 1973). Naltrexone was originally approved in the oral format for the use of opioid dependence, however, studies have indicated that oral naltrexone tablets that are taken daily or bi-daily have failed to show pre-eminence over its placebo, which was evident in rapid dropout and low retention rate in the active naltrexone group (Minozzi et al., 2011). This non-compliance is often associated with individuals that withdrew from the treatment process and returned to the use of heroin. Even individuals who had made progress with the oral format tended to relapse periodically (Hulse et al., 2004). This may be due to various psychological as well as social factors would have played a role in the major dropout rates linked to the use of oral naltrexone. These factors that may be related to the relapse prevention theory suggested by Marlatt (1985b), stating that various high-risk situations may play an essential role in relapse to certain substances. However, discreetly enhanced results can be achieved when the oral format of naltrexone is taken as part of a compliance-reinforcing scheme such as contingency management (Minozzi et al., 2011). Due to the lack of success with compliance and discontinuation typical of oral naltrexone format, research efforts were employed in order to develop a Sustained Release Naltrexone formulation (SRX) which will enable the decreasing the problem of compliance that would essentially reduce the amount of dropout opportunities in human subjects. These formats consist of a depot injectable and implant format of naltrexone that would be given intramuscularly or be implanted and removes the onus from patients to use daily oral naltrexone (Kjome & Moeller, 2011).

Specifically, the pharmacokinetic characteristics of the injectable format of naltrexone are as follows: when the intramuscular injection is administered, the naltrexone is released from the proprietary polymer microspheres in phases via diffusion and polymer erosion. This then causes the release of naltrexone to occur in phases where the initial phase occurs in the first 24 hours which in return releases the surface drug from the injectable site. Subsequently, the site of injection tends to undergo hydration within 48 hours of injection which causes a 30-day sustained release phase which causes plasma naltrexone levels to stay above 2 ng/ml, which is the amount needed for the therapeutic level for opioid relapse prevention (Kjome & Moeller, 2011). Comer et al. (2002) demonstrate that 384 mg of naltrexone delivered in a sustained-release depot formulation can block the reinforcing, subjective and physiological

effects of up to 25 mg of street heroin. It provided therapeutic plasma levels of 30 days which indicates that naltrexone can be actively present within the human body for up to one month. This amount of naltrexone dosage resulted in better than 80% retention in treatment at six weeks versus the 40% for the placebo. This indicated that the depot formulation of naltrexone showed significantly higher rates of abstinence and better treatment outcomes at a 12-month follow-up. The extended injectable release format of naltrexone is not a new agent of pharmacotherapy in the USA and has had FDA approval for the use of relapse prevention in both alcohol and opioid dependent individuals since 2006 (Kjome & Moeller, 2011). Russia is also one of the countries at the forefront in approving the use of the naltrexone implant format for the treatment of opioid dependence due to their high rates of heroin abuse (Larney et al., 2014).

After the development of the injectable format of naltrexone came a more technological advanced format of extended release known as the pellet implant formulation of naltrexone. This formulation of Slow Release Naltrexone SRX consists of pellets that are stored in a syringe with biodegradable solid polymer and are surgically inserted or implanted under the skin or fatty tissue with the use of local anaesthetic. The wound is then sealed after the implant has been inserted, and the patient is encouraged to return for a follow-up session within one week after the implant has been administered to ensure that no form of infection has occurred. There are two main types of surgically implantable SRX that have been used in various controlled studies, a type originating in Australia (Hulse et al., 2004) consisting of 30 pellets that has a release period of up to seven months. The latter is a type originating in Russia (Tiihonen et al., 2012) with a release period of two to three months. It should be noted that there are other manufacturers of naltrexone implants however due to a lack of research regarding their reliability and format of manufacturing being published it will not be discussed (Kunøe et al., 2012).

The effectiveness of the naltrexone implant can be explained by two randomised studies that have made use of the Russian naltrexone implant. This study was conducted over a period of 10 weeks with a sample of 100 patients (n=50 in the SRX and placebo group respectively) with a sample of individuals that were both amphetamine and heroin dependent. This study indicated that the naltrexone implant sample indicated a higher retention rate than the later placebo group which resulted in a significant reduction of heroin use were evident by using urine samples as a form of assessment. However, one of the limitations of the study was a time period of only 10 weeks, which is a short period when considering the chronic

nature of concurrent opioid dependence. It was recommended that further research be conducted with a two to three month interval to assess long-term recovery from dependence (Tiihonen et al., 2012).

Furthermore, poor outcomes treating opioid dependent individuals with the use of naltrexone have been related to the short time that the individuals have spent in treatment. After all, it has been indicated that the longer individuals spend in treatment the better the long-term outcomes of abstinence. In relation to this, psychosocial interventions provide the recovering individuals with the necessary skills to be able to maintain sobriety which include therapies such as Cognitive Behavioural Therapy, Motivational Enhancement Therapy and spiritual 12-step programmes. This is interlinked with the recovery process as well as the process of relapse prevention in order to maintain abstinence in heroin dependent individuals (Weich, Perkel, van Zyl, Rataemane, & Naidoo, 2008). Additionally, various studies (Bell et al., 1999; Rawson et al., 2001) have indicated that if there are no after-care counselling, social support or compliance strategy made available for individuals undergoing naltrexone treatment that it will predict poor long-term outcomes. However, when naltrexone is combined with effective programmes that would be presented after the treatment of naltrexone together with strong social support, the results are deemed to likely be promising in terms of abstinence (Shufman et al., 1994).

However, there have been reports raising concerns about an increased rate of overdose of heroin in the period following cessation from naltrexone use which may involve the tolerance factor associated with the detoxification during treatment. Therefore, individuals that make use of naltrexone as an aid for relapse prevention from heroin should be educated around the loss of tolerance. Another problematic factor associated with the use of naltrexone is the use of analgesic treatment following surgery or severe trauma which may occur during the treatment of naltrexone. Due to the fact that naltrexone tends to block opioid receptors, it in return causes any analgesic to be ineffective, therefore, medications such as morphine would not be effective for the treatment of pain (Weich et al., 2013).

In sum, the available forms of naltrexone for the treatment for Opioid Use Disorder consists of (1) tablet form which can be taken orally, (2) an injectable form, that is injected intramuscularly, (3) the implant type which usually consist out of a pellet implantation which is inserted through surgical procedure and this is inserted either beneath the skin in the area of the lower abdomen or buttocks.

It should be noted that the main focus of the current study lies on the implant format of naltrexone and not the later tablet or depot format as the implant format of naltrexone has shown greater results in compliance. The sample used in the current study constitutes of individuals that have made use of the naltrexone implant format that is made available for the general public from various trained physicians in South Africa. The rationale for the use of naltrexone in opioid dependence is concerned with the prevention of relapse in which the patient knows that taking naltrexone blocks the euphoric effects of heroin. It has been recorded that detoxified heroin users have indicated that the use of naltrexone is a form of ‘insurance’, in that it protects them from the ‘sudden temptations’ to revert to the use of heroin. Clinical research has indicated that heroin users that tend to make use of naltrexone in the hope of helping them to stop wanting heroin, or will maintain their motivation to remain abstinent, tend to be disappointed. Therefore, the use of naltrexone should be viewed as a medication that which will motivate them (aid them) to remain abstinent, rather than a “miracle drug” that reduces patient’s desire to use heroin (Krupitsky et al., 2013).

2.10.4 The Use of Naltrexone Implants in South Africa

As indicated previously, naltrexone maintenance therapy can be used as an aid to relapse prevention for individuals who have successfully been detoxed from heroin use. The current study focused on the pellet implantation SRX form in a South African context where it is still a new and understudied phenomenon in this context. Following is a description into the use, availability and guidelines for the administration of naltrexone in the South African context.

When it comes to the prescription and use of the oral format of naltrexone, it is evident that the availability to the general public is restricted to scheduling of naltrexone. This means that only a trained physician would be able to prescribe this medication, preferably with experience of opioid dependence treatment.

As for the availability of SRX such as the injectable or implant formats of naltrexone it is only available outside of South Africa. The reason being that sustained release formulations of naltrexone are not yet registered in South Africa by the Medicines Control Council (MCC). The MCC as a body is enacted by statute to regulate the performance of clinical trials and registration of medication for the use of treatment for diseases. The MCC holds the responsibility to ensure that clinical trials of non-registered medicines as well as newly developed medicines do comply with the necessary requirements. In the interim,

individual cases of making use of the naltrexone pellet implants within South Africa occur by importing foreign naltrexone pellet implants which will be legally available to the general public through the Section 21 approval from the MCC. This is done by means of individual applications (for each patient) that are assessed and approved if deemed appropriate (Weich et al., 2013).

For the purpose of this study, the researcher focuses on a particular practitioner's guideline in having access to and administering the naltrexone maintenance implant. When a patient decides to make use of the naltrexone maintenance treatment with pellet implantation for the purpose to remain drug-free, he/she would make an appointment with the relevant practitioner stating the reason for doing so. Once the appointment is made the practitioner assesses the patient for any additional chronic illnesses or organ functionality. This is due to the reasons mentioned previously that naltrexone cannot just be given to any individual before assessed in order to refrain from causing major health complications such as liver or kidney failure. After being assessed the practitioner informs the patient how naltrexone works, the side-effects associated with the use of naltrexone, the procedural steps of inserting the implant surgically and informing them about a follow-up meeting. The practitioner prioritises informing their patients that there is still a significant risk of overdose from the use of naltrexone. This is due to the tolerance build up through the use of opioids, which, when the same amount would be used after naltrexone has been administered might result in an overdose of the illicit substance such as heroin (de Wet, 2015).

Once the patient is deemed fit for the naltrexone implant the practitioner sends the individual patient's relevant documents to the MMC of South Africa whereby they assess the documentation and give their approval for the patient to be able to make use of the naltrexone implant.

The procedure of the insertion occurs at international standard where an antiseptic will be applied in order to clean the area, this is followed with the administration of a local anaesthetic where the wound will be made for the implant to be inserted. The wound would then be sutured and dressed. A follow-up session is required in order to avoid infection and to remove the sutures (de Wet, 2015).

In South Africa, naltrexone is only considered if the patient adheres to the following conditions:

- The patient is opioid free for at least 5- 10 days (detoxed), however, this period can be reduced in selected cases for up to 72 hours. It is deemed important for the practitioner to inform their patients regarding the opioid-free period due to the risk of rapid opiate detoxification.
- The patient should be willing to take the naltrexone.
- The patient does not present with severe or active liver or retinal problems
- The patient is not allergic to naltrexone

In general, it is recommended that patients go through at least 6-months of naltrexone maintenance treatment, to ensure that the patient make the necessary behavioural changes in order to remain abstinent. For many individuals this form of treatment may take up to two years which means that follow-up implants would be recommended after three months (de Wet, 2015). This leads to the main focus of the study that is interested to explore what these individuals have experienced through the use of naltrexone maintenance therapy with pellet implantation specifically. Thus the aim of this study is to explore the experiences that these individuals undergo whilst on the naltrexone pellet implantation in relation to relapse prevention as this is quite understudied with regard to the use of naltrexone within the South African context.

2.11 Conclusion

In order to conclude, the researcher ensured that this chapter included the various factors, detentions and components related to this specific topic. This was due to ensure that the reader had a general overview of the topic at hand that included various factors related to the main components that were discussed in this particular study. These components consisted of epidemiological aspects regarding the use of heroin in order to highlight an overview of the use of heroin and various opioids from a general to a more specific overview regarding the use of heroin in the South African context. The researcher furthermore discussed the different components related to the use of heroin and the neurobiological effects that this particular illicit substance has in the human body. The reason for this was to indicate the relationship between the use of heroin and how the naltrexone pellet implant would work on the same components in order to aid the individual in remaining abstinent from the use of heroin.

Moreover, the researcher included a general overview of naltrexone to a more specific description of the various components related to the use of the naltrexone pellet implant and its effects on the human body. The discussion regarding naltrexone covered a historical perspective of the development of naltrexone to the use of the naltrexone pellet implant in the context of South Africa specifically. The researcher decided that an outline of these different modalities and the important components to the design of the study would be of great importance for the reader that might not be aware of this particular topic at hand.

Furthermore, the chapter delineated the various aspects related to relapse from heroin abstinence and the different modalities linked to this process in order to guide the reader through the difficulties experienced by a heroin dependent individual and the attempt to remain abstinent from the use of heroin. This included a discussion regarding relapse and relapse prevention as this was one of the most important factors related to this study. Specifically, the literature review outlined the theoretical perspective of the current study, namely, the Relapse Prevention Model (Brownell et al., 1986).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology and the research design employed in completion of the study. A vast amount of studies have given evidence on the effectiveness of the naltrexone pellet implant in relation to relapse prevention and sustaining abstinence from the use of opioids such as heroin. Many of these findings have made use of a quantitative methodology for the reason that it consists mostly out of clinical trials that measure the amount of naltrexone in the blood system that would then be correlated with the relapse rate in order to indicate its effectiveness.

However, quantitative studies have not captured the human experience of the process involved with going through the naltrexone pellet implantation treatment for relapse prevention (Colquhoun, 2013; Hulse et al., 2004; Tiihonen et al., 2012). Therefore, the focus of this study was to explore the experiences and perceptions that heroin dependent individuals had when they made use of the naltrexone maintenance therapy with pellet implantation and whether they felt such treatment had any changing outcome in terms of relapse prevention from heroin dependency.

The aim of conducting this research study was to explore the experiences and perceptions of heroin dependent individuals that made use of naltrexone maintenance therapy with pellet implantation as an alternative treatment method in order to prevent relapse from occurring.

Since the research question is based on the personal experiences and perceptions of heroin dependent individuals that make use of naltrexone maintenance treatment with pellet implantation in order to prevent relapse, the study will make use of a phenomenological research design, in particular Interpretative Phenomenological Analysis (IPA), a qualitative interpretive paradigm. The rationale behind the use of this paradigmatic perspective, research design and approach are discussed in this chapter. The choice of the target population and sample will also be discussed during this chapter as well as the method of data collection and data analysis used in this particular study. Ethical issues are further discussed, with an exploration of the measures to ensure trustworthiness within this study.

3.2 The Research Design

3.2.1 Qualitative method

The researcher has chosen to employ a qualitative, exploratory research design for this particular study. Exploratory research focuses on providing relatively new information on an unknown subject or topic (Terre Blanche et al., 2006). With this in mind, the naltrexone pellet implantation therapy can be seen as a relatively new form of treatment for heroin dependence within South Africa, which needs research. Johnson and Christensen (2012) stated that qualitative methods would be employed when there is little known about a certain phenomenon or topic, and when one wants to know more about this particular topic. Since naltrexone maintenance therapy with pellet implantation is not that common in South Africa, and very little information is made available to the general public, the researcher found that the qualitative method would be more appropriate in order to be able to explore the subjective experiences of the individuals that make use of this treatment. This method enabled the researcher to find out more about the experiences that these people went through and was therefore able to answer the research questions at hand.

Qualitative research seeks to find a deeper understanding of the way things are the way they are and how other individuals experience these things in context (Gay, Mills, & Airasain, 2009). The qualitative method fits this study well in terms of exploring the experiences that these individuals went through during their interaction with the use of naltrexone implant therapy. This study explores what individuals experience in terms of the physical, psychological as well as social consequences that individuals live with or face when they make use of the naltrexone implants. The reason for exploring these recovery experiences in this form of therapy is specifically created to help the individual move through and cope with the phases that usually cause relapse. This form of alternative therapy acts as an aid in the recovery process from heroin dependency. The selection of the qualitative method of research in this particular study is based on the relapse prevention theory that is described in chapter two of this study. This approach allowed the researcher to have some form of guidance and foundation when this study was conducted.

Gray (2013) stated that the role of a qualitative researcher is to gain a deep, intense and holistic overview of the context under study. Qualitative research is a naturalistic approach that seeks to understand phenomena within their context-specific setting. The above statement also highlights the motivation for the use of a qualitative method in this particular

study. Each participant was provided with the opportunity to express and explain their experiences with the use of naltrexone in preventing relapse from occurring.

3.3 The Research Approach

3.3.1 Interpretive Phenomenology

The researcher decided to employ phenomenology as the approach of choice for this particular study. Phenomenology is concerned with the world as it is experienced by human beings within a particular context at particular times. It is concerned with the phenomena that appear in human beings' consciousness as they tend to engage with the world around them. Phenomenology tries to return to things themselves, as they appear to individuals as the perceivers and to bracket what each individual thinks they know about themselves (Willig, 2008). This means that individuals' preconceived ideas, attitudes and perceptions do not matter so much when one embarks upon phenomenology.

Working with individual that made use of naltrexone as a form of recovery and to remain abstinent from the use of illicit substances from a phenomenological perspective, allowed the researcher to bracket his presuppositions, assumptions, ideas and interpretation regarding this topic. However, it is often impossible to, therefore the researcher has decided to make use of interpretative analysis (Smith, Flowers, & Larkin, 2009). The blocking of one's own biases and assumptions through means of bracketing in order to gain an understanding of a phenomena is quite a difficult process and is one of the major cornerstones described by Willig (2008) as *epoche*. This means that one should be able to reflect critically on one's own ways of knowing, while constructing an interpretation of the participants' world. For the purpose of this enquiry, the researcher's approach was interpretive in the sense that it consists of the interpretation of the participants' account of emotions, cognitions and thought processes during the use of naltrexone maintenance therapy as an aid in the recovery process that the researcher engaged in. For the purpose of this particular study the researcher was not able to completely bracket himself from this research process, although the bracketing of personal biases, prejudices and discriminations were applied as to ensure that the research findings were not contaminated by these subjective interferences.

Phenomenology is often central to the interpretive paradigm and commonly used paradigmatic perspective known as hermeneutic phenomenology was employed to this particular study. Hermeneutic (interpretive) phenomenology is concerned with interpretation

of the structures of experiences and with how things are understood by people who live through these experiences and by those who study them, so in other words, the epistemological assumption of this approach is phenomenological in nature (Wojnar & Swanson, 2007).

The main purpose of this study was to explore the experiences of heroin dependent individuals that made use of naltrexone maintenance therapy with pellet implantation in relation to relapse prevention. Through conducting this study the researcher wished to learn what the experiences are that these individuals went through in the time making use of naltrexone maintenance therapy with pellet implantation. This included a holistic approach to their experience with naltrexone that covered physical, psychological as well as social experiences with the use of naltrexone maintenance therapy in relation to relapse prevention. One of the reasons that the relapse prevention theory was used as a guide throughout this research process is due to the reason that naltrexone is designed to reduce relapse from the use of various opioids. Phenomenology as a qualitative approach allows participants to express their experiences, views and meaning with the use of naltrexone as an aid for relapse prevention. This approach allowed for elements of individuality as well as those of commonality to emerge from their descriptions of their encounters with the use of naltrexone (Smith et al., 2009).

According to Willig (2008), there are two schools of thought within phenomenology that consist of descriptive phenomenology and interpretative phenomenology. Descriptive phenomenology is firmly rooted in the tradition of transcendental phenomenology, arguing that perception can be more or less infused with ideas and judgements. This means that it is quite possible for the researcher to analyse and make sense of certain phenomenon without being overly influenced by his or her own subjective interpretations of the world. Descriptive phenomenology is concerned with the world as it presents itself and with a phenomenon as it occurs naturally. It requires the researcher to adopt a phenomenological attitude in which he or she brackets all past knowledge about the phenomena under investigation. This causes the researcher to be truly present to the phenomena as it presents itself in a particular instance. Therefore, the focus of the research study was the phenomenon as it presents itself through the research participant, rather than the phenomenon as a material reality (Willig, 2008).

In contrast, interpretative phenomenology falls within the hermeneutic tradition. This tradition argues that lived experiences are already meaningfully organised and interpreted through language since it is the tool used for knowledge production in everyday life and it

argues that all description constitutes a form of interpretation. The hermeneutic argument is rooted in the notion that everyday experiences and knowledge has a profound effect on individuals' cognition and therefore the divorce between the researcher's experiences and the participants' lived experiences cannot be possible. In order to make use of interpretative phenomenology, researchers must work with their presuppositions and assumptions in order to reach a better understanding of a phenomenon (Willig, 2008).

With the above mentioned in mind, the researcher decided to employ interpretative phenomenology, specifically Smith's Interpretative Phenomenological Analysis (IPA). The reason being is that it is quite impossible to gain direct access to participants' lived experiences. When it comes to the analysis of the participants' experiences and perceptions, it is seen as an interpretation by the researcher which is facilitated by his or her interaction and a co-creation of understanding of the phenomena at hand (Wojnar & Swanson, 2007). IPA is deeply rooted in phenomenology to data analysis in that it aims to capture the quality and textures of individual experiences, and to try and capture the subjective meanings that individuals ascribe to their experiences (Smith et al., 2009). This study aimed to understand the subjective experiences of heroin dependent individuals making use of naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention.

Smith et al. (2009) highlighted important concepts to IPA consisting of double hermeneutics, empathetic hermeneutics and critical hermeneutics that were evident in the interaction with the research participants for this study. The process of double hermeneutics can be described as the situation where the participants are trying to make sense of their world while the researcher is also trying to make sense of the participants trying to make sense of their world. Therefore, IPA is intellectually connected to hermeneutics and theories of interpretation. It was evident to the researcher that when the interactions with the participants occurred, the researcher attempted to emphasise the participants' situation and to allow the participants to explore their own sense of the world by means of 'standing back'. The researcher also participated in second-order sense making through constantly attempting to vision how the participant was viewing the researcher and how he attempted to imagine their world. The researcher managed to adjust accordingly.

This probes the attention to the discussion of empathetic hermeneutics and critical hermeneutics (Smith et al., 2009). Empathetic hermeneutics is concerned with trying to understand what it is like, from the participant's point of view. This in essence amounts to the researcher taking the participant's side or attempting to put oneself in the shoes of the

participant in order to visualise the same mental faculties that the participant explains in that particular moment.

In contrast, critical hermeneutics refers to taking a step back and asking critical questions of the participant's accounts. It is crucial for the researcher to find a middle ground to this approach, as without the caution, the researcher may be too involved with the participant's world or it may cause the participant to feel like they are being interrogated. This may cause interpretation for the sake of analysis to become quite impossible (Smith et al., 2009).

To summarise, interpretative phenomenology is a research methodology useful for describing human experiences of caring, healing and wholeness in relation to historical, social and political forces that shape meaning of wellness, illness and personhood. Hermeneutic phenomenology is grounded in the belief that the researcher and the participant come to the investigation with fore structures of understanding shaped by their respective backgrounds, they cogenerate an understanding of the phenomenon being studied. Therefore, the researcher had decided that this particular form of phenomenology would be the best fit for the purpose of this study due to its thick description of what the individual experiences in this particular context (Wojnar & Swanson, 2007).

3.4 Research Methodology

The researcher employed a data collection procedure that consisted of semi-structured interviews with heroin-dependent individuals that made use of the naltrexone maintenance therapy with pellet implantation in relation to relapse prevention. All the procedures that the researcher has followed in order to acquire the desired outcome to the findings of the research conducted are discussed below.

3.4.1 Sample and Sampling

Sampling in qualitative research is usually purposive, meaning that participants are selected according to whom are most likely to produce the needed data for this proposed research study (Terre Blanche et al., 2006). The focus of this study was to explore and investigate the subjective experiences of heroin-dependent individuals that underwent naltrexone maintenance therapy with pellet implantation in relation to relapse prevention. In order to have achieved this goal, the researcher employed a non-probability, purposive, snowball sampling technique for the selection of participants in order to filter and select

candidates who were suited as “information-rich” for the research sample (Patton, 1990). The snowball sampling technique enabled the researcher to recruit other participants that underwent the same naltrexone therapy as the initial participants and who recommended the study to other potential participants. This is due to the difficulty in finding participants in this criterion because to the small population of individuals that makes use of this type of therapy in the South African context.

A relatively small sample size was gained from the naltrexone therapy group. This is due to the small amount of individuals that receive the naltrexone pellet implantation with the necessary criteria proposed previously. The researcher managed to recruit four participants that consisted of heroin-dependent individuals that made use of the naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention. It should be noted that one particular participant (Participant 1) has a vast amount of knowledge based on the naltrexone pellet implant and the use thereof and this particular participant can be seen as possessing expertise in this particular field as he went through the process of making use of the naltrexone pellet implant for the use of relapse prevention to heroin use. He also acts as a lay counsellor for the participants involved in this research study whereby weekly and bi-weekly support sessions are held for this particular group. It would be important to state that the researcher has no involvement with the processes of this particular support group and that this group was created long before this particular research study was conducted.

3.4.1.1 The Sampling Criteria

The following criteria were identified according to which participants were chosen:

The participants for this study should have received the 800mg- naltrexone pellet implantation from a professionally recognised physician. The physician that was approached in the use of this study was Dr. X, whom is located in the Randburg/Florida area in Johannesburg, South Africa. Dr. X played a crucial role in the completion in this study due to his role as one of the gatekeepers in the selection of participants for this particular study. It should also be noted that a second gatekeeper played a role in the selection of participants for this particular study, this gatekeeper is a lay counsellor for the naltrexone support group. This individual played a crucial role in the selection of these participants whereby the specific inclusion criteria for these particular individuals was sent to him. Under his own professional scrutiny, together with the inclusion criteria given to him by the researcher, a selective group of participants for this study seemed fit (Smith et al., 2009).

With regards to the inclusion criteria regarding this study it was however, also important that the participants had encountered difficulties in remaining abstinent from heroin and other forms of heroin such as nyaope by which it has caused social difficulties, caused clinically significant distress and the inability to function properly. This means that even though the participants did not have to be diagnosed according to the DSM-5 criteria in order to participate they should have received the implant by means of the professional opinion of the physician.

The participant should have stayed on the naltrexone pellet implantation for the duration of three months. The time duration that has been chosen for the proposed study is connected to the lifetime of the naltrexone implant, where the implant would remain active within the body for a period of up to three months. The participant may have received a second implant or may have decided to withdraw from receiving a second implant. This however does not matter due to the reason that the purpose of this study was to explore the subjective experiences of heroin-dependent individuals when receiving the first implant in relation to relapse prevention from heroin abuse.

The majority of the participants were recruited from the naltrexone support group in Johannesburg. It should be noted that this study is focused on participants that reside in the Gauteng province of South Africa. As mentioned previously, these participants were difficult to recruit due to the strict criteria that needed to be met. There were no requirements concerning race or gender, however, the participants needed to be 18 years or older to be able to partake in this study.

3.5 Data Collection Method

3.5.1 Interviews

The researcher made use of interviews as a form of data collection whereby interviewing participants for a research study is the hallmark of qualitative research (Rossman & Rallis, 2012). The interview in a research setting is a method of generating conversation with other individuals with regards to a certain topic at hand (May, 2010). The researcher applied a semi-structured interview within this study due to its compatible format with various methods of data analysis.

3.5.1.1 Semi-structured interviews

Semi-structured interviews are one of the most popular forms of data collection in qualitative research within the discipline of psychology. Interviews require careful preparation and planning, especially when it comes to the development of the appropriate questions to pose to the participants. This form of data collection tends to be somewhat easier to arrange when a form of interpretation of what the participant is trying to portray is analysed. Furthermore, this form of data collection enabled the researcher to reach a small number of volunteers in a certain amount of time, as recruitment of participants in this particular sample was difficult to secure (Willig, 2008).

Since the researcher's goal was to learn and explore the subjective experiences of heroin-dependant individuals that made use of naltrexone maintenance therapy with pellet implantation, the researcher felt that semi-structured interviews would allow the respondents to elaborate on particular questions if they wished to do so, by means of making use of their own words. Moreover, the researcher decided that by making use of this particular form of data collection would create space for the interviewer and the interviewee to explore all the factors associated with their experience with naltrexone, therefore ensuring that a rich description of the respondent's experience was recorded.

An interview schedule containing a semi-structured interview with open-ended questions was designed prior to the data collection process. This interview schedule was designed by means of the researcher spending time familiarising himself with the field of naltrexone and heroin dependence. The interviewer also ensured that this interview schedule was fit for the interview session by means of collaborating with various professionals, academics, colleagues and peers regarding the interview schedule before the attempts were made for data collection (Willig, 2008). Open-ended questions with alternative sub-questions or probes were added to the interview schedule as to clarify the questions that were asked.

3.6 Data Analysis

This section will discuss the way in which the data collected from the interviews were analysed. The intention of collecting this particular data was to answer the research questions, "What are the subjective experiences and perceptions of individuals who are on the naltrexone maintenance therapy with pellet implantations with regards to relapse prevention from heroin dependence?", and, "Does the use of naltrexone maintenance therapy with pellet implantation have any changing effect on preventing relapse form heroin use from the user's

perspective?” When one interprets qualitative data, the aim is to develop an organised, detailed, plausible and transparent account of the meaning of the data. For the purpose of this study the researcher made use of the interpretive phenomenological analysis (IPA) method as a form of analysis which is inductive in nature (Smith et al., 2009).

The assumption in IPA is that the researcher is interested in learning about the participant’s psychological world. Participants’ verbalisations may be in the form of beliefs and constructs that are manifested or suggested by the participant’s way of language usage. Moreover, IPA suggests that the way the researcher holds the participant’s story can in itself be said to represent a piece of the respondent’s identity. Furthermore, the meaning of the data collected is central, and the aim is to understand the content and complexity of those meanings rather than measure their frequency. This involved the researcher to engaging in an interpretive relationship with the transcripts.

Participants in this study were interviewed and the transcripts were subjected to IPA. This particular study made use of four participants that adhered to the criteria created by the researcher. All four interviews were recorded and transcribed in order to facilitate structured and detailed interpretative phenomenological analysis. The transcription of the English recordings were conducted by the researcher for the purpose of gaining a better understanding of their subjective experiences and perceptions of the use of naltrexone maintenance therapy with pellet implantation as an aid of relapse prevention from heroin dependency. Furthermore, gaining an understanding of how participants’ experiences shaped their emotions and thought patterns when making use of the naltrexone pellet implant. One major advantage to making use of IPA is that it allowed the researcher to immerse himself in the data collected from the participants. This allowed for a more detailed account of creating themes that will help in completely understanding the phenomenon at hand (Willig, 2008).

Subsequent to the interviews, the researcher made use of member-checking in order to ensure that what was mentioned is an accurate reflection of the participant’s story being told during the interview session. This was implemented by means of identifying potential themes from the transcriptions whereby the researcher would then make contact with the participant in order to enquire whether this is in fact an accurate reflection of what had been shared. Generally, the participants agreed with the initial analysis, however there were some scenarios where additional material and different perspectives arose after member checking. The researchers made note of these changes and amended the analysis accordingly.

Smith et al. (2009) identified four stages in the IPA process that consist of the following:

Stage 1: Initial reading of the transcript. In the first and most important phase of IPA, the researcher aimed to garner an overall feel of each interview. The researcher examined the first transcript in detail before moving on to examine the other transcripts case by case. Moreover, the researcher followed an idiographic approach to analysis which consisted of beginning with particular examples and slowly working his way up to more general categories or claims for the purpose of the analysis (Smith et al., 2009). According to Weber (1990), it is important to read and re-read the text in the transcriptions. Smith et al. (2009) recommended that the researcher should start off with writing notes and to pay careful attention to detail, the researcher can however decide to write reflective accounts or an interpretive account of each interview. Due to the reason for the researcher writing notes and paying careful attention to detail and transcribing his own material, it was quite easy to get a feel of the text and context of what the participants had attempted to convey during the interview.

The researcher developed a set of descriptive comments on each interview transcript. The purpose for this was to describe the content of the data. The researcher made use of the comment function within Microsoft Word in order to complete these descriptive comments. At the next level of analysis, the researcher focused on how the transcripts reflected the ways in which the content and meaning were represented linguistically, the researcher also took notes in a linguistic format that was structured in the format of comments. The researcher considered the ‘how’ along with the ‘what’ of the textual data that contributed to the meaning behind the participants’ words (Cooper, Fleischer, & Cotton, 2012).

Stage 2: Identifying and labelling themes. The researcher should be able to return to the transcript and make use of the notes that were written in the margin in order to identify potential themes. The combination of notes and transcripts will help clarify themes that were found in the process. The researcher should be aware that when theories and psychological constructs are introduced, that the participants’ stories and subjective meanings should not be overwritten (Smith et al., 2009). With this in mind, the researcher moved into a more interpretive stage of analysis in making conceptual comments. At this stage the researcher began to develop insight into the data in order to develop themes in the next stage of analysis. In making conceptual comments, the researcher noted preliminary concepts regarding the participants’ overarching understanding of the use of naltrexone pellet implants for the aid in

relapse prevention. After initial noting on each participants responses, the researcher searched for emerging themes across all participants' by examining discrete sections of transcripts and simultaneously recalling what was being learned through the analysis (Cooper et al., 2012).

Stage 3: Linking themes and identifying thematic clusters. In this particular stage the researcher attempted to narrow the themes where connections are identified between preliminary themes. This is where potential themes were either removed from the analysis or integrated into new themes, depending on the context of the topic at hand. This stage called for superordinate themes where the introduction of structure to the analysis was implemented (Smith et al., 2009; Willig, 2008).

Stage 4: Producing a summary table of themes with illustrative quotations. In this stage the researcher attempted to organise superordinate themes into a table with their sub-themes with illustrative quotations made by the participants. These themes and quotations should be accompanied by references where extracts can be found in the transcript (Smith et al., 2009; Willig, 2008). The researcher accomplished the above mentioned through means of returning to the first transcript whereby the data was then coded in order to mark segments of data with descriptive words. This process was then repeated with each individual transcript. Each transcript was coded and the codes were written down on a whiteboard in order to find similarities or discrepancies in the other transcripts or to connect the various codes in order to create categories. Categories started to emerge whereby the main themes for this research study were created.

The transcribed data for each interviewee was awarded a code for the purpose of anonymity. The code for each interviewee appeared on the interview schedule for each research participant. As an example, the researcher had eight different codes to represent the eight participants and one code to represent the researcher. The codes that appeared are P1, P2, P3 and P4. The code P stands for the research participant. The researcher used R to represent the researcher in this study. The researcher also made use of bracketing in Microsoft Word in order to segment the data in the transcripts in order to demarcate where each segment started and ended as recommended by Jonson and Christensen (2012). The final layout of the analysis was then laid out on an Excel spreadsheet in order to simplify the data for the write-up of the next chapter which will discuss the findings of this study in detail.

3.7 Measures to Ensure Trustworthiness

This study made use of measures of trustworthiness as prescribed by qualitative research to ensure credibility, transferability, dependability and confirmability. Many critics, mainly positivists, are hesitant regarding the trustworthiness of qualitative research. Guba's (1981) constructs have won considerable favour in ensuring rigour in naturalistic inquiry by means of ensuring the application of the four constructs mentioned above in order to complete and present trustworthy studies. Following are the four main constructs that have been contextually applied by the researcher to enhance the trustworthiness of this particular study.

3.7.1 Credibility

Credibility is one of the key constructs in ensuring trustworthiness. This particular construct is well known to the positivist researcher as internal validity. This construct ensures that the study measures what is actually intended to be measured by asking the question of, 'How congruent are the findings are with reality?' (Shenton, 2004). The following measures were taken by the researcher in order to promote confidence that the information that has been recorded regarding the phenomena has been done under scrutiny. The adoption of research methods was carefully implemented by means of ensuring that the procedures that were employed in this study were done with accuracy.

The interview framework in the data-gathering sessions and the method of data analysis were derived from previous studies that have been successful in gathering information in other related studies or projects (Lincoln & Guba, 1985). This was done by means of various literature searches that included the investigation of the effectiveness and duration of the use of naltrexone pellet implantation for relapse prevention. The researcher made an effort to consult with various professionals in the particular field of methodology and the field of naltrexone maintenance therapy as to ensure a rigorous flow of this study. Preliminary visits to literature and organisation were made before the first data collection dialogue took place in order to be familiarised with the culture of the participants in this study. The factor of triangulation was incorporated by means of including both interviews with patients that underwent naltrexone maintenance therapy with pellet implantation as well as professionals in its field. One particular participant underwent the naltrexone maintenance therapy with pellet implantation and is now one of the counsellors for the naltrexone maintenance therapy group, therefore, this particular participant can be seen as a professional

in the field of naltrexone therapy due to the vast knowledge that he gained when working in the field for many years. Peer scrutiny of the research study was adhered to by means of allowing peers, colleagues and various academics to give feedback on matters discussed throughout this study with regards to methodological, paradigmatic and contextual discussions (Shenton, 2004). The researcher employed a co-analyst in order to strengthen the credibility of this particular study.

3.7.2 Transferability

This particular construct is well known to the positivist researcher as external validity which is concerned with the extent to which the findings of one study can be applied to other situations in the same context. When it comes to qualitative inquiry, it is almost impossible to demonstrate that the findings of a particular study could be applicable to other situations and populations. This is due to reason that the nature of the findings in qualitative research is specific to a small number of particular environments and individuals. Many of the naturalistic enquirers trust that in practise even conventional generalisability is never possible as all the observation that are made are defined by the specific context it occur in. It was therefore up to the researcher to ensure that sufficient contextual information about the fieldwork sites was provided as to enable the reader to make such a transfer. Therefore, the researcher ensured that a rich description of the phenomenon at hand was provided as to enable other readers to have a proper understanding of the topic at hand. This was adhered to by means of providing a description of the selection of participants which includes the inclusive and exclusive criteria that the individuals had to adhere to before they were able to take part in this study. Furthermore, the literature gives a rich description of the various factors involved with the topic at hand. This indicates the use of naltrexone maintenance therapy with pellet implantation starting from a global scale and then filtering down to a local scale of use (Shenton, 2004).

3.7.3 Dependability

This particular construct is well known to the positivist researcher as addressing the issue of reliability. In the positivistic approach the researcher would employ techniques to show that, if the work should be repeated in the same context, making use of the same methodology and sample, the same results would be obtained (Fidel, 1993). However, within the qualitative naturalistic inquiry, dependability can be achieved by means of reporting the processes within the study in detail, thereby enabling a future researcher to repeat the work to

ensure that they gain similar results. A rich description of the planning and execution of the study was given on a strategic level by means of clearly indicating the research design, approach, selection of participants and form of data collection as mentioned previously. The researcher ensured that operational detail of data gathering was given as well as a reflective appraisal of the project was made available (Shenton, 2004).

3.7.4 Confirmability

The last criterion for ensuring rigorous and trustworthy research is confirmability. This concept is concerned with the qualitative researcher's comparable concern to objectivity. It is vital to ensure that the information and ideas gathered are those of the research participants rather than the subjective influences of the researcher. Therefore, for the purpose of this study the researcher ensured to make use of triangulation as mentioned previously as this ensures that investigator bias is reduced. This was done by ensuring that the reason for the particular approach was explained in detail which is embedded in the research report and that the methodology was explained so that the reader would be able to follow an audit trail that is attached to this particular study

3.8 Ethical Considerations

Ethics can be defined as the application of moral rules and professional codes of conduct to the collection, analysis, reporting, and publication of information about research participants in a study, in particular active acceptance of participants' right to privacy, confidentiality, and informed consent (Terre Blanche et al., 2006). These ethical considerations are important as they would protect the rights of the participants as well as the rights of the researcher. The researcher received permission from the Ethics Committee of the Department of Psychology, University of South Africa to commence with the study on 20th August 2014 whereby a copy of this ethical clearance letter can be found in the Appendices section of this study (See Appendix C). This application was approved by the departmental Ethics Committee on the understanding that due to the sensitivity of the information being sought and the fact that the participants come from a vulnerable population, it is required that all ethical principles related to informed consent, the right to withdraw, anonymity and confidentiality should be followed to the satisfaction of the supervisor. Furthermore, any medical procedures must be conducted by and supervised by suitably qualified medical personnel and that referral services should be available if required. Therefore, it should be noted that this research process did in fact require no medical procedure as the aim of this

study was to explore the subjective experiences of individuals that made use of the naltrexone pellet implant whereby the medical procedure was already done outside the parameters of this particular study. The participants in this research study participated voluntarily and the physical and psychological safety of the participants was also be ensured.

The participants were provided with information letters clearly stating the purpose and aims of the study, the way that the information in the study was used, including information about anonymity. It was also important for the participants to know that they will be able to withdraw from the study whenever they wish to do so, including that the participants were informed of any potential harm the study may have caused by triggering negative experiences or emotions (Terre Blanche et al., 2006). The participants were given the contact details of a registered Clinical Psychologist should the need have arisen for debriefing after they were interviewed.

The following ethical factors were considered when this study was conducted.

- Informed Consent

In any academic research project there should be informed consent from participants before they take part in any proposed research study. This simply means that the participants should be informed of what they are being asked to do, and what the risks are, before they agree to take part (Moerdyk, 2012). Within the current study, the participants were also informed as to which individuals will have access to the data, which were the researcher and the research supervisor. The participants were required to sign a consent form as to confirm their willingness to participate in the study. All the participants were informed about the overall purpose of the study. A copy of the consent form is attached as Appendix A.

- Confidentiality, Privacy and Anonymity

It is important to ensure the confidentiality of the participants when conducting research, especially when one makes use of in-depth interviews when collecting the data for the study (Moerdyk, 2012). In this particular study, the names of the participants were kept confidential by means of making use of pseudonyms instead of their real and identifying details were removed for the purpose of anonymity. The researcher honoured the agreement made with the participants in that the information would only be used for research purposes. The audio recordings and transcripts were kept in a safe format. The researcher did not make the information acquired during the research available to any third party.

- Justice

During this research study no form of deception was present during the collection of data or any other part of the study. Justice refers to treating all participants with respect during the course of the research study. Each participant was treated fairly and equally to ensure justice within this study (Terre Blanche et al., 2006).

- Non-maleficence

The duty of the researcher in this study is to ensure that no harm towards the participants was done during the interviewing phase, as well as the rest of the research study. Due to the explorative nature of the study and the characteristics of the participants, it is not anticipated that this ethical consideration would have been contravened. The participants were debriefed after the interview session as to ensure that no harm would come to their psychological health due to any sensitivity of the research topic (Moerdyk, 2012).

3.9 Conclusion

The purpose of this chapter was to discuss the research approach and method that was employed during the course of this study that aimed to explore the subjective experiences of heroin-dependent individuals that made use of naltrexone maintenance therapy with pellet implantation in order to aid in relapse prevention. The rationale behind the selection of these methods was outlined in the previous sections. The strategies that were employed for the process of data collection were explained. The research methodology and design that was selected for the purpose of this study were found effective in the sense that the data that was collected was sufficient to be able to answer the research question of the proposed study. The researcher ensured to adhere to the ethical procedures of conducting a research study that involved human participants and followed measures to ensure the trustworthiness of the current study.

CHAPTER 4: FINDINGS AND DISCUSSION

4.1 Introduction

This chapter commences a description of the research participants and a narrative summary of each participant involved in this research process. This summary of each narrative will include a brief background related to each participant's history with heroin use, an interpretation of the use of the naltrexone pellet implant as an aid to their recovery process will be explored, concluding with their future with regards to their use of the naltrexone pellet implant as an aid to recovery and remaining abstinent from the use of heroin. Moreover, this will be followed by a presentation of the superordinate and subordinate themes that was extrapolated from the transcripts of the interviews. This will be concluded with a discussion of the themes that emerged from the data in relation to the existing literature and contextual theory related to the subject at hand.

The findings of the study are structured according to the overall research question of this particular study. The overall question that guided this particular study namely, "What are the subjective experiences and perceptions of individuals who made use of the naltrexone maintenance therapy with pellet implantations with regards to relapse prevention from heroin dependency?" In order to analyse each participant's subjective experience and perceptions with the use of naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention, the researcher used an Interpretative Phenomenological Analysis (IPA) as the method of data analysis that served as a lens through which the subjective experiences of these individuals could be examined and interpreted (Smith et al., 2009).

4.2 Research Process Overview

In this particular section the researcher will provide a brief overview of the research process by means of describing the emerging process that occurred prior, during and after the collection of data materialised. The collection of data occurred over a period of six months whereby the feedback sessions occurred a month after the six-month period. The researcher ensured that all the required research procedures including ethical requirements were adhered to. The researcher received ethical clearance from the Ethics Committee of the Department of Psychology at Unisa on the 20th of August 2014 in order to commence with this particular study. This was implemented by means of various processes that include some but not limited to, the protection of participants' identities through the use of pseudonyms. The researcher ensured that the length of time for each interview was kept to less than one hour as to protect

against interview fatigue (De Vos, Strydom, Fouche, & Delpont, 2011). Interviews were designed in a semi-structured format as to ensure the comfort for both the researcher and participant to support a more explorative format of data collection. The researcher decided to approach a physician in Florida, Johannesburg for the recruitment of participants, seen as this physician is one of the few that surgically inserts the naltrexone pellet implant. The physician introduced the researcher to a naltrexone pellet implant support group that was held every week. This was the method that the researcher made use of gaining participants for this particular study. Before the interviews were scheduled, the researcher discussed the aim and purpose of the study via telephonic communication with potential participants and followed up with an email stating the aim and purpose of the research study. This email consisted of a description of the aim and purpose of the research study together with two documents, one of which provided a description of the research study at hand followed by the actual interview questions, and a second that was an informed consent letter describing all the ethical principles pertaining to the research study. These documents can be found in Appendix A and Appendix B. This was followed by the scheduling of a face-to-face interview whereby the researcher and the participant agreed upon a specific time and venue for these interviews to take place. The majority of these interviews were conducted in the comfort of the participant's home where the researcher ensured that no disturbances were made during the process of data collection. It should be noted that one out of the four interviews were conducted via skype in the comfort of the participant's own private home. In order to have avoided common pitfalls where the interview setting might be interrupted by background noises and environmental disturbances the researcher made use of the participants' personal space in order to conduct the interviews (Easton, McComish, & Greensberg, 2000). In order to ensure respect, trust and cooperation, these interviews were held at each participant's home as mentioned previously. This procedure ensured that privacy of the content shared was adhered to due to the nature of the study.

The research question was supported by various sub-questions and probes that guided the researcher and the participants through the data collection process, however, allowing the participant to explore their own interpretation of the experiences of the use of the naltrexone pellet implant. The purpose of the probes were to remind both the researcher and the participants about the context of this particular study, which allowed for recall of previous participant reactions, which might enlighten or inform the next participants' response to the questions at hand. A copy of the interview guidelines used for this particular study can be

found in the Appendices section (Appendix B). The Interview schedule included an introductory section whereby the participants were introduced to the study at hand. The purpose of the introductory section was to enlighten the participant regarding the study, so that they would be more comfortable about the discussion held at that present moment. Furthermore, the participants were provided with the overall research question, which was followed by the researcher explaining to each research participant that the interview guideline consists out of three sections. These three sections consisted of (1) their past experiences with the use of substances with the use of heroin as the main focus of this study, (2) their experiences of the use of the naltrexone pellet implant and then, (3) their future thoughts around the use of the naltrexone pellet implant. The reason why this interview guideline was structured in this particular way was to ensure that the participant did not get confused as to the structuring of their explanation and interpretation of the particular experience regarding the use of the naltrexone pellet implantation. The researcher attempted to ensure the participants were comfortable in the structuring and expression of their personal experiences with the use of naltrexone pellet implantation treatment as an aid for relapse prevention as to ensure that the true self-expression was portrayed.

When the interviews were conducted, the participants seemed quite eager to share their story with the researcher. The researcher at first assumed that these individuals would be reluctant to share a side of them that they are trying to recovery, in retrospect, this was not the case as the participants ensured that this would enhance their reflection on their progress that they have made and that talking to someone about their experience seemed to reflect reassurance of the recovery process. It also came to the researcher's attention that some of the potential participants were not ready to share their experiences regarding the use of the naltrexone pellet implantation with regards to relapse prevention. This could be that the potential participants (that were not included in this particular study) were not ready to share their experiences as they are currently in the recovery process and on their own personal journey to recovery whereby they are still processing their recovery and abstinence. The researcher thanked them for their time and bid them well on their process of recovery and abstinence. After the interviews were conducted, the transcripts were created by the researcher as to ensure that he immersed himself in the data at hand. The transcripts were read and re-read in order to identify potential superordinate and subordinate themes.

4.3 Research Study Participants

For this study the researcher managed to recruit four participants in total of which are three male participants and one female participant. This amount of research participants fall within the prescribed range of research participants for a phenomenological study. It should however be noted that there is not one right answer in obtaining the perfect amount of research participants. What is important however is that the number of participants should provide sufficient cases for the development of meaningful points of similarity and difference between participants (Smith et al., 2009). Four participants deemed sufficient due to the amount of data collected from each of them for this exploratory study. All of the research participants recruited for this research study met the criteria set by the researcher in chapter three. It should be noted that none of the research participants withdrew from this study. There was, however, some difficulty in gaining participants due to the nature of the study. It was found that some of the potential research participants felt that they were not ready to partake in this research study.

During the recruitment phase of the current study, some of the potential participants mentioned that they were not in the right psychological state to share their experiences with someone else besides their counsellor. The recruitment of participants for this particular study was, in itself, quite a difficult task because the researcher found that the majority of the potential research participants were mainly dependant on so called 'uppers' which did not form part of the inclusion criteria. These uppers refer to various illicit substances that fall under the class of psychostimulant substances such as cocaine, cat, crystal meth and crystalized cocaine (crack). Initially this research study required the research participant to be/ had to be dependent on heroin. It was found that the majority of the individuals who had made use of heroin, which was also their main drug of concern, did however also make use of various other substances whilst making use of heroin. This did not negatively influence the research study as the researcher realised that the use of various substances including the use of heroin was quite a common practise among heroin dependent individuals- this is referred to polydrug use.

4.4 Understanding the Participant's Lived Experiences

The purpose of this study was to explore the participants' lived experiences and to interpret these lived experiences and the meanings that they derived from the use of naltrexone maintenance therapy with pellet implantation as an aid to relapse prevention from

the use of heroin phenomenon. The data collection procedure commenced with heroin dependent individuals that sought an alternative method of recovery in order to prevent relapse from occurring. These interviews centred around these participants' personal lived experience with the use of the naltrexone pellet implant in relation to relapse prevention to heroin specifically.

Due to the nature of how naltrexone implants function in the human body, the researcher thought that it would be interesting to investigate this phenomenon of alternative form of therapy and how these individuals experience this particular recovery process. Here the researcher explored past experiences with various well-known recovery processes that the participant participated in, in order to recover from their heroin dependency. As mentioned the researcher also explored the phase where these individuals had made use of naltrexone as well as the future use of this substance. It is worthwhile mentioning that these participants differed in the amount of implants that they made use of as well as the time period that they last made use of naltrexone as an aid for relapse prevention and recovery. However, the amount and timeline of last use is not of importance in this particular study as the focus lies with the experiences of the use of the naltrexone pellet implant. The researcher was interested in the participants' experiences of the first initial implant and how these participants experienced this particular stage in their life. This particular timeline would be a three-month period (half-life of the naltrexone pellet implant) that the participant made use of naltrexone as a form of recovery. It should also be noted that the researcher did in fact explore the experiences of these participants even if these spurred beyond this particular criterion, for example, if they made use of more than one implant.

Given that information from the participants' past is susceptible to recall bias information related; and that information related to current life circumstances in the recovering process may be distorted. It should be noted that the qualitative nature of this study permits for such ambiguity. Therefore the researcher ensured that an interview schedule was forwarded to the participant prior to the interview so that they would be able to familiarise themselves with the questions and also allow them the space to recall some of the experiences that they encountered throughout the recovery process. It is of great importance that the participants' lived experiences should be narrated by themselves; therefore the researcher allowed the participants to tell their own story and allowed for the space to share their particular lived experiences. According to Smith and Pietkiewicz (2014), IPA is concerned with a detailed account of a participant's lived experience wherein the aim was to

conduct research in a way that enabled the lived experience of the individual to be expressed in its own terms, rather than according to a predefined category system.

4.5 Summary of Participants' Narratives

Following is an outline and summary of each participant's narrative regarding their history, previous history with the use of illicit substances, previous attempts at recovery, their experiences with the use of the naltrexone pellet implant and what they aim to achieve in future regarding the use of the naltrexone pellet implant use. Furthermore, these narratives will explore their experiences with therapy while making use of the naltrexone pellet implant as an aid to recovery, including their future plans of the use of naltrexone maintenance therapy with pellet implantation. The researcher will start off by providing a short summary of each participant's lived experience in which the recurring themes will be understood once they are discussed. It should be noted that the research made use of pseudonyms to refer to these participants for anonymity purposes.

Participant 1 (Age 39):

Participant 1 is a 39 year old male that resides in Gauteng. For most of his life he has battled with his dependency to various illicit substances that included crack, heroin and crystal meth. However he remembers that the main substance that he was particularly struggling with was heroin. Participant 1 realised that he was entrapped by his dependency for over 20 years, he believed that for 10 years he had to make use of these substances to be able to survive. The excessive use and dependency to these substances caused him to end up in jail ten times in his lifetime due to housebreaking in order to feed this dependency to heroin, he eventually ended up in the streets and was hospitalised seven times for drug overdose.

Participant 1 remembered a specific heart-breaking moment where he woke up one day to find the unresponsive body of his girlfriend next to him, he remembers that they last used heroin together and the first thing he was looking for was not her pulse but rather checking her pockets for a fix of heroin. He remembered that he did in fact realise that his life was falling apart and did want to find help in order to stay clean. Throughout his lifetime he recalled attending 29 rehabilitation centres in order to remain abstinent from the use of illicit substances, but he did not manage to stay abstinent for too long. Everytime, he was thrown back into society, wherein he felt that the temptation was just too much for him to resist the use of heroin and crack.

After all the years of turmoil and struggling with his dependency Participant 1 decided that it was time for a change. He was introduced to the naltrexone implant therapy through a friend. At first, Participant 1 believed that naltrexone maintenance therapy was a hoax and was quite sceptical about making use of this form of recovery. However, he later believed that he had nothing left to lose and so he decided to go for the naltrexone pellet implant. Participant 1 shared that he was extremely sick for the first few days after the implant and was surprised with the results that the naltrexone implant had on him. He recalled that it was one of the worst detoxification experiences that he had because he made use of heroin before going for the implant.

Participant 1 soon noticed that this time his road to recovery is quite different from the previous methods that he had made use of, as he had felt that he had the energy to now change his life for the better. Participant 1, however, mentioned that this was not a miracle cure to dependency and he suggested that one should be attending some form of counselling. To him the naltrexone pellet implant was an aid to recovery, yet, he needed to still work on himself psychologically. Participant 1 continued to make use of three implants and stated that he is now completely off the naltrexone pellet implant and feels that he has the capacity to deal with his continuous recovery process on his own, without it.

Participant 1 stated that he has never looked back since and is now a successful lay counsellor for a group that he started called the Naltrexone Support Group. He has been clean of all illicit substances for eight years including heroin and has developed a passion for helping those that went through the similar lifestyle he experienced for the past 20 years of his life. Participant 1 outlined that he has developed a seven-step programme for his clients that are undergoing the naltrexone pellet implant therapy and believes that his programme together with the use of naltrexone has a great success rate in the rehabilitation of individuals dependent on various illicit substances. Participant 1 shared that he strongly believes that if it was not for the use of naltrexone he would not have been alive today.

Participant 2 (Age 26):

Participant 2 is a 26-year-old female residing in Gauteng. She has been dependent on various illicit substances that include cat, LSD, ecstasy, crystal meth and heroin for the most of her young life. Due to her dependency on these various substances she reported that she believes that she had lost her sense of self. Participant 2 shared that she is motivated to take on life without drugs.

Participant 2 shared that as the years progressed with her drug dependency she started manipulating, stealing, lying and cheating her way through everyone and everything in order to feed her dependency. She became emotionless and lost most of her humanity, she lost all her short-term jobs, never finished university and became a streetwise drug dependent individual where she could not account for seven years of her life. Participant 2 relayed that she had attempted suicide on a number of occasions and was jailed four times. She shared that she had gone for rehabilitation five times in order to rid this dependent behaviour. However, every attempt at joining a rehabilitation centre ended up in a process of relapsing as soon as she was placed back in society. According to her, she had not committed to the recovering process due to not being in the right mindset of staying clean and being committed to the recovering process. She also blamed her adventurous behaviour that caused her to go back and make use of heroin as soon as she was discharged from rehab. She stated that she always looked forward to finishing rehabilitation just to be able to go back to society and start using again.

Participant 2 was made aware of the naltrexone pellet implant therapy through family and friends but decided that she does not want to make use of this due to the taboo around a 'cure' for heroin dependency. Eventually, she became sick and tired of being sick and tired for chasing fixes, and thus she decided to pursue a life fulfilled with passion and success. So after her last arrest for the possession of heroin she decided to make the change that she was so passionate about. Her sister's boyfriend told her about Participant 1 and the wonderful work he has done for so many people in recovering from substance dependence. This then caught her attention and she decided to go for the naltrexone pellet implant. She was not too keen on this and thought that this would be the last resort. Participant 2 recalled that after fifteen minutes went by after the implant was inserted she started feeling very sick. She recalls that it felt like a bad trip and that it is quite different from the usual withdrawals that she usually experienced in rehabilitation centres.

Three days after her first implant, Participant 2 stated that she had started to feel better and the cravings and obsessions for heroin were gone. Although, she reported that she at times was still a bit shaky she felt more confident to work on her life from now on. Participant 2 stated that naltrexone is not a cure and that one needs to undergo some form of therapy in order to change the behaviour of dependency. Participant 2 relayed that she went for two implants and would be receiving a third implant. She concluded that she believes that

the third implant would help her through the recovery process and that she will be able to carry on with an abstinent lifestyle from there on out.

Participant 3 (Age 30):

Participant 3 is a 30-year-old male residing in Gauteng. Participant 3 has struggled with his dependency to various substances for 15 years. He was dependent on numerous types of substances that included CAT, cocaine, ecstasy and heroin. One particular substance that started to become a problem for him was the use of heroin. Participant 3 was also very persistent in the use of CAT and would cheat, lie and steal in order to pay for his next fix. He shared that he caused a lot of heartache and shame towards his friends and family and felt that he was cheating himself and got lost in the process. He could not keep a job and always seemed to look for jobs where he would not have to take on too much responsibility. He was mostly aiming for lower paid jobs as a representative for companies where this would allow him to be on the road most of the time. This allowed him to get high and even go and see clients when he was high. Participant 3 noticed that his use of these substances became a problem when his heroin use escalated from every weekend to making use of heroin throughout the week.

Participant 3 was arrested for the possession for CAT and that was when he decided to seek help, mostly he wanted to be a better person through changing his ways. He felt like life was not worth living and had various suicidal thoughts but came to realise that he was petrified of taking his own life. After various attempts to remain clean through the attendance of rehabilitation centres and a constant disappointment of using as soon as he got out of rehabilitation, he decided that naltrexone would be worth a try.

At first, Participant 3 was quite hesitant to making use of the naltrexone pellet implant. He remembered that the procedure was quite nerve-racking to have the implant inserted and he felt the naltrexone implant had an immediate effect on him. He remembered that he became a little sick the first time that he had the implant, as soon as he got home. He believes that the reason for becoming sick is that he has been using before he went for the implant as well as the belief that the naltrexone implant is pushing out the toxins from his body. He shared that there were times when he had thought about taking out the implant himself in order to make use of heroin again, however, he shared, in relation to detoxification, that he managed to pull through it all.

Ever since his first encounter with the naltrexone implant he shared that he has received three implants and remains abstinent up until today. He emphasised to the researcher that this form of therapy is not a cure and that one needs to fix oneself psychologically in order to remain abstinent from illicit substances such as heroin. Participant 3 believes that the naltrexone gave him enough energy to work on himself and to also not constantly think about using heroin. He also mentioned that the craving disappears which is a major factor to him when it comes to working on oneself on the road to recovery. Participant 3 stated that he has big plans for his future and that he would like to wean himself off the naltrexone in order to prove to himself and his counsellor that he will be able to cope without the use of naltrexone.

Participant 4 (Age 21):

Participant 4 is a 21 year old male that resides in Cape Town. It should be noted that this participant did in fact receive the naltrexone pellet implant in the Johannesburg area and formed part of the therapy process, therefore making him a relevant sample for this study. He relayed that he was quite an anxious teenager that started experiencing panic attacks, and in order to stop these panic attacks from occurring he smoked cannabis in order to elevate the anxiety. This seemed to help him with his panic attacks and he shared that he has never since experienced another panic attack. However, the moment that Participant 4's mind opened to what cannabis did for him he became quite curious as to what other illicit substances would offer him. He started making use of heroin at the age of 16 years and progressed to injecting heroin at a later stage. The use of heroin helped him with his psychological difficulties that included insecurity, vulnerability and all other emotions that he could not really deal with. Participant 4 mentioned that when he started injecting heroin it started taking over his life, he verbalised that he used drugs for three years before he attempted to remain abstinent from the use of heroin. He remembered that the reason for the choice of remaining clean was due to him stealing, lying and all the behaviour that goes with heroin dependency.

Participant 4 mentioned that he had "a personal relationship" with heroin and as a result of that there were various attempts where he tried to remain abstinent. He shared that he had gone to various rehabilitation centres and followed various rehabilitation programmes which ended up in constant relapses. Participant 4 disclosed that he was not quite ready to stop making use of heroin when he was placed in these programmes. There were even times where he made use of therapeutic substances such as suboxone, subutex and methadone. He mentioned that he even used when he was on this form of therapy for heroin dependency, moreover, he mentioned that he was even injecting methadone in order to get high.

Participant 4 relayed that he was taken off one substance and put on another but nothing seemed to work for him. He mentioned that these forms of therapy never really seemed to block the heroin from “getting into his system”. When making use of these substances, he remembered that he could even make use of heroin and he would experience the full affect that heroin had on him. The antagonistic therapy never seemed to stop him from making use of heroin. Participant 4 outlined some of the main triggers of making use of heroin were mainly people, places and things up till a point where he would not be able to even have money with him as this was a trigger to go and use. Shortly after being discharged from the rehabilitation centres, participant 4 started overdosing on heroin, this became a huge problem for him as he realised that his life was in danger.

Participant 4 shared that his mother was quite concerned for her son’s life and decided to undertake some research online, this is where she got hold of information related to the naltrexone pellet implant and decided to phone Participant 1 who works with individuals that were making use of naltrexone implant therapy. Participant 4 remembered that he heard about this form of therapy a few years ago, however, he remembers that he read something regarding naltrexone implants not being registered in South Africa. This made him quite hesitant to make use of this form of therapy until one of his friends decided to make use of this form of therapy. This was the time that he decided that he would give the naltrexone pellet implant a chance.

He decided to detox before the use of the implant, he recalled that his biggest fear was being cut off from heroin and not being able to use, this is because he was made aware of the danger that awaited him if he decided to make use of heroin while on the naltrexone implant. Participant 4 remembered that he felt sick when the implant was inserted and had experienced some withdrawal symptoms just after the implant was inserted, however, he also shared that it was the best clean time that he has ever experienced. He recalled that all the cravings, obsessions and triggers that he had previously experienced with various other treatments were not present with the use of the naltrexone pellet implant. This was quite a different experience for him due to the reasons that he was not isolated from society and had the opportunity to face his triggers, obsessions and psychological well-being whilst in society.

Participant 4 shared that he had made use of three naltrexone implants and is now making use of naltrexone tablets as a form of weaning himself of the naltrexone. Counselling played an important part in the recovery process for him, as he believes that naltrexone is not a cure but rather the crutches that one needs in order to learn to walk again, therefore, he

attends counselling sessions with Participant 1 every day for 15 min via telephonic conversation in order to remain abstinent from the use of heroin.

Furthermore, Participant 4 did in fact make use of heroin while he was on the naltrexone pellet implant therapy, yet to his surprise the heroin had no effect on him at all and that was when he decided that it was not worth wasting time to try and use again due to the fact no effect was evident when he attempted to use. He felt that he still needs to make use of the tablets until he is ready to function without the use of naltrexone, moreover, he mentioned that it is a more cost-effective alternative to the pellet implant. Participant 4 shared that he believes that he would not be clean today if it was not for the naltrexone pellet implant therapy.

4.6 Presentation of the Findings

Below is a table that summarises the superordinate and subordinate themes that emerged from the analysis of the transcripts in this particular study. In addition to the titles of the themes produced, a representative extract that illustrates each superordinate theme and subordinate theme is provided. This is followed by an individual discussion of each superordinate and subordinate theme.

Table 4.1: Superordinate themes and Subordinate themes emerged from the transcripts

<u>Superordinate themes</u>	<u>Subordinate themes</u>
4.7.1) Life before the use of the naltrexone pellet implant.	4.7.1.1) No one starts off making use of heroin. 4.7.1.2) Involved in criminal activities in order to feed dependency. 4.7.1.3) Numerous attempts in remaining abstinent. 4.7.1.4) Heroin use as a way of living. 4.7.1.5) Admitted to rehab against one's own free will. 4.7.1.6) Rehabilitation centers deemed ineffective. 4.7.1.7) Tempted to use after being released from rehab 4.7.1.8) Used prescribed agonist medication to get high.
4.7.2) Giving naltrexone a chance	4.7.2.1) The will to remain abstinent. 4.7.2.2) Initial thoughts about the naltrexone implant. 4.7.2.3) The decision to make use of the naltrexone implant. 4.7.2.4) Fear of receiving the naltrexone implant.
4.7.3) Physical experiences of the use of the naltrexone pellet implant	4.7.3.1) Detox and withdrawal before receiving the naltrexone implant. 4.7.3.2) Experiencing anxiety in the doctor's office.

	4.7.3.3) Getting sick after the naltrexone implant was inserted.
4.7.4) Naltrexone pellet implant as an aid for relapse prevention	4.7.4.1) Naltrexone as an aid and not a miracle cure. 4.7.4.2) People, places and things as a trigger. 4.7.4.3) Naltrexone increases self-efficacy. 4.7.4.4) Naltrexone decreases cravings and obsessions. 4.7.4.5) Using or thinking of using while on the naltrexone pellet implant. 4.7.4.6) Ceasing the use of naltrexone.
4.7.5) Psychological aspects related to the use of the naltrexone pellet implant	4.7.5.1) Recovery with naltrexone in society. 4.7.5.2) Counselling is necessary when on naltrexone. 4.7.5.3) Dealing with high-risk situations when on the naltrexone pellet implant.

4.7 Discussion of the Themes Emerging from the Data

As previously mentioned, the aim of this study was to explore participants' subjective experiences regarding the use of naltrexone pellet implant maintenance therapy in relation to relapse prevention from heroin dependency. To this end, both the superordinate and subordinate themes that transpired during the analysis will be presented and discussed in relation to theory and literature contextually related to the purpose of this study.

It is important to note that these themes are in fact interrelated and should be seen as a whole. As such the table of superordinate and subordinate themes was developed to serve the reader with an organising format of the information gained by the participants. These themes are interrelated and should not be viewed in isolation as this serves the holistic experience of the individuals making use of naltrexone pellet implant as an aid for relapse prevention to the use of heroin.

This data analysis process consisted out of three phases. The initial phase consisted of the familiarisation of the data by means of spending time thoroughly listening to the audio-recordings for the researcher to immerse himself with the data. The next phase consisted of thoroughly reading through the verbatim transcribed data. During this process the researcher took note of potential subordinate themes that may contribute to informing the whole of the analysis process. The researcher created a codebook in order to explore and describe the potential subordinate themes. The codebook enabled the researcher to search for meaning in the data from the participants while they were in the process of making meaning of their own

reality during the interviewing process. Once this phase was completed, the researcher revisited the transcripts in order to finalise the analysis of the transcripts.

4.7.1 Life before the use of the naltrexone pellet implant

This superordinate theme was constructed from the eight subordinate themes listed in the first section in table 4.1 above. Central to this superordinate theme are the life situations and experiences that the participants found themselves in before being introduced to the naltrexone pellet implant as a form of aid to relapse prevention. The researcher found it important to explore the historical view regarding the participant's experience to heroin use and dependence, this includes life experiences related to the use and dependency of substances, specifically, the use of heroin and the different factors related to the historical perspective from the participant's interpretation. Moreover, the researcher was interested in inquiring information regarding the will to remain abstinent and the different modalities linked to these situations that might link to the reason for making use of the naltrexone pellet implant as an alternative method in order to remain abstinent. This section discusses the subjective experiences that these individuals had to undergo before being aware of the naltrexone pellet implant, furthermore, including the life trajectories that these individuals followed when making use of heroin before seeking treatment.

4.7.1.1 No one starts off making use of heroin

Amongst various substance dependent individuals it can be found that they started making use of a certain substance that was not quite as potent and addictive as the use of heroin. This code refers to the instances where the participants refer to a period in time when they started experimenting with a substance or substances. These substances might include a less addictive or potent kind of substance such as cannabis or alcohol. This subordinate theme refers to the participants relating back to the times when they initially started making use of substances for recreational purposes. It usually consisted of a time where they remember that those were the days where they were not completely dependent on various substances as they are now. In some sense, they believed that they had some sense of control of the substances that they experimented with. Furthermore, in this sense heroin is seen as the more 'potent' sort of substance that poses a more dependent nature as compared to other substances such as cannabis and alcohol (not disputing the fact that both these substances have dependent properties). Evident in these participants' statements is a sense of the dependency which can be referred to as a disease model of dependency. This relates to various debates regarding

dependency as a chronic relapsing brain disease whereby the human brain reward system can be seen as being ‘high-jacked’ through the use of various illicit substances (Darke, 2011). In this sense the hope exists that reducing stigmatisation and self-blame will reduce social barriers treatment seeking. Critics of this model argue that it will fail to deliver benefits and could possibly create more negative consequences for the dependent individual in that it might absolve personal responsibility for drug use (Meurk, Carter, Partridge, Lucke, & Hall, 2014). This might be associated with the stigma regarding heroin that tends to be fueled by public disclaimers such as the media. In this sense, it is believed and portrayed that a heroin dependent individual is more frowned upon than individuals who are dependent on alcohol for instance. Heroin is seen as the dead-end road in this sense. One participant indicated the following:

P1: "...Was very simple, I grew up starting like the normal kid, but, started smoking dagga when I was like eleven, twelve years old. But the thing is the disease of addiction and the ways I have seen it today, and what I preach to my clients, it's progressive and it was... it's shown within me and within everybody that I believe is an addict."

He indicated that he did not start off making use of heroin at first and referred back to a time where he started off like the normal child who then veered into experimenting with dagga between the ages of eleven and twelve years of age. He interpreted the use of substances as a progressive lifestyle where one would not cease the curiosity of experimentation. He referred to dependency as a disease in which case it should be seen as other diseases requiring regular treatment, something that one cannot get rid of easily and that should be treated. The participant referred to himself as an example of this disease of dependence indicating that he had experienced, within himself, and others that tend to experiment with illicit substances is however progressive and could possibly turn out to be problematic and become a progressive disease which is associated with a vicious cycle of substance abuse. A similar case can be found within the next participant's experiences:

P2: "Ok, uhm... well, basically I started like any other person just using simple substances: alcohol, weed, and, my worst enemy started becoming CAT and crystal meth. By the age of twenty one I was a full-blown crystal meth addict, and, then obviously you start searching for more. With friends I started chasing the dragon, that is called smoking heroin."

As with P1, P2 also experienced a similar instance, whereby, she shared that she started off her drug use by making use of “simple substances” such as alcohol and cannabis.

However, she indicated that her experimentation with substances progressed to the use of crystal meth. Crystal meth can be viewed in this instance as a more potent substance when compared to alcohol or cannabis. She indicated that by the age of twenty years she found herself dependent on crystal meth. For her the road to experimentation did not cease with the use of alcohol and cannabis but rather progressed to crystal meth, she indicated that she did however start searching for more whereby the experimentation of various substances led to the use of heroin. She referred to the smoking of heroin as “*chasing the dragon*” which is a common term used for this particular method of heroin use. It furthermore refers to the euphoria experienced by the participant when making use of heroin (Iversen et al., 2009). She particularly stated that she started smoking heroin, which at that time was not seen as a big of a deal. However, this participant continued with the next statement:

P2: "Eventually, I started injecting heroin, but, not at a hectic amount. Obviously, I started stealing, I started staying away from my house, I was missing my mom and them... I got arrested four times... basically, I was lost, I never came home."

The progression of substance use - in particular the use of heroin - progresses to the point where the smoking of heroin no longer induces a similar euphoric effect as with the initial use of this substance. This leads to the use of a more potent format of ingestion such as injecting heroin in order to experience the euphoric effect. This also relates to the tolerance in heroin whereby dependent individuals build a tolerance to the use of heroin and would require an increase of the amount of the substance that leads to excessive use and then eventually becomes dependent on heroin. According to Griffiths et al. (1994), the transition from smoking to injecting of heroin is not so common as it would be their second choice of administration whereby heroin users tend to stop or make use of another substance before moving to the use of a needle as a form of administration. However, it is evident in the interpretation of this participant that she did in fact transition from smoking to injecting as a form of administration. Associated with the dependency to heroin in this manner as described by P2 is the relationship with stealing, lying and being reported missing. She indicated that she would steal and lie which is a common factor among individuals that abuse substances such as heroin. This is related to the constant need for the substances and the affordability thereof which becomes problematic, this is directly related to the lying factor associated with substance dependence in a sense that she had to lie in order to use (Darke, 2011). She also indicated that she has been arrested four times during the use of heroin which is related to the substances being illegal and the stealing factor to feed her dependency. A similar case

regarding the degrading social factors and increased use of substances related to the use and dependence to heroin is also evident in P3 responses:

P3: "I started smoking dope around standard six and seven; standard eight I started taking pills every now and then, going to a rave or two with my buddies once a month maybe, then I... round about standard nine or matric... once or twice... around there I snorted with okes (male friends)..."

As found evident in the previous participants (P1 and P2), P3 also started making use of "dope", which refers to cannabis, in early adolescence. He further explained that by middle adolescence he had started experimenting with other forms of substances such as pills in which his case specifically refers to ecstasy. It is known that the rave culture is related to the use of ecstasy. Furthermore, P3 attended raves with some of his friends. He also indicated that as he got older, around the age of seventeen and eighteen, he started to snort heroin with some of his friends. This was the starting point of the use of heroin for this particular participant. The following statement was followed by Participant 3:

P3: "I stopped fucking gyming, and this is when the heroin started, I mean. For the last two and a half to three years, heroin has been the problem, so for the past ten years, or so. CAT was an on-and-off issue, nothing more serious than that. I think I tried heroin once or twice then but up until about three, maybe three and a half to four years ago, uuhm, heroin was an experiment that got out of hand."

Participant 3 indicated that his life started to deteriorate in a sense that his daily activities started to take a toll. He specifically indicated that he stopped being active, which was an important aspect to his life, in order to stay in shape due to becoming dependent on heroin. It was only then that he started noticing that the use of heroin became problematic. Participant 3 indicated that he had made use of CAT as well during the days that he was experimenting with various substances, however he indicated that it was an "on-and-off issue". He further indicated that it became nothing more serious than that, this refers to the use of CAT on specific occasions; this is related to making use of this substance when he was around friends, partying or even only making use of CAT on weekends when he was going to a rave. However, he did mention that it was an "on-and-off issue" which indicates that he did find the use of CAT also problematic. This particular instance can be referred to as polysubstance use and is quite common among heroin dependent individuals (Branson, Clemmey, Harrell, Subramaniam, & Fishman, 2012). It should be noted that the researcher

became aware of this instance of polysubstance use during the interviewing process of participants and noted that the vast majority of the participants in this particular study indicated polysubstance use, however, the focus of this study was to concentrate on the use of heroin, specifically, as the main problematic substance of use. Furthermore, Participant 3 indicated that the experimentation with heroin is something that got out of hand, this may be due to the fundamental addictive properties related to the use of heroin. This indicated that the participant noted himself that his excessive use of heroin had become a problem that needed to be dealt with. The next participant has a different interpretation of the use of various substances that led to his decision to make use of heroin at the end:

P4: "Ok, well, it started as like, you know, uhm, I'm going to go back a little bit more to why I started smoking weed. I had, I use to get panic attacks like anxiety attacks and then, when I started smoking weed I haven't had another anxiety attack since then, so in that moment when I realised that the weed had cured my anxiety, my mind opened up to what other street drugs could help me with certain things that I'm not happy with about myself. So when it came to heroin, it was more like insecurity, vulnerability, I'm a very sensitive person so also my emotions, all those things that I didn't like about myself, I thought heroin would cut off for me. And, so, that's why I started with the heroin, and it, it works, it cut my emotions off. So that would be the reason why, and then also it just felt better than anything I'd ever done. So that was also a huge driving force"

As found with all the other participants, who had started off making use of substances such as alcohol, cannabis and CAT, Participant 4 had a similar experience in the sense that he too started off making use of cannabis. For Participant 4, the use of cannabis was a form of self-medication for his panic attacks and anxiety, he indicated that when he made use of cannabis it took away his anxiety and panic attacks which provided a sense of relief to the psychological difficulties that he was facing at a young age. This self-medicating behaviour opened up a world of opportunity in dealing with psychological factors that was threatening his well-being. These opportunities were the use of other illicit substances in order for him to deal with daily problems that he had to face. Participant 4 indicated that he is quite a sensitive and emotional individual that feels vulnerable and insecure about many things in his life, so he shared that the use of substances aided him in dealing with these insecurities. He indicated that the use of heroin assisted him to "cut off" the things that he did not like about himself, this led to the driving force for him to make use of heroin, where he would be able to feel good about all of these difficulties that he had to face. He, furthermore, indicated that it did in

fact help with these insecurities and that it “*felt better than anything I’d ever done*”, which can be related to the euphoric effect that is created when an individual consumes heroin. So for Participant 4 it was the anxiety that he had attempted to rid himself of through means of self-medicating with illicit substances.

Through reviewing various resources linked to this particular subordinate theme it came to the researcher’s mind that heroin dependent individuals have a history in making use of various other substances before they end up dependent on a particular substance. Not ignoring the fact that there are few individuals that do start off making use of heroin as their drug of choice, however this depends on various factors that include the availability and environmental factors. Different participants have different reasons for making use of a particular substance when they started off experimenting with illicit substances. In this case it seems that the more relevant substance that the participant started making use of is cannabis, where in this sense can be viewed as a gateway drug for these participants. Moreover, for this particular sample of individuals it can be seen that they did not start off making use of heroin but underwent a form of experimentation before ending up being dependent on heroin specifically.

4.7.1.2 Involved in criminal activities in order to feed dependency

This refers to the participant partaking in any form of criminal activity that is associated with the use and dependency on heroin. They do so in order to pay for their next fix of heroin or other substances. This might include lying, cheating and stealing from loved ones, family and others in society in order to gain some form of currency such as stealing a phone in order to sell and pay for the next fix. Lying to others in order to receive money for the next fix, cheating others in order to gain some form of currency in order to pay for the next fix. Due to the lifecycle of heroin dependency the feeding part of this code refers to them actually needing this substance to feed a lifestyle of dependency. Participant 2 indicated the following:

P2: " Eventually, I started injecting heroin but not at a hectic amount. Obviously I started stealing, I started staying away from my house, I was missing my mom and them... I got arrested four times... basically I was lost, I never came home."

She indicated that she got to a point of experimenting with heroin where she had to make use of injecting heroin in order to feel a greater effect of the use of heroin due to tolerance. This led her to get involved with criminal activities such as stealing in order to feed

her dependent behaviour. Heroin use can become costly as the dependent behaviour progresses through tolerance, therefore the individual needs to find some way for paying for the next larger fix. For Participant 2, she did indicate that she started stealing and staying away from home and went missing for some time. This can be due to the need for the next fix derailing her from the norm of returning home after using, whereby she would go on a heroin binge and be missing for a few days at hand prior to returning home. During this process of stealing from family members, her parents started to become concerned as well as frustrated as their possessions went missing from home whereby they called law enforcement in order to find their daughter for both the concern of her safety as well as theft that took place in order to feed her dependency. A similar case can be found in what Participant 3 indicated:

P3: " ... that DVD shelf, both of those shelves are full of DVD's, they've been full and replaced about eight times, I think my mom bought the same movie eight times, one specific movie that she likes, eight times! I kept on selling the fucking things. I would see the phone and think money for drugs."

Participant 3 indicated that he kept selling his mother's DVD's in order to buy his supply for the next fix. He referred to the shelf with an enormous amount of DVD's and indicated that it had to be replaced a number of times. DVD's can be sold very quickly for a minimal amount of cash at a local pawn shop, in which case Participant 3 did. He referred to a cellphone lying on a table whereby he could sell in order to buy his next heroin fix. He became obsessed with finding items at home to sell in order to buy his supply of heroin. In a similar case:

P4: "It became too much of a problem in my life, the stealing, the lying, the, you know, all the behaviour that goes with addiction started to get a bit too much..."

Participant 4 noticed that his problem with stealing, lying and the behaviour that is related to the use and dependency to heroin became too much for him. This type of behaviour was noted by each participant. For some participants it became a necessity in order to feed the dependency and they slowly noticed that this was becoming a behavioural problem that they needed to deal with once they got caught. This indicated that they realise that this particular behaviour became problematic only when they got arrested by police.

4.7.1.3 Numerous attempts in remaining abstinent

This refers to the individual attempting to remain abstinent in their lifetime, this particular subordinate theme involves the attempt to remaining abstinent through trying to

just remain clean without the help of others. This also refers to attempts of remaining abstinent through making use of rehabilitations centers or drug therapies, as they came to realisation that their problematic behaviour had to be dealt with. This problematic behaviour interfered with their daily functioning and negatively impacted their relationships with family, friends and people close to them. Moreover, it refers to the individual continuously attempting to remain abstinent and their initial failures in attempting to do so. The attempt to remain abstinent incorporates many factors that include effective coping strategies, the will to remain abstinent, strong or high self-efficacy in order to face a high-risk situation related to substances use. It might be that for some of these individuals at the time of use did not possess these characteristics in order to remain abstinent from the use of heroin. This particular subordinate theme can be viewed in what Participant 1 indicated:

P1: "Before the implant, I went to 29 rehabilitation centres. I was in prison 10 times. I overdosed seven times. My girlfriend died in bed next to me. I remember people say you know, in that state you think you love the person that you are with, you know."

Participant 1 indicated that before he had made use of the naltrexone pellet implant, he was in and out of rehabilitation centres which indicated numerous failed attempts in remaining abstinent from the use of heroin. He also indicates that he went to prison for criminal behaviour due to attempting to finance his dependency to heroin. Participant 1 recalled that he overdosed seven times from the use of heroin which is usually related to the factor of a high tolerance pre-rehabilitation. Short of being released from rehabilitation centres Participant 1 tried to make use of the same amount than he had used before being admitted to rehabilitation, which in return caused the overdoses due to the body's inability to consume a vast amount of heroin after detoxification. Participant 1 indicated a particular traumatic incident where his girlfriend had died next to him in bed after the both of them made use of heroin. This was a fatal overdose incident that he remembered and regrets to this day. He further mentioned:

P1: "So did I try? Jis, 29 rehabs, probably the first 10 rehabs I'd say I've tried to learn how to use successfully, you know, and I was in a lot of denial and all that..."

It was evident that Participant 1 had various attempts in remaining abstinent whereby he was in and out of twenty nine rehabilitation programmes, for him in particular, the first ten attempts of remaining abstinent with the assistance of rehabilitation programmes he has tried to use as effectively as possible. He found that he was in significant denial regarding his use

of heroin. This is also related to the abstinence violation effect as discussed by Marlatt and Gordon (1985a), in that attitudes or beliefs about the causes and meaning of a lapse (initial use of a substance after remaining abstinent) may influence whether a full relapse ensues. Viewing a lapse as a personal failure may lead to feelings of guilt and abandonment of the behaviour change goal. Therefore, in his case this may have led to the various failures in remaining abstinent from the use of heroin. A similar instance occurred with Participant 3:

P3: "I tried to get off of it for about two months, for two months straight I did not touch heroin. It was all over the first two weeks when I was at home and snorted a shit load of whatever else I could find, but I made sure that I stayed off of heroin for two months. And, then I got arrested, and when I got out of those two days in jail I smashed heroin again and then for that weekend I was fucked."

Here Participant 3 attempted to remain abstinent from the use of heroin, however, he found himself making use other illicit substances while attempting to avoid the use of heroin specifically. He found that heroin was becoming very problematic in the sense that he was becoming aware that heroin was having a significant impact on his daily life. He also became aware of the dependent components related to the use of heroin and had attempted to detox and remain abstinent from it. Following his attempt to remain abstinent, he went to jail for the possession of illicit substances, and after the two days that he spent in jail he was making use of heroin again. Just before any attempt to remain abstinent, Participant 3 indicated that:

P3: "You know, if I know that I am going to stop tomorrow I am going to get fucking high, but, I never had that fucking high the day that I got caught so I ended up just having that mediocre high and that is not a way to go out. I wanted that proper high, and, eventually, it will get to you and you will go and use again."

At the stage where Participant 3 felt that he would want to remain abstinent from the use of heroin, he would always want to get a last good high. However, to his disappointment of attempting this he finds that he never quite met that high that he was searching for and ended up in disappointment. Therefore, this disappointment that Participant 3 experienced led him to attempt using again in order to find that last fix that will satisfy his craving to the particular high, whereby, he would then be in a position to stop making use of heroin and remain abstinent. For him this would be the ultimate way to stop, however he kept finding himself searching for that last good high before ceasing the use of heroin.

4.7.1.4 Heroin use as a way of living

This particular subordinate theme refers to the use of heroin as a way of living, when it becomes part of the individual's daily life whereby they tend to develop an attachment to the illicit substance. This creates a cycle of use wherein the individual cannot cope without the use of heroin due to tolerance and the constant need for this substance. This code refers to the way that the individual creates their own world around the use of heroin, the effect that heroin has on the individual's daily life and how they have to deal with this illicit substance as a daily part of their life. Participant 1 indicated:

P1: "This is because we all know that it is one of the most difficult drugs to get off of and it's physical and it's this and that. But, it was due to the uppers, the crack, the cocaine and all that because of the comedowns..."

He indicated that heroin was one of the most difficult illicit substances to terminate usage of, which related to the difficulty of remaining abstinent from heroin due to its chemical dependent properties. Participant 1, furthermore stated that heroin use and withdrawal it is quite physical which relates to the neurobiological factors pertaining to heroin and its euphoric properties, this tends to be very rewarding due to the properties of heroin playing a significant role in the limbic system that is linked to the pleasure and reward system of the human body (Gottås et al., 2013). This also relates to the build-up of tolerance as well as the excessive need to make use of this substance in order to both remain functioning as well as avoiding withdrawals from occurring (National Institutes of Health, 2014). Therefore, his indication of heroin being a very difficult substance to remain abstinent from makes sense when referring to the physiological component of the use of heroin upon the individual. Participant 1 indicated that the use of heroin was also related to the use of "uppers" (polysubstance use) as indicated previously, where he would make use of heroin just to ease the use of these uppers such as crack and cocaine. The use of heroin would tend to ease the "comedowns" of the uppers that he made use of, and it is at this particular moment that the heroin started to take over. These comedowns refers to the excessive use of stimulant-type illicit substances to a point where the body would not have time for recovery or where the individual tends to stay awake for days at end. The upper then starts to wear off and the individual experiences a form of withdrawal which is usually coupled with uncomfortable psychological experiences such as fear and anxiety (American Psychiatric Association, 2013). In order for Participant 1 to have dealt with these factors related to the

comedowns he made use of heroin in order to numb himself to these discomfoting experiences, which is related to his next statement:

P1: " So, yes, that is how I got on to heroin, and then the way that I felt on heroin... it just numbs you completely... there is no pain, not even emotional pain, there is no physical pain, no emotional pain... nothing. And, so I wouldn't use any drug without heroin..."

He referred to his problematic dependency to heroin as a result of the uppers that he made use of. In this sense he numbed himself from the comedowns of the uppers, however, Participant 1 also indicated that it numbed him completely in the sense that he experienced no physical or psychological pain when making use of heroin. He furthermore discussed that he would not make use of any other substance without having to make use of heroin as well for the fear of comedowns of the upper drugs. This turned into a vicious circle of illicit polysubstance use for Participant 1 in particular. This leads to the next indication:

P1: "But over time it became a way of life, it became a necessity. I wouldn't really have to have a trigger, it was just what I did. Heroin and crack was the...heroin was basically my life, it was my partner and I wouldn't go anywhere without it because I couldn't live without it. I couldn't exist without the heroin, I just couldn't."

This is where heroin became a part of Participant 1's life, where he needed to make use of heroin as a necessity, he would have to make use of heroin just to be able to function properly. There was no form of trigger or craving but rather a daily routine that he needed to live through just to feel normal. He formed a bond with these particular substances, being afraid of letting go of his "partner" in that he would take these substances with him everywhere he went. This became a way of living for Participant 1, whereby, he indicated that he would not be able to imagine a life without these substances. A different perspective to can be seen in Participant 2:

P2: "Uhhh... Basically it made me feel nothing, I stopped growing as... you stop growing emotionally because you don't feel emotions, you don't care about feeling emotions on everything that you do. Doesn't matter if it is sex, doesn't matter if it is like stealing, doesn't matter if it is your mother or your father...you just don't give a fuck. Okay, you just don't give a damn, it makes you feel... well, basically when I used heroin it was the best feeling ever, you just feel relaxed, you just feel like... you just... you are not on this earth, you just uhhh... it makes you feel like a superstar basically."

For Participant 2, the use of heroin was ceasing her growth potential in the sense that she did mention that she stopped growing emotionally due to the numbing effect that heroin had on her. She stopped caring about various life aspects and individuals involved in her life. She became numb towards her parents, the fact that she was stealing and even the basic pleasures of life. All that she cared about was the feeling that heroin gave her in the end, not caring about anything other than the use of heroin which created her own care-free world that made her feel like a superstar. This non-caring mindset together with the use of heroin created her own care-free world where she was free of all the real world troubles. This brings us to a similar experience in the next statement:

P4: "It's almost like being in your own little self-designed world that's comfortable and just right. I mean it's completely fake and it's not the real world but it's still nonetheless, it's a nice comfortable place to be in while you're in that kind of denial, it's complete denial..."

Participant 4 found himself in his own little self-designed world when making use of heroin, it became his way of living where everything was just right and comfortable. He indicated that this self-created world was manufactured, but nonetheless was real to him in not having to deal with real world problems. He was in complete denial, however, it was a world where he felt painless and comfortable.

4.7.1.5 Admitted to rehab against one's own free will

This subordinate theme refers to the individual being admitted to some form of recovery against their own free will. This relates to them having to attend a recovery programme or attending a closed facility for period of time out of society in order to detox and recover so as to remain abstinent to the use of illicit substances such as heroin. This particular admission against their own free will was encouraged by either a friend, family member, employer or the state that have forced them to attend whereby there were some form of consequence involved if they did not attend. These consequences incorporates the loss of some form of stability such as a job, place to stay or they were ordered by court to attend rehabilitation in order to avoid some form of punishment or to avoid jail time. Often the felt coercion causes individuals to not fully commit to their process of attempting to remain abstinent because it was not of their own free will to decide to remain abstinent. They might not have been in the process of making the decision to remain abstinent, one needs to be willing to remain abstinent before attempting to stay clean from the use of illicit substances such as heroin (Larimer et al., 1999).

P1: "... the first two or three rehabs, I was there because of getting into crap. You know losing my stuff, I was going to lose my work or lose this. So I wasn't there for the right reasons, I didn't really want to stop, I just wanted the consequences to go away. So, it was never going to work, but I'll tell you from about the fourth and fifth rehab up until my 29th rehab I did want it."

Participant 1 indicated that in his first two or three attempts at rehabilitation where he was admitted for getting into trouble with the use of illicit substances, specifically the possession of heroin and being under the influence when at work or staying away from work due to the excessive use of heroin. He indicated that he was there for the wrong reason, this being not to remain abstinent out of his own free will but rather the fact that he was going to lose his job and the form of income that supported his lifestyle. He indicated that he went to rehabilitation in order for the consequences to his actions to dissipate, rather than having the will to remain abstinent. Participant 1 indicated that although during his fifth up until his twenty ninth attempt at of rehabilitation he really did want to remain abstinent, instead, he found himself continuously relapsing. Still he found that even when he was attempting to remain abstinent out of his own free will he was not able to do so, thus indicating that the rehabilitation programmes that he was attending did not seem to work for him in remaining abstinent from the use of heroin. Participant 2 recalled a similar situation:

P2: "...the first two rehabs there was only like twenty one days you know... that doesn't really work. I just went there because you know my mom and them said, "Okay, well, is there a problem?" and, I said, "No, I will go just to get clean you know and whatever. You have to have the right mindset, every time I got out of that rehab... obviously, I wasn't in the right mindset. The last time when I went to Noupoot for a year and a half, which is just like boot camp basically, so uhmm... I didn't really want to go, that is why I relapsed."

Here it can be seen that she also indicated that her first two attempts of rehabilitation programmes of in-patient treatment of a total amount of twenty one days did not seem to work for Participant 2. She also recalled that she did agree to partake in the rehabilitation programme purely because her parents wanted her to remain abstinent as they felt that her behaviour was problematic. She did however agree to attend in order to get clean, however her intentions to remain abstinent were not clear at that moment of being admitted. She further indicated that one has to have the right mindset in order for a rehabilitation programme to have an effect on an individual. Participant 2 also indicated that she was not in the right mindset to be committed to her own sobriety. She did so to keep her parents' mind

at ease and to have the consequences dissipate. She recalled that every time she was released from a rehabilitation programme that she tended to relapse due to the admission against her own free will. According to Participant 2, one has to have the right mindset in order to fully recover from dependency. A similar case was found in Participant 4:

P4: "Yes, yes I went to quite a few, I followed programmes, I wasn't, I wouldn't say that I was prepared to stop using though. So the rehabs didn't work for me, coz, I was just, I was just going through the motions. I wasn't actually prepared to stop using."

Participant 4 indicated that the various times that he attended rehabilitation programmes he too was not prepared to stop the use of heroin because he did not want to at that moment in time. He was also not in the right mind-set as found with Participant 1 and 2. Participant 4 also indicated that rehabilitation programmes was not quite effective in his recovery process, as he indicated that he was just going through the motions knowing that as soon as he is discharged from the programme that he will go back to the use of heroin.

4.7.1.6 Rehabilitation centres deemed ineffective

Following is a subordinate theme that refers forms an indication of the participant's reality that rehabilitation centers are ineffective to the attempt of them remaining abstinent. The reason for it being ineffective ranges from being admitted against their own free will by loved ones, work, law or any matter that relates to them to remain abstinent that might have consequences if they make the decision to lapse or relapse from their abstinence. This furthermore includes their reasons regarding an ineffective system of treatment that might not be to their preference of recovering where for each and every individual tend to find different was of remaining abstinent "for each his own" and that they find this form of recovery ineffective. From the interpretation of Participant 1:

P1: "Because you know what I believe rehabs do nowadays is you are buying time, that's what it is to me... I mean my family and I spent hundreds of thousands on rehabs okay, and it wasn't that I did not want it, I wanted it... so badly.... Every other person that I know of that went to rehab suffer, everyone went back after they went to rehab, every single one. Not one... ever stayed clean after a rehab... not one."

It can be seen that he had the belief that rehabilitations tend to buy time in order to get money out of people, for him it seems to be a money-making scheme from people that really need the help. He further mentioned that he and his family had spent a large sum of money on him to be able to recover from the use of heroin and to remain abstinent. However, going in

and out of rehabilitation centres seemed to be ineffective for Participant 1. He furthermore mentioned that he was aware of many other individuals attempting to remain abstinent from the use of various illicit substances and as soon as they were released from rehabilitation went back to making use of substances. Participant 1 made quite a statement in mentioning that he believes that every single individual he knows that attempted to remain abstinent through the use of rehabilitation programmes has failed to remain abstinent to the use of illicit substances such as heroin. Participant 1 further mentioned the reasons for his not being able to remain abstinent from the use of heroin:

P1: "But, probably, the past five years of rehabs and prison I did want to stop okay, but the problem with that was that I found rehabs non-effective at all, why?, because it took me out of society, I felt so good where I was, I felt confident, I felt that."

He found that the past five years going in and getting out of rehabilitation centres and the inability to get hold of heroin in prison he did want to remain abstinent. However he noticed that ever time that he felt the need to remain abstinent it was due to the reason that he was isolated from society and all the high-risk situations to relapsing were taken away due to this isolation from society. This made him feel overconfident in remaining abstinent by the elimination or minimising of high-risk situations in an isolated environment. A basic assumption as mentioned by Marlatt and Gordon (1985) is that relapse events are immediately preceded by a high-risk situation, broadly defined, as any context that confers vulnerability for engaging in the target behaviour. This process of going in and out of rehabilitations without any success of remaining abstinent can also be found in Participant 3's case:

P3: "So every six months or so or a year, I would restart my life. Get a good job and start off, have two months of clean. Like if one stupid thing would happen in my life and I would blame the drugs for it or blame myself and I would go back to the drugs."

Participant 3 mentioned that he would attempt to remain abstinent and after six months of remaining abstinent he would find himself making use of heroin after a particular negative incident that had occurred. This can also be explained by the high-risk situations that individuals are faced with when they are not isolated from society such as outpatient rehabilitation programmes.

4.7.1.7 *Tempted to use after being released from rehab*

The following subordinate theme refers to the temptation of using substances shortly after a dependent individual is released back into society. Rehabilitation centers tend to segregate individuals from society so as limit them from getting hold of substances. It is an enclosed environment that has very strict rules and time schedules that need to be followed where the individuals are expected to participate in certain sessions that might include individual therapy, group therapy, team-building activities. This schedule allows for control and routine to be implemented into the individual's life. The enclosed environment results in assisting the individual from remaining abstinent from substance use and dependency due to the limitation of exposure to high-risk situations and the inability to make use of substances when faced with high-risk situations (Hendershot et al., 2011). However, when individuals are discharged from closed institutions it breaks the barriers and limitations to the use of illicit substances, the individual are then tempted to make use of illicit substances due to being faced with real-life stressors. Due to the absence of a forced routine and the previously unavailable substances now being available when the individual is situated in the environment that they were when they were dependent to the substance increases the exposure to high-risk situations. This in return makes it very tempting for the individual to make use of the substance that they once were dependent on due to a lack of an effective coping response that is now stripped from them when discharged from the rehabilitation centre (Hendershot et al., 2011). Participant 1 recalled one particular incident regarding the temptation to use shortly after being released from rehabilitation:

P1: "I remember I went to one rehab in Oxwalk for nine months and I think two days after I got out I was back on the stuff. Because life hit me again, all the temptations hit me, for nine months I was prevented from all of this, ok."

He remembered that after being admitted to a rehabilitation programme that required him to be isolated from society for nine months in order to succeed in the rehabilitation programme. Even being abstinent from the use of heroin for a long-term period of nine months that incorporated psychological intervention strategies he found that he relapsed two days after being released. He recalled that real life hit him again as soon as he was released from the isolation from society. This was due to the isolation from high-risk situations in real life outside from the isolation of rehabilitation centres where he felt safe to roam without having to make use of heroin. Participant 1 referred to the temptations that hit him again once he was released from this particular rehabilitation centres of which he was prevented from for

the last nine months. This refers back to the theoretical concept suggested by Dimeff and Marlatt (1998) regarding high-risk situations, whereby the probability for an individual to relapse would increase if they are not equipped with effective coping responses, a decrease of self-efficacy together with positive outcome expectancy would progress in an initial use of a substance. This would then be followed by an abstinence violation effect and would then ultimately result in the person relapsing from the abstinence of heroin. A similar case can be found in Participant 2:

P2: "When I was in rehabs I was out of society and when I got back into society I was, 'Wow, I am back,' you know. Like, ah, yes, now I can go and do this and I am going to do that."

Participant 2 also experienced the same effect regarding rehabilitation centres and their programmes to recovery whereby every time she was released from rehabilitation programmes she was using again. She also recalled that she felt that she was isolated from society and also the burden of dependency when at a rehabilitation centre, but as soon as she was released she gave in to the temptations of society where the options of using seemed endless due to various high-risk situations that she was faced with. A more detailed description of this experience was indicated by her through the following:

P2: "I was in Noupport rehab for about a year and a half. Came back about seven months ago, the first day that I came back I relapsed. They found heroin in my car that was confiscated... and, well, basically I was just down in the dumps."

Shortly after being released from a longitudinal rehabilitation programme as indicated by Participant 2, where she spent a year and a half in a rehabilitation facility, she was using again and felt that she was depressed, this can relate to the abstinence violation effect that she has experienced once she noticed that her commitment to remain abstinent has now been violated. It is considered more likely when one holds a dichotomous view of relapse and/or neglects to consider situational explanations for lapsing. In sum, the relapse prevention framework emphasises high-risk contexts, coping responses, self-efficacy, affect, expectancies and the abstinence violation effect as primary relapse antecedents (Witkiewitz & Marlatt, 2004).

4.7.1.8 Used prescribed agonist medication to get high

The following subordinate theme needs to be understood in the context of the standard medicating procedure currently being used for heroin dependent individuals. Heroin dependent individuals are prescribed an agonist treatment that may include substances such

as methadone, suboxone and subutex together with psychological treatments in order to sustain abstinence from the use of heroin. What these medications do is mimic the effects of heroin, they also contain an opioid which causes the individual to not withdraw from their normal heroin habitual nature.

Agonist therapy is the administration of long-acting opioid receptor agonists with the aim of reducing or eliminating illicit drug use. This therapeutic technique is controlled by means of supervision when the substance is administered, the aim is to increase retention rate in treatment and to help reduce many of the risk factors that are associated with illicit drug use which may include factors such as crime and infections that are related to the use of illicit substances (Soyka et al., 2011). What some of the participants tended to do with this medication is to inject this form of medication to get high, because some of the agonistic medications induce a similar experience as the euphoric effects as heroin. Therefore, it does not block these opioid receptors such as naltrexone does and the individual tends to remain dependent on some sort of opioid. Rather than trying to remain abstinent from an opioid these substances merely replicate the effects of heroin. This then results in the cycle of lapsing and relapsing because the individual is never opioid-free but rather this method pursues a weening process from reducing the milligrams of the agonist periodically. For some of these dependent individuals it can be seen as a way to make use of a prescribed opioid to consume for recreational and dependent purposes such as Participant 1:

P1: "... well, for me, before the naltrexone... okay. There was methadone, suboxone, and, first of all, subutex, but, then I used to crush it and spike it and all of that, okay. I then went to suboxone, so, it was basically methadone and suboxone, and the problem is that suboxone and methadone are synthetic forms of heroin. So, it is basically exactly the same it just nowhere near as intense, okay, and you don't get the high. All that those things did for me was to stop the withdrawal... that's it."

Particularly for Participant 1, before the use of an antagonist such as naltrexone he went through the general procedure that would be prescribed for heroin-dependent individuals which was that of an agonist treatment. He indicated that he made use of various agonist medications in order to be treated for heroin dependency which consisted of methadone, suboxone and subutex, which are all synthetic and legally prescribed medication used in the recovery process of heroin-dependent individuals. For him it was also a way to get high in which he indicated that he used to crush and inject his medication in order to achieve a similar effect as heroin. He, however, indicated that it does not give the same

euphoric effect that heroin gave him, and yet, it stopped the withdrawals from occurring. These medications tend to prolong the dependent factor to substances due to the reason that it mimics the effects of heroin. This could be one of the reasons that Participant 1 did not find this form of therapy very useful in an attempt to remain abstinent from opioids. A similar experience can be found in Participant 4:

P4: "I went onto, what's it called, suboxone, for a little while. I carried on using while I was on suboxone. Subutex as well, I carried on using while I was on subutex and then also eventually, I got onto methadone, then I carried on using while I was on methadone, then I shot up the methadone and they took that away from me. They stopped me from being allowed to use methadone, so I went back to suboxone."

Even when Participant 4 was on the usual prescribed medicated treatment for heroin-dependent individuals, he continued to make use of heroin whilst on these medications and a prescribed programme for psychological treatment. He also indicated that he made use of suboxone and subutex and later moved onto making use of methadone whereby he started to inject the methadone in order to get high. He was later then taking off of methadone and was prescribed suboxone once again. This did in fact not stop him from making use of heroin as well as making use of the prescribed medication in order to attempt remaining abstinent from the use of opioids. He further elaborated on his experience with the prescribed agonist medications:

P4: "But, it just, it didn't, it never really worked and it never really blocked the heroin either, so I got to a point on suboxone where I could just use and I was still getting the full effect of it."

Participant 4 indicated that the use of agonist medication has never worked for him due to it not blocking the euphoric effect of an opioid. He recalled that he had reached the point where he used suboxone to such an extent that he was experiencing the full effect that he experienced when he was making use of heroin. This in return does not solve the problem of attempting to remain abstinent. These agonistic medications seems to replicate the use of heroin even when the individual attempts to remain opioid-free, as individuals report experiencing the same effect as when they were on heroin. Surely this could be seen as a safe method in order to avoid them from making use of an illicit heroin that is bought off the street thereby questioning the safety and legitimacy of the substance. However this does not solve the problem of remaining opioid free and living an abstinent lifestyle.

4.7.2 Giving the naltrexone pellet implant a chance

The superordinate theme that was developed for this section was derived from five of the subordinate themes listed in table 4.1 above. This particular theme concerns the introductory period of the participants' experiences of seeking an alternative method of recovery and abstinence related to heroin dependency which the participants followed prior to being introduced to the naltrexone pellet implant. This includes their initial thoughts regarding the naltrexone pellet implant itself and the decision to make use of this form of treatment. In itself, this theme discusses the process of deciding to make use of naltrexone and all the factors related to this procedure experienced by the participants. Furthermore, this theme explored and interpreted the experiences and perceptions of the individuals regarding the decision to give the naltrexone pellet implant a chance in order to attempt to remain abstinent from the use and dependency to heroin.

4.7.2.1 *The will to remain abstinent*

This particular subordinate theme discusses the period where the individual had made the decision - from their own free will - that they wanted to remain abstinent from the use of heroin and the lifestyle that was associated with their use and dependency on heroin. This consisted of the period where they had decided that it was time to make a change regarding their lifestyle due to various reasons that include a decision to rid themselves of a lifestyle that they were no longer willing to maintain, a sense of self-actualisation that their drugging lifestyle was not worthwhile anymore. This particular instance occurred after various attempts of remaining abstinent including various lapses and relapses that form part of the recovering process.

P1: "Then I decided let me actually give this a go, I may as well just give this a go because I can't use. So, I've got nothing to lose. It lasted for three months and I made myself a promise that I was going to give myself everything I've got for three months because I can't use anyway. And, because of not being able to use it was an easier decision to make, put it that way"

This particular interpretation made by Participant 1 indicated that he had made the decision to attempt sobriety through means of remaining abstinent from the use of heroin. His decision was influenced after the naltrexone pellet implant was inserted. He was informed by his physician that he would not be able to use when on the naltrexone pellet implant. Regardless of what his physician indicated of abstaining from the use of heroin while on this

particular treatment, Participant 1 did however try to use heroin when on the naltrexone pellet implant. To his surprise he found that there was no euphoric effect when he made use of heroin due to the biological nature of the naltrexone pellet implant blocking the opioid receptor cells, therefore having no effect when the individual tries to make use of an opioid such as heroin (Kjome & Moeller, 2011). Furthermore, due to the inability for heroin to have any effect on him, he decided to make the choice of remaining abstinent from the use of this illicit substance. This was the moment that he decided that he will give naltrexone a chance in attempting to remain abstinent for the duration of three months, which is also the duration that the naltrexone pellet implant lasts within the human body. He further indicated that it was an easier decision to make because of the inability to feel the euphoric effect of heroin. This realisation encouraged Participant 1 to remain abstinent and give the naltrexone pellet implants a chance in aiding him through his recovery process. In some sense, this realisation relates to the contextual theory of this particular study whereby the positive outcome expectancies of the use of heroin has been eliminated and in some sense has increased participant's self-efficacy by means of being more motivated to remain abstinence. This indicates that the probability of a relapse occurring is therefore decreased (Witkiewitz & Marlatt, 2004). A similar instance occurred with Participant 2, whereby she indicated the following:

P2: "But, in a point in time you get tired of being sick and tired. Okay, and, I realised that I don't want to live this live anymore, but that is still not enough for you to actually remain clean. You want to change your live, because you don't just want to stay clean, you want to change your lifestyle."

She indicated that she reached a point where she became fed up with use. Here, Participant 2 experienced a sense of self-actualisation in terms of the life of substance use was not a life worth living anymore and she wanted a change. This relates back to the decision of remaining abstinent from the use of heroin in the sense that she indicated that she wanted to change her life. She, furthermore, indicated that the decision in itself to remain abstinent is still insufficient to actually remain abstinent from the use of heroin. She indicated that a lifestyle change needed to be adhered to in order to actually remain abstinent whereby she indicated that she did not want to merely remain clean but rather change her lifestyle. This relates to dealing with not only the physiological factors related to substance dependence but rather approaching this problem of dependency from a holistic perspective through means of changing one's lifestyle which also incorporates the psychological and

environmental/social factors in remaining abstinent. This can be found in the next section she indicated within the interviewing process:

P2: "You know what, of all the rehabs that I have been to and of all the crap that I have tried, for the first time in my life I actually feel like I got this, you know. But, you are going to have to feel... like any addict, I speak for addicts because we all are the same, you have to want it. You have to change your mindset and your thinking pattern you have to want to"

This refers to the previously mentioned holistic approach to remaining abstinent in a sense that she indicated that she had to change her cognitive schemas in order to truly want to remain abstinent. She also seemed to relate with various substance dependent individuals in that you really have to want to remain abstinent. Participant 2 further elaborated that she finally felt that she has the sense of self-efficacy in order to remain abstinent from the use of heroin. After many attempts of remaining abstinent, the use of the naltrexone pellet implant made her feel that she would be able to succeed in finally ridding herself of the grip of dependency. A very similar case was found within Participant 3 in terms of the decision to remain abstinent from the use of heroin, shortly, after the implant was inserted:

P3: "Five minutes later I have made the decision that I will not use again. This was now a drastic measure, so, in itself it was like a big gesture to me and I would like to have to honour it in a way, but, I consciously decided that this was the last time that I was ever doing anything to myself that would result in using or the prevention of using."

Participant 3 indicated that five minutes after the implant was inserted, he had made the decision to remain abstinent from the use of heroin. For him this was a drastic measure in that he now went to an extreme in order to remain abstinent. As discussed earlier, for Participant 3, the decision to make use of the naltrexone implant was quite a shocking reality due to the fear of an unfamiliar implant being inserted in his body. Because of this, Participant 3's decision to remain abstinent after the implant was inserted was something that he now needed to honour. He had made a promise to himself that this would be the last attempt in making use of certain medication in order to remain abstinent from the use of any illicit substance. For Participant 3 this was in a sense his last stand to remaining abstinent which was his realisation to remaining abstinent. This can be found evident in most of the participants in this particular study, whereby, they had come to a decision to remain abstinent when they realised the lengths that they had to go to in order to remain abstinent, which was

the thought of making use of an implant. After various attempts of remaining abstinent, this was seen as a last resort to remain abstinent from the use of heroin.

4.7.2.2 Initial thoughts about the naltrexone implant

This subordinate theme refers to the initial information regarding naltrexone implant therapy with pellet implantation that the participants were faced with. This incorporates the first time that they heard about naltrexone through a friend, family member, other dependent individuals and the media. This also incorporates what they thought naltrexone was, the stories they heard about naltrexone and their thoughts around making use of naltrexone and what their personal thoughts were regarding using it themselves. The following was Participant 1's initial thoughts regarding the naltrexone pellet implant:

P1: "Okay, I had a friend that heard about a doctor in Pretoria that started the naltrexone implant. Wasn't known at all at that time, but anyway, I thought that this guy was lying to me about this and he spoke to a friend that got the number. Dr X had only just started doing it. And, I phoned, I didn't even believe it from the beginning... I didn't, I thought that it was a hoax. I thought that it was a load of crap."

The first time that Participant 1 heard about the naltrexone pellet implant was through a friend of his that also had a problem with the use and dependency of heroin. At that time this friend approached Participant 1 in order to tell him about this particular alternative format of medication in order to aid one in the recovery process. At the time that he heard about the naltrexone pellet implant and what this friend was telling him, the naltrexone pellet implant was not well known within South Africa, actually very few people knew about the naltrexone pellet implant and the function of this particular alternative aid to recovery. Initially, Participant 1 thought that this friend was lying about this particular aid to recovery, this was due to the reason that Participant 1 had made use of so many recovery processes throughout his lifetime that he did not believe that there would be an aid in assisting him to remain abstinent from the use of heroin.

When Participant 1 contacted the physician that inserted the implant at that time he was thinking that this is just another hoax or some sort of money-making scheme that would take advantage of substance dependent individuals in order to make money. For him this was "a load of crap" as he believed that this particular physician was possibly taking a chance with a vulnerable population of individuals. There were some similarities in Participant 2's

experiences in terms of their initial thoughts regarding the naltrexone pellet implant, although there were some differences:

P2: " Okay, I knew about it for a long time, like I had a lot of addict friends and they went for the naltrexone implant and things like that. And, my mom and them wanted me to go for it and I just never did... years ago, and I was like, pfffttt, I am not going for an implant, what the fuck? But this time it was my sister's husband and he is also struggling with like CAT use and stuff. The last time that I got arrested my mom said, it is just... or Noupoort or naltrexone, just give it a try or no... do it. "

Similar to Participant 1's experiences, Participant 2 also heard about the naltrexone pellet implant through friends that also struggled with substance dependence that made use of the implant. However, what was different for her was that her parents wanted her to go for the implant. She did not want to go for the implant at the time that her parents told her to try and make use of this particular aid to recovery. For her, at that time, she did not want to have any implant inserted in order to aid her in the recovery process. She found that she was not ready to seek an alternative method to recovery due to not being committed to remain abstinent from the use of heroin.

For Participant 2, it took someone close to her, "*But this time it was my sister's husband*" to realise that she noticed first hand, that this form of therapy seemed to work for her sister's husband. So, the last time that she got arrested for the possession of heroin, her mother gave her a choice between a long-term recovery programme – which she dreaded – or stay home and make use of the naltrexone pellet implant. Although she was pressured to some extent in making a choice between these two options, she had made the decision to rather give the naltrexone pellet implant a chance. The feeling that one is being taken for a fool in agreeing to utilise this form of treatment in aiding with remaining abstinent from the use of heroin seemed to be evident within the next participant:

P3: "I thought to myself... this guy could be putting a fucking marble...just a plain old goon up my ass and I wouldn't know the difference."

Participant 3 was also quite reluctant to believe what the people around him were telling him about the use of the naltrexone implant. He did not really trust the fact that this aid to recovery could be that effective. For him, he reported that it felt that the person doing the implant was planning to insert an ineffective object into his body, whereby, he will be fooled to believe that the aid that has been inserted has some miracle effect on the body

whilst in the meantime they would have inserted some form of placebo. He, furthermore, elaborated:

P3: "So, from then on she researched about it, and, I don't know how she found out, she found out about Participant 1. She paid for the first implant and she paid for the first two months of counselling. I think somebody in her work told her about it. Since then, I found out it is a lot more well-known than what I thought."

His aunt went to do some more research regarding the naltrexone pellet implant and it's assistance in the recovery process. This was the time that his aunt found Participant 1 as he acts as the lay counsellor for the naltrexone support group. This was the time that his aunt spoke to him in order to guide them through the process of having the implant inserted. Initially, his aunt was the one that told him about the use of the naltrexone implant as this was the initial information that he got hold of regarding the naltrexone pellet implant. After this initial interaction with his aunt, Participant 3 went onto doing his own research regarding the naltrexone pellet implant, it was at this stage that he realised that the use of the naltrexone pellet implant was more well-known than he initially thought. This was the moment that Participant 3 felt more confident in making use of this form of medication in order to aid him in the recovery process of heroin dependence. A similar instance that occurred in P1, 2 and 3 also occurred with Participant 4:

P4: "And, then the overdoses started and it started to get bad, and then my mom found Participant 1 over the internet, and then he introduced us to the Naltrexone. I'd heard about it probably about four years ago, but there was something about it not being legal in the country, or... I don't know what that was, so I left it and then one of my friends got an implant and I thought okay, well, let me, let me try that out."

Participant 4 had also been informed about the naltrexone pellet implant through friends, although at the initial interaction regarding being informed about this form of therapy, he had decided not to make use of it due to him recalling that the naltrexone pellet implant was not a registered form of medication within South Africa, in which it is still not a registered medication within South Africa (Weich et al., 2013). This caused him to decide against the use of this particular form of treatment. However when he was faced with multiple overdoses four years after his initial encounter with being informed about this treatment he considered. This led to his mother making contact with Participant 1 in order to guide them through the process of making use of this form of treatment. Participant 4 also felt

a bit more comfortable in making use of this treatment method when one of his friends, who at that time, also made use of the naltrexone pellet implant for the treatment of the same illicit substance dependency that Participant 4 suffered from. It was after these encounters that Participant 4 had made the decision to give the naltrexone pellet implant a chance.

4.7.2.3 The decision to make use of the naltrexone implant

This particular subordinate theme refers to the initial decision that the participants went through in making use of the naltrexone implant. It incorporated the reasons why these individuals decided to make use of the naltrexone pellet implant despite whatever information they have gained about this form of therapy from relatives, friends or the media. Here, the decision of making use of the naltrexone implant was explored and what led to the decision to make use of this form of therapy. Furthermore, this theme incorporates their decision to remain abstinent from the use of heroin with an unfamiliar form of aid or rather an alternative form from the general practices of attempting to remain abstinent such as being segregated from society by means of being admitted to a recovery centre. Participant 1 had made the following statement regarding his personal decision to make use of the naltrexone pellet implant in attempting to remain abstinent from the use of heroin:

P1: "But, you know what, I decided I have nothing left to lose ok. Rehabs was not an option for me anymore, I thought let me just go and see what this is about. If it was a hoax then, whatever, okay."

After various attempts of remaining abstinent and the continuous relapse processes that Participant 1 had experienced in his lifetime, he decided that this was an alternative method to the usual practise of being admitted to rehabilitation centres. He indicated that he had nothing left to lose due to having made use of so many recovery programmes – 29 to be exact- and failing to remain abstinent. Relapse can be viewed as a modal outcome for individuals who receive substance abuse treatment. In a study of relapse among heroin users after residential treatment Gossop et al. (2002) found that one third (34%) of the sample used heroin within three days of leaving treatment, 24% used within seven days of treatment and 50% used within 14 days after leaving treatment. After just 30 days after leaving treatment 57% of the sample of 145 individuals had used again. So, it seems that relapse from opioid such as heroin is quite common when individuals return to society from treatment centres. For Participant 1, the option to go back to a rehabilitation centre was out of the equation, he had failed too many times in attempting to remain abstinent that he felt that he had nothing

left to lose in making use of the naltrexone pellet implant. It was at that moment that he had decided that he would like to go and find out what the naltrexone pellet implant was about and whether this would be his way of finally getting a grip on his heroin dependency. Even if it was a “hoax”, he was so desperate in finding a way out that he would make use of an unknown substance in order to rid him from the claws of dependency. Quite a similar instance occurred with Participant 2, whereby she discussed the following:

P2: "And, I was tired of being sick and tired, before I even got the implant...let me be perfectly honest with you...this is not a cure, this is if you decide if it is going to work for you. And, I said, 'Well I tried everything already, this is the last resort okay'. And, I heard about naltrexone and people said it is wonderful...and I went for it."

Participant 2 voiced, “*I was tired of being sick and tired, before I even got the implant...*”, which indicated that she was tired of attempting to remain abstinent from the use of heroin. She has been through the same process as Participant 1 of being admitted to rehabilitation centres and following their programmes in which the result of relapsing as soon as she got released from the rehabilitation centres was a reality. She, furthermore, elaborated that for her the use of the naltrexone pellet implant is not a cure or a silver bullet in order to rid oneself from the dependency of heroin.

Participant 2 indicated that it would be able to work once an individual has made the decision to remain abstinent from the use of an illicit substance such as heroin. Once an individual has decided to remain abstinent and has the will to remain abstinent, the naltrexone pellet implant will be an affective aid in the recovery process of heroin dependency. Similarly, with Participant 1, she shared that she had run out of options of finding a programme or centre that would enable her to remain abstinent. This is where she had realised that due to constant relapse soon after the release from rehabilitation centres, that she had no option but to try and make use of the naltrexone pellet implant. Moreover, this related to her direct quote: “*this is the last resort okay*”, whereby she had decided that nothing else had worked so far and that she has been given the choice to make use of an alternative form of recovery, and for her the use of the naltrexone pellet implant was seen as the last resort in order to remain abstinent from the use of heroin. As with Participant 1, Participant 2 had also been made aware of the naltrexone pellet implant through family and friends, this is where she was informed of this alternative form of therapy, and, that it has worked for someone in her own family. This encouraged her to give this alternative form of therapy a chance in attempting to remain abstinent. She, furthermore, discussed the following:

P2: "Like I said, you have to want it, people that haven't had, like, I have had so many times where I have been so ashamed and disappointed in myself... you know, I felt so disappointed, I felt such shame, I felt hatred for myself, I lost myself, I felt just... I was sick and tired of being sick and tired of just seeking fixes, of just being that person of having no meaning in life. You know what I just wanted it to be fucking over, I just wanted it to be over. I felt just that this is the time for me to just... if this doesn't work, then I don't know what will. I decided that I will give this a chance, because I don't want to live this life anymore... that is what I felt."

She felt an accumulated amount of disappointment, shame and hatred towards herself as well as a sense of hopelessness for not being able to remain abstinent from the use of heroin after being admitted to various rehabilitation centres, whereby, she lapsed and eventually relapsed shortly after. She felt that this occurrence had made her feel that there is no meaning in her life and that the constant disappointment in herself and her family made her feel that she just wanted this lifestyle to be over. This particular feeling of disappointment, shame and hatred can be seen as an experience of what is called the abstinence violation affect as indicated by Marlatt and Gordon (1985b), whereby, if this individual breaks this 'rule' (lapse), the way they think about this situation of 'breaking the rule' would have an influence on whether or not they will continue the use of the substance in an uncontrollable manner and would lead to the abandonment of the abstinence 'rule'. This creates what is called the abstinence violation effect, which may influence whether an initial lapse may lead to a relapse. This reaction focuses on the individual's emotional response towards an initial lapse and the causes to which the individual attributes the lapse. Individuals who tend to attribute the lapse to their own personal failure are most likely to experience negative emotions and guilt which may then lead to the increase of substance use as an attempt to escape the feelings of guilt and failure. Individuals that attribute lapses to stable, global and internal factors beyond their control are most likely to abandon the abstinence attempt which may result in a full-blown relapse. Individuals who are more likely to attribute their lapse to the inability to cope effectively with a high-risk situation are more likely to recover or pro-lapse than the former. This could possibly explain why Participant 2 had felt this immense disappointment in herself due to "breaking the rule" of remaining abstinent from the use of heroin. This then in return, may have caused her constant relapse from heroin when she returned shortly to her being discharged from rehabilitation centres.

In Participant 3's case, it was quite a different experience in that he did not really want to remain abstinent from the use of heroin, however, he still ended up giving the implant a chance:

P4: "I would say my family and Participant 1...It didn't come from me at all, I didn't want it, and I didn't want to stop using. So, it was purely just my family saying, listen, try it out. Participant 1 was like saying give it three months, get the implant, give it three months and if you want to go back to using after that, you can. Then I thought, "Okay, well, I've given myself so many years to use I may as well try and get clean."

Participant 3 shared that he did not want to stop using heroin as he had an extremely close attachment with heroin. As mentioned previously within Participant 4's narrative, he indicated that he had such an attachment to heroin in that he finds it extremely difficult to let go of this illicit substance. He was approached by his parents and Participant 1 in order to convince him to attempt the use of the naltrexone pellet implant. After having a discussion with Participant 1 he indicated that "*Participant 1 was like saying give it three months, get the implant, give it three months, and, if you want to go back to using after that, you can*", where this for him was an indication that he might as well give the naltrexone pellet implant a chance. Participant 4 indicated that he had been using heroin for such a long time that he might as well just give sobriety a chance. This instance was also found evident in Participant 1, 2 and , whereby, they thought that they have nothing left to lose and might as well just give this alternative form of treatment a chance. For these individuals it was found that giving the naltrexone pellet implant a chance was seen as the last resort in that they had previously attempted to remain abstinent from the use of heroin on a number of occasions that they would try any alternative form of treatment just to help them break the grip of dependency.

4.7.2.4 Fear of receiving the naltrexone implant

This subordinate theme refers to the participants' fear or hesitancy towards receiving the implant, this is because of the naltrexone pellet implant being an unfamiliar form of treatment that that have not yet made use of. This, furthermore, includes the fear of being cut, fear of an unknown substance being inserted into your body, fear of the implant itself being present in the participant's body. Moreover, it includes the fear of letting go of the dependent lifestyle, wherein the individual has to make a choice of remaining abstinent after making use of illicit substances for year. It also involved the fear of letting go of a lifestyle that the individual was comfortable with. Participant 2 indicated the following:

P2: "I didn't want to go because I hate people cutting on me, okay, first I never had stitches in my life. I had needles and shit..."

She indicated that she did not want to go for the implant for the fear of being cut, the fear for the actual procedure of getting the implant inserted. This particular procedure of the insertion of the naltrexone pellet implant starts off with an application of an antiseptic in order to clean the area of insertion, this is followed with the administration of a local anaesthetic, whereby, a wound needs to be made for the implant to be inserted. The wound would then be sutured and dressed. A follow-up session is required in order to avoid infection and to remove the sutures (de Wet, 2015). This particular procedure was explained to her when the appointment for the insertion of the naltrexone pellet implant was made. She indicated that she did not even have stitches before and therefore feared the surgical procedure even more. Furthermore, she indicated that she did in fact experience the insertion of needles due to her administration of heroin via injection. For her this procedure seemed significantly worse than the injection of heroin.

The fear that Participant 3 had experienced in terms of receiving the naltrexone pellet implant was quite different:

P3: "So, I thought like, fuck that is the last thing, I don't want to be shitting on the doctor's table."

Participant 3 had a great fear of defecating as soon as the naltrexone pellet implant was inserted. This also involved the fear of attendant embarrassment in front of the doctor and his own family. This is related to the acute withdrawal that is experienced once an individual received the naltrexone pellet implant. This acute withdrawal would usually occur if an individual would have used a few days prior to receiving the naltrexone pellet implant, this is why the physician recommends to the patient that they should try and remain abstinent from the use of heroin as long as they can. This is to avoid these acute withdrawal periods from occurring (Julien et al., 2011). For Participant 3, he believed that he would defecate himself when he experienced the acute withdrawal symptoms and had the fear of embarrassing himself in front of the physician. Participant 3 further indicated that:

P3: "... they told me it's a chip, where they put a chip in my ass... I thought like a chip, no, no, no here are some hidden plans here. The moment that I walk out of the gate I will get shocked, I was like no, I don't want anything put in me."

He was quiet hesitant to receive the implant due to a story that he had heard from friends of his that have heroin dependency. He was told that it would be a chip that would be inserted and that when he makes use of an illicit substance such as heroin that he would be shocked and monitored when using. For him this was the fear of being tracked when using the substances in that he did not want to be controlled by a “*chip*” when making use of substances. He feared that there was a hidden agenda with the use of the naltrexone pellet implant and that he would be part of a great hoax. He was also quite reluctant for an unknown object to be inserted underneath his skin, thus he indicated: “*I don’t want anything put in me.*”

The fear that Participant 4 experienced was related to separation from heroin use:

P4: "A guy named X did it, the implant. I knew the implant would cut me off from heroin so I was so scared of that-, that I tried to kill myself before I got the implant."

For Participant 4 the fear was related to him being separated from the use of heroin, that he would have to break this bond that he had with the use of heroin was one of the greatest fears that he experienced. The fear was so great that he attempted suicide before he went for the naltrexone pellet implant. For him, the bond with the use of heroin was so strong that he was willing to take his own life rather than letting go of this great bond he had with the use of heroin.

The fear experienced by the participants in the current study indicated that there seemed to be a form of miscommunication regarding the naltrexone pellet implant, a form of being uninformed regarding the actual function of the naltrexone pellet implant. These misperceptions regarding the naltrexone pellet implant was influenced by false and inaccurate information given by friends, family and the media. However in retrospect, the use of the naltrexone pellet implant when seen as an aid by the participants in assisting them with the recovery process from their dependency on heroin.

4.7.3 Physical experiences of the use of the naltrexone pellet implant

Due to the reason that individuals do experience different physical responses to different forms of medications, this superordinate theme was developed from the four subordinate themes, found in table 4.1 above, which explored and interpreted the various physical symptoms that were experienced by the participants during the process of making use of the naltrexone pellet implant. These physical experiences that participants were

exposed to include the process they had to endure shortly before as well as during the process of making use of the naltrexone pellet implant for the aid of recovery, abstinence and relapse prevention. The participants, of the current study, shared different physical reactions related to the use of this form of treatment that will be discussed in these particular subordinate themes, which had a major impact in the process of the recovery process and the will to remain abstinent from the use of heroin.

4.7.3.1 Detox and withdrawal before receiving the naltrexone pellet implant

This particular subordinate theme refers to the period of detoxing and withdrawing that the participants had to endure before they went for the actual surgical insertion of the naltrexone pellet implant due to the advice given by the health care practitioners or the counsellor. The usual procedure that needs to be followed by the patients before they receive the naltrexone pellet implant would be for them to be opioid-free for at least 5-10 days, this is also known as the detoxification period. However this period can be reduced in selected cases for up to 72 hours.

According to de Wet (2015) practitioners need to inform their patients regarding the opioid-free period due to the risk of rapid opiate detoxification where patients should attempt to remain clean from the use of heroin before the surgical procedure occurs. Reason for being clean before the implant is inserted is due to the effects that naltrexone implant has on the body when inserted, as individuals are likely to experience acute withdrawals when they receive the naltrexone implant if they have not refrained from the use of heroin (de Wet, 2015). During this period the individual might experience some form of withdrawal depending on their severity of heroin use, this is also related to the tolerance that they have built to the use of heroin, whereby, this will depend on the severity of the withdrawal from heroin. The long-term use of opioids results in changes in the number of sensitivity of opioid receptor cells, which tend to mediate at least some of the effects of tolerance and withdrawal. Although long-term use is associated with the increased sensitivity of various neurotransmitter systems that include dopaminergic, cholinergic, and serotonergic neurons, the effect of opioids on the noradrenergic system is the primary mediator of the symptoms of opioid withdrawal (Sadock & Sadock, 2007). The concept of trying to remain clean from the use of heroin before receiving the naltrexone pellet implant as discussed earlier had an impact on Participant 1's experience with receiving the naltrexone pellet implant:

P1: "Okay, when I had the implant I was one of the first clients in the country to get it. And at that stage no one even knew that with heroin addicts you have to try and detox first, okay, you've got to try and be at least three to four to five days clean of heroin, okay."

In his experience when receiving the naltrexone pellet implant Participant 1 was not informed about the fact that he had to remain clean from the use of heroin for at least a period of 72 hours as indicated previously. This lack of information was due to the reason that the naltrexone pellet implant was only being introduced into the South African context at that particular stage. As he indicated, he was one of the first individuals that had received the naltrexone pellet implant within South Africa.

Participant 1, as a consequence, shared that he had experienced acute withdrawals shortly after the naltrexone pellet implant was inserted. During the first few days Participant 1 did experience acute withdrawals due to the reason that he made use of heroin before he went in for the naltrexone pellet implant, this will be discussed later on with an interpretation from his side.

As for Participant 2, she had adhered to remaining clean before the implant was inserted as she indicated:

P2: "So, I got there with my mom and I was just like... I really, I haven't used for like a day and a half and I am struggling, hey. I am just sitting in the car and I am like...I can't get any [heroin] and I am tripping and I am freaking out and I am sweating and I am withdrawing hectically."

She had experienced withdrawal symptoms due to the recommendations made by the physician that administered the procedure of inserting the naltrexone pellet implant. Even through the withdrawal period and knowing that she would be receiving the implant, she shared that she still wanted to make use of heroin in order to just feel better, in order to rid her from the withdrawals that she was experiencing. Participant 2 indicated that she struggled with the withdrawal symptoms, wherein, she was "freaking out" when she was sitting in the car on the way to the physician's office. She remembered that she was sweating which is known as one of the symptoms to opioid withdrawals. One of the main reasons that compulsive users of opioids such as heroin tend to continue the use of this drug is to avoid the unpleasant withdrawal syndrome that they experience if they discontinue the use of the substance. The opioid withdrawal process consists of both physical and mental components. The physical component has major disturbances of autonomic nervous system origin that

include lacrimation, rhinorrhea, perspiration, tremor, gooseflesh, dilated pupils, anorexia, nausea, emesis, diarrhoea, dehydration, elevated temperature and blood pressure, and yawning. These physical symptoms tend to accompany a negative mental state of dysphoria, depression, and anxiety (Iversen et al., 2009).

4.7.3.2 *Experiencing anxiety in the doctor's office*

This particular subordinate theme refers to the anxiety that the participants experienced when they were moments away from receiving the implant, this was experienced when they were present in the doctor's office. The anticipation of receiving the implant can make individuals rather uneasy. Uneasiness can be linked to the withdrawal symptoms experienced due to the reason that the participants had to try and remain clean for a few days and therefore experienced some form of anxiety.

P2: "And, it is warm and there are kids screaming and... because it is like a doctor's office you know, there are kids screaming and there are these people looking at you... and, then they want to pay and I don't know... whatever. You are so in a daze, you are not using and you are in this environment, and, that is why you just want to get out and you just..."

The day that Participant 2 had gone for her naltrexone pellet implant she has also begun to withdraw in order to receive the implant as mentioned earlier. She indicated that when she was sitting down in the physician's waiting room she was quite annoyed and irritated by the screams of children that have also come to see the physician due to illness. It can be seen that she had experienced some sense of anxiety as she indicated that the people were looking at her and the fact that she indicated that she just wanted to have the procedure done and vacate the doctor's office. She, furthermore, indicated that she was in a "daze" which indicated that she was not feeling well due to the withdrawal symptoms that she was experiencing. This in all made her feel very uncomfortable, whereby, she further elaborated:

P2: "And, I am just sitting there, and, I am just like... uhmmm...okay... and, I am just tapping my toes and I am just freaking out and I'm like-. I am going first. Because, I know that I don't want to go, you know a lot of addicts would just run out of there... bolt and would want to go and use, because you feel like that."

She indicated that she felt quite agitated with the situation of waiting for the procedure to take place, the idea of knowing that she would have to stop using heroin while she was busy withdrawing made her want to run and make use of heroin. She felt that she did not want to be in the situation and that she wanted to go and use heroin in order to make

herself feel better. This is related to the euphoric feeling that is experienced when making use of heroin in that it tends to numb the individual from any emotional aspects related to life challenges, which is related to the short-term outcome expectancies that the individual experiences.

Another important factor to the relapse prevention model would be the outcome expectancies that individuals experience. These are typically described as an individual's notion regarding the consequences of substance use which might influence an individual's ability to use a substance depending on the strength and behaviour of the expectancy which includes the previous effects that the substance had on the individual. These types of expectancies consist out of both short- and long-term expectancies with both positive and negative outcomes attached to them, where they may have varying levels of pertinence to the individual.

Furthermore, short-term reward contingencies tend to reduce negative mood states, inducing the sense of euphoria from making use of the psychoactive substance, the change of the individual's cognition where it tends to create a positive sense of self and then tends to reduce the stress whether physical or emotional. Short-term negative consequences consist of the loss of behavioural inhibition that may result in various social problems that consist of legal, financial, deficit of role function and various health risks. In contrast to short-term negative consequences are the long-term contingencies of abstaining from the use of illicit substances that will result in improved role functioning, improved interpersonal relations, better health and greater stability (Marlatt & Gordon, 1985b). So, for Participant 2, arguably, the short-term outcome expectancy is to get out of this situation and to go make use of heroin in order to rid her from the anxiety that she is experiencing at the moment. As such, at this point in time Participant 2 voiced she was not worried about the long-term effect that this will have on her and the decision to make use of heroin at that present moment. For her, she just wanted to escape in which she indicated: *"I don't want to go, you know a lot of addicts would just run out of there... bolt and would want to go and use, because you feel like that."*, for her this was her mindset at that present moment, where she wanted to escape and go make use of heroin in order to deal with the withdrawals and the anxiety that she was experiencing at that moment.

A similar instance occurred with Participant 3, whereby, he indicated that:

P3: "I was sitting like this- [demonstrates] I was fucking peeling back this whole thing [referring to his nail cuticle on his thumb] like that in the doctor's office."

It was found that Participant 3 also experienced a form of anxiety as he indicated that sitting in the physician's office made him feel quite anxious whereby he responded to the anxiety by means of peeling back the cuticle of his nail on his thumb. This was a form of coping in order to distract him from the anxiety of receiving the naltrexone pellet implant in that he had a physical response to the anxiety that he was experiencing at that moment.

In order to conclude with this subordinate theme, the researcher noticed that these participants experienced great anxiety when receiving the naltrexone pellet implant in that they had both a physical as well as a physical response to the clinic environment where the implant procedure took place – for them at least- and that one particular participant even had the thought of abandoning this procedure just to go and have a fix of heroin in order to ease the anxiety that was experienced when sitting the physician's waiting room in order to receive the naltrexone pellet implant.

4.7.3.3 Getting sick after the naltrexone implant was inserted

This particular subordinate theme refers to a level of sickness that participants had experienced when they made use of the naltrexone pellet implant. This includes the stage where they initially had the implant inserted together with the experience of having the naltrexone in their bodies for the three-month duration that it was originally designed for. These physical experiences might vary from individual to individual ranging from experiences where some physical sickness or changes occur in a few minutes after the implant were inserted to the last day of the naltrexone pellet implant's function having subsided.

These physical symptoms were quite common in a lot of these participants which may be due to the nature of the effects of the implant after it was inserted which includes the rapid or acute withdrawal syndrome in individuals that are heroin dependent, up until some side-effects with regards to the use of the naltrexone pellet implant. If an opioid dependent individual makes use of the naltrexone pellet implant it will result in an acute blockade of opioid receptors and will in return precipitate a rapid onset of severe opioid withdrawal reactions within a matter of 5 minutes and may last for up to 48 hours. So theoretically, when the u-opioid receptors are sufficiently occupied by naltrexone, no additional antagonist can stimulate them in which it has an affinity of at least 20 times that of morphine. Therefore

when the naltrexone pellet implant is used in an already opioid-dependent individual it can cause acute and severe withdrawal symptoms by a much more frequent and severe agitation than described in withdrawal caused by the usual detox process such as deciding to remain abstinent or rather going cold turkey (Hassanian-Moghaddam, Afzali, & Pooya, 2014). In this sense, when an individual does not go through the usual recommended process of remaining abstinent for at least 7 days, they will experience severe withdrawal symptoms. As with the case of Participant 1:

P1: "I wasn't aware, I wasn't told, no one knew... I remember I shot out in the toilet before I went in for the implant ha, ha, ha, and I tell you this... when he put the implant in... straight afterwards I felt hey! No problem, but 20 minutes later I shat myself, I was puking all over myself before I got home, I couldn't control anything in my body and the next two days... I am serious now... I actually thought that I was going to die."

In this indication presented by Participant 1 it was found that he was not made aware of the fact that he had to remain abstinent from the use of any form of opioid such as heroin for at least 7 days. Participant 1 indicated that he made use of heroin in the physician's office bathrooms minutes before he had to go for the surgery. This led to the acute physical withdrawals that he experienced in that 20 minutes after the implant naltrexone pellet implant was inserted, he had defecated himself and was vomiting before he could arrive home. He indicated that he could not control any of these bodily functions when he went through this acute withdrawal. For him it was such a traumatic event that he was scared that he might die, he even indicated that he thought that he was going to die because of the severe withdrawals that he was experiencing. He further indicated:

P1: "It is the worst detox that you have ever seen, but do you know what the good part about it? I tell you I went through so many withdrawals in my life that lasted for ten days, fifteen days, and twenty days. This was like three days, four days, but it was the worst ok, but it was all like poof, gone, gone."

For Participant 1, the withdrawals that he had experienced during the initial use of the naltrexone pellet implant was the worst withdrawal that he had ever experienced. As he indicated that *"I went through so many withdrawals in my life"* indicates that he made a comparison of the withdrawals that he had experienced during the use of the naltrexone pellet implant and the usual withdrawals that he had experienced throughout his life with the use of the general method of detoxification from heroin. Regardless of the agony that he had

experienced during the withdrawal period on the naltrexone pellet implant, he indicated that one of the good parts of making use of the naltrexone implant was that his withdrawal period was shortened as compared to the usual detoxification method used in various recovery centres. He indicated that the usual method of detoxification would have lasted for up until twenty days, whereby the use of the naltrexone pellet implant and the withdrawals experienced during this process was way worse, however the period was shorten up until two days. This was one of the components to the use of the naltrexone pellet implant that Participant 1 really appreciated. Literature indicates that the severity and time of onset regarding withdrawal symptoms in individuals dependent on opioids depend on the half-life of the opioids used. Withdrawal symptoms starts to surface within 6-12 hours after the last dose, this occurs when the individual is physiologically dependent on short-acting drugs such as heroin. Symptoms may take 2-4 days to surface in the case of longer-acting drugs that were used such as methadone or LAAM (L-alpha-acetylmethadol). Acute withdrawal symptoms for short-acting opioids will peak within 1-3days and gradually subsides over a period of 5-7 day (American Psychiatric Association, 2013). Biochemical and subclinical differences that are usually unnoticed by the dependent individual, which lasts up to twelve additional months after the date of cessation (Kaplan, 1983). This brought us to what Participant 2 had experiences when her implant was inserted that was quite similar to what Participant 1 had experienced:

P2: "Yes but its... you know, you don't feel anything but, whatever... he immediately puts in the stitches, like immediately afterwards like in fifteen minutes you start feeling crap. You start feeling the effects... fifteen minutes I promise you. I was sick, like as soon as that pill started working with my endorphins and getting the opium and stuff, pushing it out of my system... I was... and it's not withdrawing, it's like a bad trip."

She described the process of the surgical procedure where after the physician had made the cut and had inserted the implant followed by the stitching of the wound. She indicated that shortly after the implant was inserted "*fifteen minutes I promise you*", she had started to experience the acute withdrawals in which she described is quite different from the usual withdrawals that she had experienced in previous recovery programmes and trying to remain abstinent from the use of heroin through a detoxification process. For her it was not the same as experiencing withdrawal symptoms but rather "*a bad trip*" that she had experienced shortly after the naltrexone pellet implant was inserted. The referred instances regarding the endorphins relates to the functioning of the naltrexone within the human body

that was explained to her by the physician before the implant procedure. For her, it felt as if the naltrexone was busy pushing out the heroin in her system, and for her this was the reality of how the naltrexone had an effect on detoxing her from heroin. She further indicated:

P2: "But at this stage you know, I was so sick, but I didn't want to use. I was like so, it was weird like the sense of... it was so bad that I felt it was leaving my system you know. I wasn't like a withdrawal where it was painful, like those painful feelings that I got. It was more about, it was going to be over soon and I felt like it was getting out of my system, but I was sick and I was puking."

She indicated that she was feeling so sick at that moment that she did not think about using heroin in order to ease the withdrawal symptoms. For her it was an unfamiliar sickness that she had not experienced before when withdrawing from heroin. She indicated that she did not feel the pain when withdrawing as before, but rather she felt that she could actually feel how the heroin was leaving her system at that moment. This could be found in literature whereby antagonists such as naltrexone tend to also have an affinity to the mu receptor sites, however, after attaching to the receptor sites they tend to elicit no change in cellular functioning due to the reason for lacking intrinsic activity. This means that they compete with the mu agonist for the receptor which hastens withdrawal in an opioid-dependent individual and reverse the analgesic response that would originally be caused by the agonist. The one example of such a substance would be the use of naltrexone that is clinically used for the treatment of heroin dependency, this causes the individuals to experience no analgesic effects of heroin after the administration of the antagonist (Julien et al., 2011). This was also found evident in what she indicated by the following:

P2: "Say about three days, it's like it depends on how many substances you had in your system, like they ask you at the doctor's office when last you used. If it was two hours earlier, I mean you are going to be really sick. Rather than say three days or two days or ten hours, obviously it had some time to release a little bit out of your system. But the more you have in your system the harder that pill works to push it out."

She indicated that it depended on the amount of heroin that she had in her system at that moment that would have the effect of the severity of the withdrawal symptoms that she experienced. She was quite aware that she would experience a severe form of sickness when using heroin before the naltrexone pellet implant was inserted. This was why she stayed with the recommendations that were made by the physician in order to stay abstinent as long as

possible before the implant was inserted. However, she did in fact experience sickness due to the rapid withdrawals produced by the naltrexone pellet implant as she indicated that she did however vomit when she got home after the implant was inserted. Participant 3 also experienced some form of sickness, however it was quite different from the severity of withdrawals experienced by Participant 1 and 2 in that:

P3: "Then I left and I did feel a little sick when I got home, but that was also I think in my head, because Participant 1 said to me like 'if you going to use, you going to feel it' and you have an hour max and then you better find the toilet so, but it could've been my head because I didn't use for about four days before."

Here Participant 3 indicated that he did in fact experience some form of being sick but he was not sure if it was due to the reason that Participant 1 told him that he would experience acute withdrawals if he used heroin shortly before he had to go for the naltrexone pellet implant. He was aware that if he would make use of heroin shortly before he had to go for the naltrexone pellet implant, which is why he decided that it would be wise to rather remain abstinent from the use of heroin before he went for the naltrexone pellet implant. This would be the reason that he had not experienced any severe withdrawal symptoms as he indicated that he was clean from the use of heroin for at least four days before he went for the naltrexone pellet implant. When comparing the level of severity of withdrawal symptoms between the participants at hand it can be seen that the participants (1 and 2) that made use of heroin shortly before the naltrexone pellet implant was inserted experienced more severe withdrawal symptoms as compared to Participant 3's experience of withdrawal. This is because he had decided to remain abstinent from the use of heroin before the naltrexone pellet implant was inserted. A similar experience was found with Participant 4 when he initially received the naltrexone implant:

P4: "Well I felt a little bit sick when I got it because I'd used three days before, but it, it's probably the best clean time I've had...I felt a little bit nauseous and a little bit of withdrawals because I didn't detox properly before I got the implant, but it wasn't, it wasn't bad at all, it was manageable."

Similarly, Participant 4 had also experienced a very little sickness when it came to experiencing withdrawal symptoms after the naltrexone pellet implant was inserted. This was due to the reason for remaining abstinent from the use of heroin for a total of three days. Therefore most of the detoxification was completed three days prior to the naltrexone implant

insertion process, which made him experience minimal nausea. For him it was manageable to handle the withdrawal symptoms in which he was able to function properly after the insertion of the naltrexone pellet implant. In concluding this particular superordinate theme, it can be seen that these participants' severity of withdrawal symptoms depended on the amount as well as the time that they made use of heroin prior to the process of receiving the naltrexone pellet implant. As seen by Participant 1 and 2, they had experienced acute withdrawals due to using heroin shortly after receiving the naltrexone implant which created the naltrexone to act quite strongly against the opioids within their system. For Participant 3 and 4, the sickness of the withdrawals was not that big of a problem due to being aware that they needed to remain abstinent from the use of heroin prior to the naltrexone implant. This in return made them experience fewer withdrawal symptoms in which they were able to manage after the naltrexone pellet implant was inserted.

4.7.4 Naltrexone pellet implant as an aid for relapse prevention

This particular superordinate theme is to some extent the crux to this study, seen as the aim to this study was to explore the subjective experiences of the use of the naltrexone pellet implant as an aid for relapse prevention from heroin dependency. This superordinate theme was developed from the seven subordinate themes that can be found in table 4.1 above, these subordinate themes holistically created the subjective experiences and perceptions of the use of the naltrexone pellet implant as an aid for relapse prevention to the use and dependency to heroin. Most of these subordinate themes that are present in this superordinate theme are linked to the contextual theory known as the Relapse Prevention Theory (Marlatt & Gordon, 1985b). This particular theme will be discussed throughout the write-up process of this particular superordinate theme which was integrated throughout the research process. This particular contextual theory to this study was fully discussed in Chapter 2, however a summary of this particular theory will be discussed throughout. To summarise, the relapse prevention model proposed by Marlatt and Gordon (1985b), consist of a cognitive-behavioural approach to the relapse process that centres around the high-risk situation and how the individual tends to respond to the high-risk situation when they decide to remain abstinent from the use of an illicit substance such as heroin. If the individual does not have an effective coping response or some form of confidence in order to deal with the high-risk situation, the probability for them to give in to temptation would be high. The individual's decision to make use of a substance or stay abstinent is then mediated by their outcome expectancies for the effect of the use of the substance. Individuals that tend to make use of a

substance may be susceptible to the abstinence violation effect which causes self-blame and the sense of loss of control over the use of a substance. This may then result in the increased probability to make use of a substance and therefore increase the probability of a full-blown relapse. On the other side, if the individual posits an effective coping response towards high-risk situations through means of an increased or higher self-efficacy, the probability of the occurrence of a full-blown relapse is then decreased.

4.7.4.1 Naltrexone as an aid and not a miracle cure

This particular subordinate theme refers to the belief that naltrexone is seen as an aid and not a miracle cure. The particularity to the use of the words “miracle cure” refers to a form of medication that has some form of biological entities that will cure the individual from the use and dependency to heroin. That it is viewed as a silver bullet to curing individuals from the claws of heroin dependency in some sense. Various websites such as naltrexone saves lives (Lubbe, 2012) and magazines articles (Carstens, 2012) described naltrexone implants as a cure for substance abuse especially acting as a miracle cure for heroin dependency. Which in retrospect, it was found that it is an aid to the recovering process whereby the participants indicated that the use of naltrexone pellet implant alone would not be sufficient in remaining abstinent from the use of heroin and various other illicit substances, but rather the combination of naltrexone pellet implant and some form of therapy would be required to assist in the process of relapse prevention and remaining abstinent from the use of heroin. When referring to the naltrexone pellet implant as an aid it is understood through the interaction with the participants that it aids with the physiological symptoms related to post-use of heroin. By this the researcher refers to decreasing the amount of days it takes to withdrawal from heroin when making use of the naltrexone pellet implant, also referring to the decrease of cravings, obsessions and effects of the heroin due to the nature of the effects that the naltrexone pellet implant had on the participant biologically. Furthermore, there is also a psychological component that is linked to the use of the naltrexone pellet implant in order to assist the individual to remain abstinent from the use of illicit substances such as heroin. Participant 1 indicated the following:

P1: "Eventually you have to save your own life. That is why I said that it is not a cure, it is an aid. But without it [naltrexone pellet implant] ...heroin addicts will not get through it ok. That is my believe today, because you saw when I was a heroin addict and all that ok, it's just... all my friend were dying... all my friend from twelve, thirteen years ago... every single one of

them are dead, every single one. My girlfriend is dead, all of them, I was the only survivor ok, and I believe if it wasn't for the naltrexone I wouldn't be here, I would be back in prison for the rest of my life and I believe if the naltrexone was here earlier, all my friends would have been here today. I really believe it."

As indicated earlier, for Participant 1 the use of the naltrexone pellet implant was not a cure but rather an aid to the recovery process in maintaining abstinence from the use of heroin. However, he indicated that it was up to him to save his own life, by this he meant that although he was making use of the naltrexone pellet implant to aid him in the recovery process, it was his own responsibility to deal with the psychological component to remain abstinent from the use of heroin. Here he was indicating the importance of making the decision to remain abstinent and holding true to that decision. Sure enough the naltrexone pellet implant aided him in shortening the withdrawal period as well as aiding him in preventing obsessions and craving for the use of heroin, however the responsibility to deal with the psychological and habitual was up to him. He believed that heroin dependent individuals will not be able to remain abstinent from the use of heroin if they do not make use of the naltrexone pellet implant. For him this belief originates from his experience with the use and dependency to heroin whereby some of his friends and partner had passed away due to overdose from heroin. Now that he was the only survivor, he believes that if it was not for the use of the naltrexone pellet implant he would most probably faced the same fate as his friends. He believed that if they were introduced to the naltrexone pellet implant that they would most probably be here with him today. For him, the naltrexone pellet implant was a life saver and in some sense the cure to his dependency was that he was able to change as a human being, to change his behavioural aspects to dependency in which he indicated:

P1: "That was my cure, the naltrexone helped me to be able to change, but change is the cure, but without the naltrexone... the truth is that I couldn't put the drugs down no matter what, ok. So it helped me to stay abstinent from the drugs, but change helped me to live without the drugs. That is how I see it. "

Here he indicated that the so called "cure" was his ability to change his behaviour to the use of heroin. Participant 1 indicated that it was quite easy to stop making use of heroin, however he found it quite difficult to cease the use of heroin which is linked to the decision to remain abstinent. In this sense, he had to work on remaining abstinent which is linked to the psychological aspect to remaining abstinent. This can be found evident in the Relapse Prevention Theory in that when an individual is faced with high-risk situations to the use of

an illicit substance in that when an individual is faced with a high-risk situation they should be able to have an affective coping response in order to increase their own self-efficacy in order to decrease the probability for a relapse from occurring (Marlatt & Gordon, 1985b). In this sense, the naltrexone pellet implant aided Participant 1 in not using heroin and ceasing obsession as well as cravings to the use of heroin, even if he wanted to make use of heroin, the naltrexone pellet implant would have ceased the euphoric effect created by heroin in the body. Therefore, leaving Participant 1 to focus on working on affective coping responses to remaining abstinent when faced with high-risk situations. The psychological component in this situation would also be linked to the increase of Participant 1's self-efficacy in that literature indicated that when an individual who has initiated a behavioural change should start to gradually experience a growing sense of personal control and self-efficacy in order to master his or her behaviour in a high-risk situation. With this in mind, one of the key factors to the relapse prevention model is how an individual is then able to respond to this high-risk situation. An effective coping response defined as a cognitive or behavioural compensatory strategy that reduces the likelihood of lapsing- would be able to culminate a high-risk situation in a lapse and therefore eliminate the tendency to give in to the temptation of substance use and decreasing the probability of a relapse. In turn, an ineffective coping response might decrease self-efficacy and a return to target behaviour will increase the probability for future lapses (Hendershot et al., 2011; Larimer et al., 1999; Witkiewitz & Marlatt, 2004). This further supported his following indication:

P1: "Because you have got to change. Putting down the drugs is the easy part, but keeping them down is the hard part, ask any addict. Change will help you keep it down, because you become a different person now, the new person you become doesn't have that need to use every day like the old person. And that is what it is about."

Basically Participant 1 had an effective coping response to the high-risk situations that he faced during his lifetime which in return increased his sense of self-efficacy. This made him feel that he was not the same old dependent individual that had to make use of heroin in order to function. Therefore decreasing the probability for a relapse occurring. In this sense the naltrexone pellet implant aided him in remaining abstinent from the use of heroin and that it was up to him to create an effective coping response to the high-risk situations in order to remain abstinent from the use of heroin. This particular instance was also found within Participant 2 in that:

P2: "This is not a cure, you will feel better psychologically. I just wanted to get this through and I believed that I can do this you know, because there was someone with me. There was someone telling me ok well this is what you will feel, so I was through it. At the beginning I was feeling like depressed like is what I have to go through, is this what I have to go through now? Is this really my life? And soon you get to make peace with it, that you have to make peace with the fact that you have to get over your shame and your hatred for yourself. You have to forgive yourself in order for this naltrexone to do its work."

She also believed that the use of the naltrexone pellet implant is not a cure but rather an aid to the recovery process from heroin dependence. Participant 2 believed that she would be able to get through the hard process of remaining abstinent from the use of heroin in that she indicated that that Participant 1 helped her by means of guiding her through the recovery process. Furthermore she indicated that the use of the naltrexone pellet implant helped her to feel better psychologically. In this sense she believed that the commitment to the use of the naltrexone pellet implant helped her to be able to work on the psychological aspects to remaining abstinent from the use of heroin, in that it created a sense of self-efficacy in order "to get this through" which indicates that she was committed to remain abstinent for the duration of the 3 months that the naltrexone pellet implant was active in her body. However, one of the most important aspects to her abstinence was that there was someone with her guiding her through the process to recovery and abstinence. She further indicated that in order for the naltrexone pellet implant to aid her in the recovery process and remaining abstinent from the use of heroin, she had to deal with the self-hatred, depression and the guilt that she was experiencing due to constant failure to remain abstinent from the use of heroin. This in a sense speaks to the ability to be able to focus on the psychological aspects to the recovery process from heroin abuse in that naltrexone allows the individual to be able to get through the physical symptoms related to heroin dependency that includes obsessions and cravings. This then allows for the focus to be placed on the psychological components to the recovery process which is one of the most important factors to focus on when in the process of remaining abstinent. She further indicated:

P2: "Some people use it as a cure and it is not, because then you would have to be on the implant for the rest of your life."

Her indication here refers to the fallacy that the naltrexone pellet implant would be a cure to heroin dependency as indicated previously, in that for her the important aspect was dealing with the psychological components related to heroin dependency rather than making

use of a substance for the rest of her life- almost a scapegoat in some sense- in order to receive a silver bullet for freeing oneself from the claws of dependency. This is when she indicated that if that is the matter at hand, that an individual would have to then make use of the naltrexone pellet implant for the rest of their lives, which indicates that the individual would only keep remaining abstinent from the use of heroin when on the naltrexone pellet implant in that it would then be seen as a form of maintenance treatment rather than an aid to dealing with the wholistic aspect to heroin dependency which includes both the physical and psychological aspects to remaining abstinent. A similar experience was found within Participant 3 in that:

P3: "And unfortunately that is where the pill has its downfall, it can't change who you are. It just helps you not use because unfortunately I have seen the effects, if you do use on that shit... "

He indicates that there is however a downfall for him regarding the naltrexone pellet implant in that it does not change the person who you are, but rather keeps you from making use of heroin. Therefore, it would be up to the individual to work on the psychological aspects related to heroin dependency in that they have to be willing to focus on psychological modalities such as counselling in order to deal with the dependency in a wholistic manner rather than focusing on only the physiological aspect related to dependency. This relates back to what Marlatt and Gordon indicated (1985b) indicated by an effective coping response in that the naltrexone pellet implant does in some sense act as an physiological coping response to the decreasing period of withdrawals and the elimination or rather decreasing of the obsessions and the craving. Through this, it allows the individual to be able to cope with the physiological aspects related to heroin-dependency, however, for Participant 3 he needed to change who he was through attending some form of therapy in order to work on the psychological components related to remaining abstinent from the use of heroin. Participant 4 made use of a very interesting analogy in that the indicated that:

P4: "Because the naltrexone isn't a cure, it's like a, it's the crutches, if I can make an analogy out of it, your legs aren't going to get stronger if you sit in a wheel chair, you need to use the crutches and actually use your legs."

As with most of the participants, the naltrexone pellet implant is not a cure but rather an aid for the recovery process that Participant 4 also experienced in his process of making use of the naltrexone pellet implant. For his the naltrexone pellet implant was the crutches in

order to make his legs stronger to be able to walk again, in this sense, he referred to his legs as the ability to walk again in that being able to walk free from the dependency of heroin. As he indicated that the wheelchair being the heroin abuse and dependency that he had to get out of in order to walk again, and for him he had to make use of the crutches in order to walk again. However, for him to be able to walk again with the use of the crutches he had to be able to stand up from the wheelchair which is related to the previous discussion in that one has the aid of the naltrexone pellet implant, but for an individual to be able to remain abstinent one has to work on the psychological component related to heroin dependency. It was found that all the participants agreed that the naltrexone pellet implant is not a cure to heroin dependency but rather an aid to relapse prevention in that it would be the responsibility of the heroin abuser to be willing to work on the psychological components related to heroin dependency.

4.7.4.2 People, places and things as a trigger

This code refers to the high-risk situations that the participants were faced with in society which acted as triggers to make use of an illicit substance such as heroin. As indicated by Marlatt and Gordon (1985b), one of the central components to the relapse prevention theory is that a high-risk situation frequently serves as the immediate precipitator of the use of an illicit substance such as heroin. According to this model, when an individual has decided to remain abstinent from the use of an illicit substance due to the willingness to pursue in an act of behavioural change that they will start to experience some sense of increased self-efficacy or mastery over their behaviours which will grow as they maintain the change. Certain situations, events, emotions or people can pose a threat to the person's sense of control and, consequently may precipitate a relapse crisis. These situations may include emotional or cognitive states such as diminished self-efficacy and negative emotions such as anger, depression or anxiety. It might also include environmental contingencies such as being conditioned to illicit substance cues such as certain spaces, objects and people. Furthermore, physiological states such as withdrawals, cravings and urges might also be a form of trigger for the use of substances. These individuals were exposed to these situations through their everyday lives and would have had to be equipped with the necessary effective coping responses in order to deal with these high-risk situations or triggers. These triggers or high-risk situations were experienced before, during and after the treatment method of naltrexone. For Participant 1 these high risk situations that he experienced during the process of attempting to remain abstinent where:

P1: "Ok, a lot of people ask me, especially family members of addicts. Ok, the truth is, in the beginning it was the high that was the trigger, gravitating the next high."

He experienced high-risk situations during the process of recovery in that he indicated that in the beginning, before the use of naltrexone, it was the actual craving for the use of heroin that triggered the constant use for heroin in which he developed a dependency to heroin. He indicated that a lot of family members asked him what the reason was to him constantly using and not ceasing the use of heroin. He indicated that this is what most heroin dependent individuals experience in that it was always craving the next high of heroin which caused the vicious circle of heroin dependency. However he indicated that when he received the naltrexone pellet implant he had experienced the following:

P1: "For the first nine months to a year people, places and things, any people that used, any people that drank I didn't associate with and I didn't have contact with. Any place that sold alcohol, anything like that, I wasn't around, I didn't go to a restaurant for the first nine months, why? Because I would see people drinking, other things... I said people, places and things. Things like gambling going into other things, porn, sex are big triggers. Because you know what I say? Anything that ups me, that make me... hey! That just takes me above the normal state of mind... I want to add the drugs."

For him, the first nine months of making use of the naltrexone pellet implant where he received 3 consecutive implants, he avoided "people, places and things" that would have an effect on him to make use of heroin. He further indicated that he avoided any form of situation that was linked to something that would enable him to develop some form of dependency in which he indicated that he avoided people that drank alcohol, parties where alcohol would be made available for people, casino's where people gambled. He even went so far as to try and avoid going to a restaurant due to the reason that alcohol would be sold there. This for him was a way of coping with his heroin dependency in that he avoided any high-risk situation that might allow him to make use of an illicit substance. This was due to the fear that he would not be able to cope with the temptations of the environment in that he might experience a lapse or relapse which might cause a sense of abstinence violation effect. This would have resulted in perceiving a short term positive effect of the use of a substance in that it might violate his commitment in remaining abstinent and eventually followed by a relapse process. He did this due to his indication of that "Anything that ups me, that make me... hey! That just takes me above the normal state of mind... I want to add the drugs.",

therefore explaining why he wanted to avoid certain environmental high-risk situations (Dimeff & Marlatt, 1998). Moreover, he continued with the statement of:

P1: "So I have got to stay away from anything that ups me... people, places and things, ok. I couldn't go to a place that had a vibe, because you know what? I am at that vibe and what I need is the drugs, so that is what I did. And I still today, six years later, people places and things play a huge part of my life today."

As indicated previously, he avoided these high-risk situations, even when he was on the naltrexone pellet implant. He indicated that when he would be exposed to these situations he would want to make use of an illicit substance in order to amplify the feeling that he experienced during that particular moment in the environment. Furthermore, he indicated that he still avoided these situations as this helps him to not make use of illicit substances such as heroin. For him this is one of the coping responses that he personally makes use of, it might not be a psychologically recommended way of doing so as this might create avoidant behaviour in him which might cause problems of social functioning. However, this was a mechanism that he was more than happy to use as compared to being dependent to heroin. A similar experience was found with Participant 2 in that what she experienced was:

P2: "Everything is a trigger at the end of the day, like anything that reminds you of where you have been... uhm... whether it has been hearing a song that was at that stage popular on the radio and you would use drugs, in your car and that song would be playing, that is a trigger you know."

For her many situations acted as a high-risk situation in that she indicated that *"Everything is a trigger at the end of the day, like anything that reminds you of where you have been..."* even after the use of the naltrexone pellet implant that she had to still deal with the high-risk situation in the sense that everything that reminded her of her previous life as a heroin dependent individual was a form of a trigger to make use of heroin again. She further indicated that it could be anything from a song that she use to listen to that was associated with the heroin use, and whenever she was exposed to this high-risk situation that this would act as a trigger. She further elaborated on:

P2: "I mean my worst social environments were like boyfriends, and old friends, people that I used to know in school and people that I used to know before using. And then you start using together and you think that it is not that bad because you know each other for so long."

Participant 2 indicated that one of her worst high-risk situations would have been old boyfriends and friends that she used to interact with when she was still a heroin dependent individual, she further mentioned that even people that she knew before becoming heroin dependent was a trigger to her making use of heroin again. These particular individuals were a high-risk situation for her in the sense that she indicated that when she met up with them pre-recovery, that they would start using together, and for her the use with old friends was justified by the reason that they knew each other for a long time and that it would be easy to use with these individuals. This was her high-risk situation to the use of heroin in that during that time she did not have an effective coping response whereby her self-efficacy was decreased due to the constant feelings of self-hatred, depression and disappointment as mentioned earlier on which caused her to experience the positive short term outcome expectancy to the use of heroin. This furthermore caused the abstinence violation effect to occur and led to a full blown relapse. In Participant 3's case, it was quite a different experience to what he experienced as high-risk situations to the use of heroin in that:

P3: "Myself, if I was having free time where nobody had control over me or nobody can have an eye on me for a certain amount of time. Honestly if someone had said to me like you are on your own now. Whether it was at my girlfriend's house or if I was here [at home]. If ever there was a time where I had no supervision for more than a day and a half, it was either weed, cocaine, CAT, heroin on the odd occasion, but something would be saying in my head that nobody is watching me."

For Participant 3, the high-risk situation to the use of heroin was that when he had time by himself, whether it was at home or whether it was at his girlfriend's house, he would have the urge to start using. In this sense he indicated that his high-risk situation would be being alone without any supervision, if he knew that his parents would not be home for a long time, he would then have the urge to start using heroin. He indicated that he would make use of various substances when being alone at home, even if someone indicated to him that he would be left alone somewhere, he would see this as an opportunity to make use of an illicit substance. It was as if he thrived on the fact that being left alone would have allowed him to use and he would be able to use without being caught. With Participant 4, it was quite a similar experience as seen in Participant 2 and Participant 1 whereby:

P4: "Yes, absolutely. I mean, like, at first everything was a trigger, I mean money, the big ones are like money, the car, friends, certain places, but I mean for me a trigger would be waking up in the morning and just like, that would be the trigger, I would wake up and I

would just want to use. So the triggers became pretty much everything in my life. You know I had a good day I'm going to go and use, I had a bad day, I'm going to go and use. It just became everything."

For Participant 4, the high-risk situations were when he had money with him that would have enabled him to afford the use of heroin, also the fact that he had a car in order to go drive to a dealer without the supervision of a parent or friend and lastly the friends and places which related to what Participant 1 and 2 indicated by "*People, places and things*" in that with the situation of Participant 4. For him all of these three factors played a role in acting as a trigger to make use of heroin again, which he indicated that these triggers or high-risk situations became everything in his life. In this sense, eventually he ended up waking up in the mornings and then would just crave the next fix of heroin, where the urge to make use of heroin had become the high-risk situation for him to make use of heroin. For Participant 4, his whole life experience became a reason to make use of heroin in the sense that if he had difficulty with emotions he would use heroin, even if he had a good day he would go make use of heroin. It started to become a part of Participant 4's everyday life which is evident in his narrative, whereby he indicated that he has an emotional attachment to the use of heroin and therefore making it so much more difficult for him to remain abstinent from the use of heroin before making use of the naltrexone pellet implant. Before the use of the naltrexone pellet implant, Participant 4 indicated that he had an emotional attachment with the use of heroin which referred to the use of heroin assisting him in dealing with emotional difficulties such as the elimination of panic attacks. This caused him to be more attached to the use of heroin as this was seen as a method of getting rid of his emotional difficulties. It was found that for these participants various aspects in their life acted as a high-risk situation in that these various aspects became a trigger to make use of heroin which ranged from environmental, physical, emotional and relational situations.

4.7.4.3 Naltrexone increases self-efficacy

This particular subordinate theme referred to the experience that these participants went through when they made the decision to remain abstinent from the use of heroin and to maintaining this change in their life, they might be faced with high-risk situations throughout their recovery process, however the use of the naltrexone pellet implant aided them to go that extra mile in remaining abstinent. However this spoke to the physiological component to remaining abstinent from the use of heroin, therefore these participants were left to deal with

the psychological component related to remaining abstinent from the use of heroin which speaks of one of the important components to the relapse prevention model known as self-efficacy. The concept of self-efficacy introduced by Bandura (1977) was found to be a final common pathway that mediates behavioural change which can be linked to relapse in dependant behaviour. Self-efficacy can be defined as the degree to which an individual feels confident and capable of performing certain behaviours in a specific situational context. It regards the belief that one is capable to cause some effect on one's environment-that one is effective. According to the cognitive behavioural model of relapse, a higher level of self-efficacy is a predictor of improved treatment outcomes across various types of dependent behaviours, where as in this case the dependency to heroin and with it the ability to remain abstinent from its use. Accordingly, the self-efficacy theory verified that behavioural changes produced by different types of treatment are mediated by a common cognitive mechanism called efficacy expectancy. The expectancy of being able to cope with successive high-risk situations as they develop is closely associated with the idea of self-efficacy. So when an individual feels confident to cope effectively with a high-risk situation, they would then indirectly influence the perception of self-efficacy. Moreover, this referred to the individual that was able to make a change in his/her life structure for the better good of remaining abstinent from the use of heroin through the aid of the naltrexone pellet implant. This caused them to be more motivated in remaining abstinent from the use of heroin.

P1: "by knowing that I have got the implant, yes was a big part of it ok. So it was a barrier, but the second big part was that I felt good, I felt great, I felt alive for the first time in twenty years. I could smile properly,"

Participant 1 indicted that the mere fact that he was aware that there was a naltrexone pellet implant in his body in order to aid him in his recovery process made him feel more confident and willing to remain abstinent from the use of heroin. This was linked to the awareness of being informed by the physician that he should deviate from making use of heroin as this might have health implications if he decided to make use of heroin. Furthermore, he indicated that it acted as a barrier to the use of heroin in that he would not be able to experience the euphoric effect that is created by the use of heroin due to the effect that the naltrexone pellet implant has on the neurobiological system of the human body. He further elaborated on how good the naltrexone pellet implant made him feel in terms of being more motivated to function without the use of an illicit substance such as heroin. For twenty years he had to make use of heroin just to function properly in order to avoid withdrawing

from heroin. As indicated previously, he would wake up each morning and use heroin in order to function, and now that he has been released from the claws of heroin cravings and obsessions he now feels that he is actually alive for the first time in twenty years. This relates to the sense of self-efficacy that he now has the ability to take lead of his own life and that he was now able to have some control over the use of heroin as compared to before the use of the naltrexone pellet implant. A similar indication was expressed by Participant 2:

P2: "Sometimes I wake up and I feel crap and I feel so sick today and I don't know why and I got a little flu and I would be like, I would want to use today. And I would just go and drive and go use, and I think to myself, but why? Why would I want to? I feel so good and I look better, I feel better, I exercise, I actually have structure, I actually... you know I am actually becoming normal."

Here she indicated that before the naltrexone pellet implant she use to find any excuse to drive and go buy the next fix, whether it was because she felt a bit depressed or sick, she would drive and buy heroin in order to release her from both physical and emotions pain. This in return created a sense of uncontrolled decisions, in that she had to make use of heroin in order to feel better. She further indicated that there was a time where she had some introspection in that she was now talking to herself in order to think why she wanted to make use of heroin. This was the moment when she weighed the options of the decision to remain abstinent from the use of heroin, in that she indicated that because she had made use of the naltrexone pellet implant that she had now gain more control over her life. She had indicated that she started to develop structure in her life through means of feeling better, looking better and being involved in physical exercise which is a form of healthy living. Furthermore she indicated that she had now become normal in the sense that she did not have to make use of heroin in terms of worrying about the next fix, having to use in order to feel better about herself and that she had developed structure due to the naltrexone pellet implant. This indicated that the use of the naltrexone pellet implant aids the individual to work on other aspects of their life in terms of taking their lives back. This also speaks to self-efficacy in terms of Participant 2 having the ability to control her situation. In that with the help of the naltrexone pellet implant, she was able to start changing her life in order to live without the dependency to heroin. Participant 3 indicated a similar experience:

P3: "You are in a better mind frame to think twice. You are not in that 'I have to get now', you are sitting there, your withdrawals are alleviated at least and your mind goes to drugs"

immediately but then you think no, this... then you think of taking it out and then you think no...it is in and I will probably still get sick because it is in my bloodstream... nah..."

For him the mere mind-set of thinking to make use of heroin was the key to remaining abstinent in that he indicated a better mind-frame was the difference for him in order to remain abstinent. Due to the functionality of the naltrexone pellet implant in terms of eliminating obsessions and craving to illicit substances such as heroin, it aided this participant in eliminating the thinking pattern of *"I have to get now"* which is linked to the obsession of making use of heroin. Thus, through his indication of the elimination of the constant obsession with the use of heroin he was able to change his mind-set with regards to being dependent to heroin use. He further indicated that his withdrawals were alleviated due to the use of the naltrexone pellet implant which made him think about making use of heroin, however, he did think about the long term effect that this decision would have on him remaining abstinent from the use of heroin. He also thought about taking out the naltrexone pellet implant so that he would be able to make use of heroin, following that thought was his awareness that he might get sick when he was on the naltrexone pellet implant. This whole thinking process led to his decision to rather remain abstinent from the use of heroin and keep to his decision to leave the implant in and stick to remaining abstinent. Therefore his decision to remain abstinent was influenced by the actual implant that was in his body, which in some sense allowed him to take control in making a decision of remaining abstinent, thus leading to the discussion of the naltrexone pellet implant having an influence in the individual's self-efficacy. A similar instance occurred with Participant 4:

P4: "So the naltrexone was that brick wall that stood between me and the drug. So that I could experience life and start doing the program and see what sober life was about."

Participant 4 indicated that the naltrexone pellet implant aided him in terms of creating a barrier or rather *"a brick wall"* between him and the use of heroin, thus indicating that he was no longer able to make use of heroin in order to feel the euphoric effect that he experienced when making use of heroin. This allowed him to remain abstinent from the use of heroin where he was able to experience a life without the use or dependency to heroin. This furthermore allowed him to make use of a recovering programme with a clearer mind-set due to the absence of obsessions and cravings that allowed him to focus on the psychological aspects to an abstinent lifestyle. In this sense it allowed him to experience an increased sense of self-efficacy that allowed him to focus on remaining abstinent from the use of heroin. It was indicated by these participants mentioned above that they all have

experienced some sense of increased self-efficacy due to the use of the naltrexone pellet implant acting as an aid to their recovery process. They indicated that they experienced a sense of control over their lifestyle and that they felt that they were able to function and have structure without making use of an illicit substance such as heroin. Furthermore, these participants were able to work on psychological aspects pertaining to heroin dependency in order to remaining abstinent from the use of heroin.

4.7.4.4 Naltrexone decreases cravings and obsessions

This particular subordinate theme referred to the decrease of cravings and obsessions to the use of heroin when they made use of the naltrexone pellet implant. A considerable amount of research has focused on identifying the predictors of the causes of relapse in order to develop treatment strategies for the prevention thereof. It was found that one of the strongest predictors of the causes of relapse in substance dependence is cravings (Breese et al., 2011; Shadel et al., 2011). The tolerance in the act of the desire of the use of a substance may be expressed as urges or cravings which are hypothesized to be mediated by the positive outcome expectancies of engaging in the prohibited behaviour. Cravings can be defined as an individual's subjective experience of an urge or desire to make use of a substance. Numerous models to craving have consistently acknowledged that it can be experienced as intrusive thoughts and their elaboration, an impulse drive or motivation, a stress response, an emotional state, a physical sensation, substance wanting or any other manifestation that is relevant for an individual who endorses experiencing a craving or urge to make use of a substance (Cox & Klinger, 2002; Kavanagh et al., 2006; Paulus, 2007; Robinson & Berridge, 1993; Sinha & O'Malley, 1999; Tiffany & Wray, 2009). The roots to craving can be attributed to biological, affective, or cognitive motivators. In the biological models of craving, the dependent behaviour of individuals can be seen as a brain disease whereby the causes of such cravings and use of the substance are born from neurobiological and physiological states (Witkiewitz et al., 2013). Cravings can be reflected in neural states where neurotransmitters such as dopamine, serotonin and gamma-aminobutyric acid (GABA) can be linked to drug use. It is evident that dopamine in the dorsal striatum has been associated with reported cravings and that GABA dysregulation has been associated with a craving drive that has been described as a relief of tension. From a cognitive perspective of craving, it is suggested that craving originates in cognitive processes such as memory, that reflect higher order information processing that evolved into automatic processes of use. Marlatt and Gordon (1985a) suggest that cravings are a result of cognitive expectancies for drug use as

mentioned previously. Research has indicated that naltrexone has an anti-craving effect in individuals who experience difficulty in remaining abstinent from the use of heroin. This means that naltrexone tends to eliminate the cravings caused by obsessions and compulsive thoughts of the illicit substance once individuals have ceased the use of opioids. The precise mechanism for craving reduction has not quite been determined, however, it is most likely linked to the antagonistic mechanism of the opioid pathways to the nucleus accumbens, which in return reduces the total amount of dopamine being released (Kunøe et al., 2012). The rationale behind the use of naltrexone for opioid use disorder as a treatment method lies behind the idea that it tends to motivate the reduction of the use of opioids such as heroin when the individual is unable to experience the pleasurable ‘euphoric’ effects of the illicit substance (Larney et al., 2014). In Participant 1’s experience with dealing with obsessions and craving when he made use of the naltrexone pellet implant was as follow:

P2: "Structured lifestyle, yes to just not obsess about one thing anymore you know, I started just keeping myself busy with different parts of my life and things I still liked and... but you have to work with it... so... "

The elimination of the obsessions and cravings to heroin use allowed him to restructure his lifestyle in that the use of the naltrexone pellet implant assisted him to be more focused on much more important aspects in his life which assisted him in the recovery process, as well maintaining abstinence. The naltrexone pellet implant did assist him in not obsessing about the use of heroin, however he indicated that he still attempted to keep himself busy with other important aspects of his life in order to work on eliminating the obsessions of heroin use. For him, he still had to focus on keeping himself busy for the naltrexone pellet implant to have the total effect on him that he required in order to remain abstinent. That is why he indicated that “*but you have to work with it*” in that it is still up to the individual to have the responsibility to work on their psychological components in remaining abstinent whether it would be through therapy or some form of psychological introspection in order to deal with these psychological component to the use and dependency to heroin.

P3: "Like now I don't, like when I am alone I will sit and watch tv. I don't think about getting up and going somewhere just in case someone doesn't know where I am, and my girlfriend doesn't know... don't be naughty, stay at home and watch tv and be a good boy like that is something that I want, it is not hard work to be able to do that now."

As discussed previously, Participant 3's high-risk situation related to the use of heroin was when he was left alone at home or whenever he felt that he was not being supervised by a family member or a loved one. After he had received the naltrexone pellet implant he could sit alone at home without being supervised by his parents for the fear of using, rather he indicated that he now did not use because he did not feel that he wanted to use and that he was now able to be alone at home without obsessing to make use of heroin. The use of the naltrexone pellet implant has made it easier for him to be able to remain abstinent due to the lack of cravings and the obsession to go and buy heroin in order to get high. Therefore it was found that for Participant 3, the cravings and obsessions to the use of heroin had dissipated due to the use of the naltrexone pellet implant. Participant 4 indicated the following:

P4: "I mean it's just three months straight of no cravings and the triggers and when I got out of the rehab I went straight into, back into life, and it was almost like I was never on drugs at all."

Participant 4 indicated that for three months (duration of the naltrexone pellet implant being active in the body) he did not experience any cravings or obsessions to the use of heroin. He received the implant shortly before going to rehab whereby he indicated that his experience was quite different from all the other occasions of visiting a rehabilitation centre. The difference for him was that when he went to rehab while making use of the naltrexone pellet implant, it was easier for him to be able to focus on other important psychological factors of remaining abstinent, this refers to the development of effective coping responses in order to decrease his probability of a relapse when faced with a high-risk situation. He further indicated that he was able to get back to living in society with a more confident attitude of remaining abstinent from the use of heroin. This was a very important factor to Participant 4 as he had various attempts to remaining abstinent which involved continuous failed attempts at remaining abstinent from the use of heroin. These failed attempts occurred shortly after being discharged from rehabilitation centres. The naltrexone pellet implant enabled him to experience a sober sense of self in which he indicated that when he was released from rehab that he felt that he had never made use of an illicit substance. Overall, it was found that these participants experienced less to none obsessions and cravings to the use of heroin when they made use of the naltrexone pellet implant in order to remain abstinent from heroin use. This was due to the neurobiological effects that the naltrexone pellet implant had on these participants which encouraged them to focus on their sobriety and the psychological aspects related to that rather than obsessing about the use of heroin.

4.7.4.5 Using or thinking of using while on the naltrexone pellet implant

This particular subordinate theme referred to the participant making use or thinking of making use of heroin while on the naltrexone implant. This referred to the lapsing factor when on the implant despite the fact that they were told that it would be life threatening when making use of heroin while on the implant due to the risk for overdose. Here the researcher explored the reasons for them making use of heroin while they had made a decision to remain abstinent. Furthermore, the researcher was interested in exploring the various reasons for these participants making use of the heroin when they decided to remain abstinent and the different reasons why this decision was made. Moreover, this subordinated theme refers to the effects that they have experienced when making use of heroin while on the naltrexone implant which ranged from physiological to psychological effects to the use of heroin while on the naltrexone implant. The association to the individual thinking of making use of heroin when on the naltrexone implant has a connection with the outcome expectancies related to what they will feel when making use of heroin and the effect such euphoria that is experienced by the individual which might lead to a lapse or progress to a full-blown relapse (Dimeff & Marlatt, 1998). Participant 1 was asked whether he made use or thought about making use of heroin when on the naltrexone pellet implant by which his response was:

P1: "I'll tell you now, in the beginning, yes, I did try and use on the implant once I will tell you it was a week later. I might as well have shot water into my veins, it was a freaking joke."

Participant 1 did in fact try to make use of heroin when the naltrexone pellet implant was still active in his body, to be exact he indicated that he had attempted to make use of heroin a week after he had received the naltrexone pellet implant. He expressed his experience of the use of heroin as a joke as he indicated that he did not experience any euphoric effect to the use of heroin. He indicated that he might as well have injected water into his veins and that it was a joke to him as he could not believe that the heroin had no effect on him at all. This eliminated the euphoric effect of the heroin for him was now eliminated so to make use of heroin was totally useless for him. He further indicated why he had attempted to make use of heroin by the following:

P1: "Habit. Habit, I wasn't craving, obsessing, nothing it was habit. I found that with a lot of my clients. It was just habit, it was what I did, every single day of my life and I will give you

another reason, us addicts don't listen, we don't believe ok, we are stubborn sons of bitches ok."

He indicated the reason for making use of heroin although he was aware that he had the naltrexone pellet implant still active in his system that it was habit. He indicated that it was more the habit of using heroin that led to his decision to use again. Participant 1 indicated that this was something that he did every day of his life and that the use of heroin was a form of habit, he did not experience cravings or obsession of the use of heroin but rather the habit of using heroin led to his decision to make use of heroin. He further indicated that the other reason that he had attempted to make use of heroin was due to his stubbornness. By this he indicated that although he was told not to make use of heroin when on the implant that he would still have tested the effects of heroin use when on the naltrexone pellet implant. To his surprise the heroin did not have an effect by which he indicated the following:

P1: "Ok, I only really became committed after I tried to use, ok that's my truth. I got this and I have been told that when you use you are not going to get the effect and all that, and I thought that it was all bullshit. That's the truth ok, so I was still very sceptical alright, then when I did... it was about a week later and I swear there was no... I actually became angry ha ha ha ha, ok. After I got angry ok, but at the same time there was anger and relieve at the same time, because I knew now that I can't use."

As indicated, Participant 1 only became committed to remain abstinent from the use of heroin after he had tried to use when on the naltrexone pellet implant. He had to see for himself whether or not the naltrexone pellet implant was as effective as the physician had told him, and only through testing this by means of making use of heroin did he believe that this was not the hoax that he first thought it would be. He further indicated that he experienced a sense of anger towards the use of the naltrexone pellet implant in that he was no longer able to experience the euphoric effect of the use of heroin. He furthermore indicated that he had also experienced a sense of relieve in that this could be a form of therapy that might actually aid him in remaining abstinent from the use of heroin. For him this enabled him to give the naltrexone pellet implant a chance in attempting to remain abstinent from the use of heroin. Participant 3 had quite a different experience in that:

P3: "I didn't use but I thought about it. In the beginning you still crave a little, but the naltrexone helps with this. It is not as bad as needing to phone somebody now."

Participant 3 did however not attempt to make use of heroin when on the naltrexone pellet implant although he did think about making use of heroin in that he indicated that he did crave the use of heroin in some extent. For him the craving was not to a great extent in that he would go as far as phoning his heroin dealer and purchasing heroin in order to use. Rather, he indicated that the naltrexone helped dissipate the cravings to the use of heroin after it was fully active in his body. This experience of making use of heroin was quite different for Participant 4 in that he in fact did experience some sort of effect to the use of heroin in which he indicated the following:

P4: "The effects of the heroin was very minimal, I didn't really feel anything. It just, you don't really get that kick, that like rush, you know. When you shoot up, you can feel the heroin like crawling through your veins as it spreads through your body and I couldn't feel that at all."

When Participant 4 made use of heroin whilst on the naltrexone pellet implant, he did in fact experience some effects of the heroin in that he indicated that it was minimal and not the same as when he was not on the naltrexone pellet implant. For him, the use of heroin was not the same that it gave him the same "kick" that it usually gives him. Furthermore, he indicated that the rush that heroin gave him was abtinent and that when one makes use of heroin in that it feels as if the heroin crawls through one's veins. These sensations that were experienced before when the individual was making use of heroin were abtinent with the use of the naltrexone pellet implant. Thus, indicating that the naltrexone pellet implant had quite an effect on Participant 4. Participant 4 was still able to experience some effect of the use of heroin. For him, the reasons for using were also a matter of habit, he indicated previously that he had quite an emotional relationship with heroin and that a bond was formed between him and this illicit substance, thus referring to the habitual nature of his heroin dependency. Overall, it was found that these participants did experience some sense of thinking to make use of heroin while on the naltrexone pellet implant, whereby most of them did in fact attempt to make use of heroin. This was due to their curiosity as to the effects that the heroin would have on them when they were on the naltrexone pellet implant. Some were even sceptical to what they were told about the naltrexone pellet implant and how it will benefit them and had attempted to push the boundaries and experiment with this in order to test its reliability.

4.7.4.6 *Ceasing the use of naltrexone*

This particular subordinate theme referred to the process of ceasing the use of naltrexone after a period of abstinence, in that the individual would not want to remain on the naltrexone pellet implant in order to function without the use of heroin. Naltrexone is quite different from other pharmacological treatment modalities such as the use of opioid agonist such as methadone and suboxone which replicates heroin in some sense. Linked to this is the weaning off modalities of the use of opioid agonists in that evidence suggests that various other factors have an influence in making use of agonist therapies which include the fear of withdrawal from the agonist treatment, beliefs that making use of methadone is far worse than the consumption of heroin. There was also an indication that the use of methadone can also be seen as a form of self-medication due to its similarity of effect that are related to the use of heroin (Mathers et al., 2010; Peterson et al., 2010). This makes it far more difficult for the individual to remain abstinent from the use of opioids. Therefore, the alternative method of aiding the individual in remaining abstinent would be the use of the naltrexone pellet implant. Moreover, the use of the naltrexone pellet implant does seem to create some form of safety in that it helps eliminate cravings and obsessions to the use of heroin. So in this sense the use of the naltrexone pellet implant might become problematic in that the individual would be too afraid to cease the use of the naltrexone pellet implant. The required period of making use of naltrexone would be 9 months. It is up to the individual to decide how many implants they would want to make use of. This differs from person to person as to when they feel that they would want to stop the use of naltrexone. Ceasing the use of naltrexone is a big step as this might bring back some cravings and urges to make use of heroin again. This is encouraged by either being exposed to high-risk situations or the physiological effects that the naltrexone has on the opioid receptors sites. Thus, the opioid receptor sites are no longer blocked and the dopamine receptor cells will continue the regular process. This in return might cause a risk to the person going through the process of recovery, this might cause a lapse or even a full blown relapse when the naltrexone is no longer present in the body. The individual should learn to live without the naltrexone as it is both costly as well as only being an aid to the recovery process, it is the person's own responsibility to deal with the psychological aspects related to heroin dependency. Heroin dependency is both a physiological process as it is a psychological process, therefore the naltrexone only supports the individual by means of working on the physiological responses experienced by heroin dependent individuals. Therefore psychological therapeutic modalities need to be

implemented in order for the individuals to remain totally independent of any substances for both legal and illicit substances. Participant 1 indicated the following:

P1: "I didn't need to wean of it, it is not addictive at all. It is not mind altering, I didn't need to wean of it. "

For Participant 1 one of the benefits of making use of the naltrexone pellet implant was due to the exclusion of the weaning process of pharmacological modalities of an aid to relapse prevention. He indicated that he did not have to wean of the naltrexone pellet implant due to it not being a mind altering substance such as methadone and suboxone. This made it easier for him to be completely opioid free. By knowing that he was completely opioid free, he was aware that he did not have to endure a process of withdrawals when attempting the weaning process of agonistic substances. This encouraged him even more in attempting to remain abstinent from the use of any opioid. Although he did indicate that there was a sense of fear when he had to cease the use of the naltrexone pellet implant whereby he indicated:

P1: "I felt scared, make no mistake, I did have fear, but because of the therapy that I went through I changed so much that I was confident enough to do it. "

Participant 1 did experience a sense of fear when he had to make the decision to stop the use of the naltrexone pellet implant, although he mentioned that he was confident enough to make that step due to the therapy that he received during the process of making use of the naltrexone pellet implant. This brings us back to the importance of the therapeutic process whereby an individual needs to seek some form of therapy in order for the naltrexone pellet implant to aid them in the will to remain abstinent and maintaining the abstinence from the use of heroin. This is related to the development of effective coping responses in that the naltrexone pellet implant enables the individual to focus on the psychological aspects rather than attempting to be obsessed and crave the use of heroin (Dimeff & Marlatt, 1998). Participant 3 experienced great progress with the attempt to remain abstinent in that he indicated the following:

P3: "I don't even know that this one is in. This is not a conscious thing, I am passing that stage so for me... I never want to have to ever be told 'I think you should go for another pellet'."

He indicated that the implant did not even bother him in the sense that he didn't obsess about this implant inside his body, but rather he was more focused on working with the psychological components in remaining abstinent. He indicated that *"I am passing that*

stage” he had passed the stage where he was aware of the naltrexone pellet implant being active in his body and that he now focused on remaining abstinent. Furthermore, he indicated that he would never want to go back to insert another pellet implant in that he now feels quite competent to cease the use of the naltrexone pellet implant in that he would not be going for a follow up implant in future. This was his own decision to remain abstinent without the use of a follow-up implant whereby he felt that he has reached a higher level of coping and that his self-efficacy is to a level where he would be able to cope with high-risk situations in remaining abstinent from the use of heroin. Participant 4 indicated that he also did not want to be on the naltrexone pellet implant for the rest of his life in which he indicated the following:

P4: "The Naltrexone, we can't be on naltrexone for the rest of our lives, you know there is a time where I'm going to have to go off it and basically the recovery is preparing to live without the naltrexone now. It's you know, first it's without out the drugs, but you know I don't want to be on Naltrexone for the rest of my life."

He indicated that he is quite aware that he would not be able to make use of the naltrexone pellet implant for the rest of his life and that there will be a time that he would have to function without the use of the naltrexone pellet implant. For him, it was of great importance to be able to face sobriety without the use of the a follow-up implant in that he indicated that he had to work on remaining abstinent from the use of heroin without the use of naltrexone. He indicated that he already defeated the process of remaining abstinent from the use of heroin and that the next step would be to remaining abstinent from the use of heroin when ceasing the use of the naltrexone pellet implant. The cessation of the use of the naltrexone pellet implant was seen as the nest step in the recovery process for these participant in that they have already defeated the use of heroin with the aid of the naltrexone pellet implant, however the next step for them was that they had to now cease the use of the naltrexone pellet implant. It was found that many of them felt that they would want to cease the use of the naltrexone pellet implant in order to feel that they could now function without the aid of a pharmacological modality and that it would be their responsibility to ensure that they have an effective coping response to high risk situations before they attempt to cease the use of the naltrexone pellet implant.

4.7.5 Psychological aspects related to the use of the naltrexone pellet implant

Due to the reason that human behaviour can be seen as a wholistic entity when being examined, one cannot separate the psychological from the physical. This particular superordinate theme was concerned with the psychological aspects that are evident in the subjective experiences and perceptions of the participants involved in this particular study, these four subordinate themes that can be found in table 4.1 above are furthermore concerned with the counselling aspect that is associated with the use of the naltrexone pellet implant in the recovery and abstinent process of the use of this particular form of treatment to relapse prevention. Moreover, this superordinate theme is concerned with certain cognitive processes and thinking patterns that are linked to the use of this particular form of therapy and these participants' thinking pattern associated with the use of the naltrexone pellet implant therapy.

4.7.5.1 Recovery with naltrexone in society

This particular subordinate theme referred to the participants being able to recover whilst in society when making use of naltrexone. With traditional modalities related to the recovery process of heroin dependency consisting of dependent individuals following a certain process in order to remain abstinent from the use of heroin which includes detoxification, rehabilitation in an enclosed environment it creates a temporary safe haven. Furthermore, this allows for an environment where the individuals will be segregated from society when they are admitted to a recovery center. This in itself creates a supporting, drug-free environment where the individual can have time to recovery. However, when these individuals are then released from the recovery center they are then released into society where they should be able to face these high-risk situations once again. In this sense, given the high relapse rates soon after being released from rehab becomes of concern, these individuals are now tempted by these high risk situations when they are released from their safe haven whereby their probability for relapse increases. With the use of the naltrexone pellet implant they were able to be faced with the high-risk situations head-on when in society rather than being segregated from society and all the temptations while in rehab they feel that this is more effective. Being segregated from society seems to tempt the individuals in a sense that they already plan to relapse after being released from the rehabilitation center. Therefore, when they were faced with their usual environment in society they are able to recover while faced with high-risk situation which in a sense is more effective than being

segregated from society. For Participant 1 the use of the naltrexone pellet implant in society acted as a protective barrier in which he indicated:

P1: "Because it gives you... see what happens is that it gives you a protective barrier, even if you are in society ok, it gives you a protective barrier that you can't use ok. So you... that gives you say... let say three implants gives you nine months ok, because they are three month implants. For those nine months you have a chance to find out if you really enjoy life or not without it."

For him the naltrexone pellet implant acted as a protective barrier to the use of heroin in that the protective barrier for him was the inability to experience the euphoric effects of heroin. Due to the neurobiological aspects of the use of the naltrexone pellet implant (Kunøe et al., 2012), he did not see the use of heroin as very beneficial. For the nine months that he had made use of the naltrexone pellet implant, it was a barrier to the use of heroin in society in that no matter if he made use of heroin it had no effect on him, therefore the use of the naltrexone pellet implant in society encouraged him to remain abstinent from the use of heroin even though he was faced with high-risk situations. This led to his decision to remain abstinent from the use of heroin whilst in society due to not being able to experience the euphoria that heroin created when he made use of it. Participant 2 experiences a similar instance in that she indicated the following:

P2: "But with the naltrexone, I was still in society but I was sober which was so helpful to be able to control myself while I am in the environment that I was in when I was using. And it is encouraging for me to be able to control myself you know what I am saying? Obviously it helped me, the naltrexone, but like I say, because you are faced... you can still work and be in recovery, rather than being way where you have rules and restrictions... you are still... and addicts hate being controlled."

She indicated that she even though she was in society and facing high-risk situations, she was still able to remain abstinent from the use of heroin in that she was able to control herself. She was not obsessed with the use of heroin and experienced no cravings which allowed her to rather focus on controlling her psychological aspects related to heroin dependency. She was faced with the same environment when she was making use of heroin before she had decided to remain abstinent. For her it was the ability to remain abstinent in the same environment when she was making use of heroin and taking control of these situations in facing her sobriety. This encouraged her to remain abstinent in a sense that she

felt more confident to be able to face these high-risk situations without making use of heroin. For her, the ability to face her high-risk situations while in society was more effective in that she felt that she was no longer confined by the space of a rehabilitation centre where there were rules and restrictions in order to recover from the use of heroin. She felt that rehabilitation centres was not effective due to being controlled by confined space that segregated her from society. Participant 3 had a similar experience in that:

P3: "But when I got the naltrexone I immediately felt that I fought for nothing because this is the way and that it is... It is not like rehab where they go and sit you down and sedate you feel more fucked and you hope that they come with the horse tranquilizers and hope to get even higher."

He indicated that he noticed immediately after making use of the naltrexone pellet implant that he had found a way to function without the use of heroin and that the naltrexone pellet implant was a form of recovery that he was quite comfortable with. It was different to the experiences that he went through when making use of rehabilitation centres in that he indicated rehabilitation centres administered medications that made him feel high. For him, rehabilitation centres were a place where he could make use of other substances that would have tranquilised him, thus reinforcing the sedative aspects related to the use of illicit substances in society. For these participants, the use of the naltrexone pellet implant in society enabled them to face their high-risk situation head-on which was a form of working on their sobriety whilst being exposed to the same environments they were in when they made use of heroin.

4.7.5.2 Counselling is necessary when on naltrexone

This particular subordinate theme referred to the psychological treatment modality associated with the naltrexone maintenance therapy with pellet implantation. It is believed that naltrexone is a miracle cure for some in the general public as well as people making use of the naltrexone pellet implant, this might be due to various misinterpretations through the media where naltrexone is seen as a miracle cure to heroin dependency (Carstens, 2012). This however, in retrospect, is not a cure but rather an aid to the physiological response of the body when an individual has decided to remain abstinent. Therefore some form of psychological intervention is required in order to work on the individual's psychological conditioning response to the use of illicit substances such as heroin. Counselling is recommended during the naltrexone maintenance therapy with pellet implantation in order to

deal with underlying psychological issues associated with the dependent behaviour. It can be seen as a holistic approach to the treatment of substance dependence. Yes, as a matter of fact, naltrexone does have some sort of effect on the human body that not many other substances have when it comes to assisting individuals in the recovery process of attempting to remain abstinent. Therefore it might be misinterpreted as a miracle cure rather than an aid to the recovery process of illicit substances. Therefore counselling is needed to have a successful recovery process as indicated by Participant 1:

P1: "Well, I tell you now, it was more therapy that helped me with that ok, but during the therapy I always felt confident. I felt that I had the naltrexone ok, I felt good all the time, the naltrexone made me feel so good ok, I was never down, I never had mood swings. I used to suffer from hectic depression, my depression was hardly there, you know what I am saying? My mood fluctuations... I was either like a passive baby or an aggressive tyrant you know. Now I was just in the middle, I was calm, I was able to sleep at night, I was getting sleep, I was able to concentrate for further periods. It just made it easier for me."

Participant 1 indicated that the therapy that he had acquired when he made use of the naltrexone pellet implant was one of the key components to his recovery. However, he further indicated that the use of the naltrexone pellet implant helped him in feeling more confident to be able to work on the therapeutic modalities related to the recovery process from heroin dependency. Through this he indicated that the use of the naltrexone pellet implant dissipated his mood fluctuations, made him feel less depressed, eased his anger and allowed him to focus on the psychological aspects to remaining abstinent. He recalls that he could not focus on these aspects as the emotional aspects related to heroin dependency was standing in his way to focus on the psychological aspects such as following a therapeutic process in remaining abstinent from the use of heroin. His decision to seek psychological treatment was linked to the inability to make use of heroin due to the naltrexone pellet implant being active in his body in which he indicated the following:

P1: "That I knew now that I had to change ok, that I can't use, I can't do what I used to do because I am not using. So now I have to try and live life without it, and that is when I realised that I need help."

Due to the neurobiological aspects related to the use of the naltrexone pellet implant, Participant 1 realised that he would not be able to experience the same effects that the use of heroin was producing in the past. Therefore he decided that it was time to seek psychological

treatment which is linked to his will to make a change and remain abstinent from the use of heroin. This was the time that Participant 1 realised that he needed to seek some sort of psychological treatment in order to develop an effective coping response to the high-risk situations that he might face in his decision to remain abstinent from the use of heroin. For him living without the use of heroin was a difficult task as he indicated that he now had to learn how to live life without the use of heroin due to years of habitual use of heroin as indicated earlier. Participant 2 indicated a similar situation:

P2: "I am very obsessive compulsive, which is why drugs were very hecatically to me. Because I will be obsessed about something and I will keep it that way. But what I realised is that you have to go for counselling, you have to work with the system, you cannot do it alone."

Participant 2 indicated that she was always quite "obsessive compulsive" in that she referred to the use of heroin as an obsessive component in her life, that it was as much a psychological component to her making use of heroin as it was a physical component. In this she interpreted that once she gets obsessed with something that she will stick to that obsession, which explains some part of why she had been obsessed with the use of heroin and eventually became dependent. She had come to the self-actualisation that counselling would in fact be necessary in order to deal with this particular obsession with the use and dependency to heroin. For her, the use of the naltrexone pellet implant was a major step towards the road to recovery, however she felt that she had to work with the system of seeking psychological therapy in order to change her life by means of living a life of abstinence. She realised that she had to seek professional guidance in remaining abstinent from the use of heroin. This is related to the development of an effective coping response in that Participant 2 started to realise that she would in fact have to start working on an effective coping response in order to increase her self-efficacy, thus decreasing her chance for a full-blown relapse to occur (Marlatt & Gordon, 1985b). She furthermore elaborated on the psychological aspects of remaining abstinent in the following:

P2: "That is why counselling is so important. You have to gain self-empowerment again and things like that. Like I said if I come to the end of my naltrexone where it starts wearing off and I start thinking about it and I feel that I start obsessing again... then maybe or maybe not, but like I feel two is maybe enough for me. But you can never say, you have to get your life straight. I have to have my life worked out now."

She referred to the importance of counselling in order to “*gain self-empowerment*” over her life where she would be able to face the high-risk situations in order to remain abstinent from the use of heroin. This again refers back to what was discussed in her previous quote in that it is of great importance that she would be able to develop an effective coping response to facing high-risk situations. This made her feel that she would be able to control these obsessions that she had difficulty with when making use of heroin. One particular aspect that encouraged her to seek psychological treatment in order to remain abstinent was the reality that she will eventually have to cease the use of naltrexone. She was particularly concerned with the obsessions and craving for heroin use returning after ceasing the use of the naltrexone pellet implant. She indicated that she might need to make use of two naltrexone pellet implants in order to focus on the psychological aspects whereby she would be able to empower herself with an effective coping response as to feel confident enough to cease the use of the naltrexone pellet implant and continue remaining abstinent without the help of the naltrexone pellet implant. Participant 4 went through quite a different experience which could support both Participant 1 and 2’s statements that counselling is necessary when on the naltrexone pellet implant:

P4: "Well I tried, I tried, just using naltrexone at first and when the naltrexone wore off I would keep relapsing. So my first implant was a three month implant and that, that I didn't do any program at all, I just spoke to Participant 1 on the phone. You know just chatted and then when that implant wore off I started using again."

Participant 4 indicated that he did make use of the naltrexone pellet implant without seeking proper psychological treatment for heroin use and dependency. He believed that the use of the naltrexone pellet implant would have been enough for him to remain abstinent from the use of heroin. In his experience, after the first naltrexone pellet implant started to wear off he did in fact start to experience some obsessions and cravings to the use of heroin and according to his interpretation this was the reason that he relapsed after making use of the initial naltrexone pellet implant. Participant 4 indicated that he did not get enough psychological support in that he only spoke with the counsellor over the phone and did not focus on the psychological aspects related to remaining abstinent such as the development of an effective coping response to high risk situations after the use of the naltrexone pellet implant. It was found that these participants realised the importance of the psychological aspects to remaining abstinent in that they had to work on developing an effective coping

response in order to remain abstinent from the use of heroin when they decide to cease the use of the naltrexone pellet implant.

4.7.5.3 Dealing with high-risk situations when on the naltrexone pellet implant

This particular subordinate theme referred to situations that the individual was faced with when they have made the decision to remain abstinent from the use of substances such as heroin with the aid of the naltrexone pellet implant. A central aspect to the outline of the cognitive-behavioural model to relapse prevention as proposed by Marlatt and Gordon (1985a), is the detailed classification of certain factors or situations that can trigger potential relapse episodes known as high-risk situations. High-risk situations can be defined as any context in which an individual's attempt to refrain from the use of a substance is threatened and might trigger the individual's vulnerability for reengaging in substance use. These situations might include emotional or cognitive states (for example, negative affect such as anger and anxiety or diminished self-efficacy), environmental contingencies (for example, interpersonal conflict, conditioned drug cues, exposure to drug related stimuli, social pressure) and physiological states (for example, acute withdrawal, chronic pain). So in short, high-risk situations can consist of people, places and things that could greatly hinder one's recovery process due to its ability to remind one of substance use. According to this model, an individual who has initiated a behavioural change should start to gradually experience a growing sense of personal control and self-efficacy in order to master his or her behaviour in a high-risk situation. With this in mind, one of the key factors to the relapse prevention model is how an individual is then able to respond to this high-risk situation. An effective coping response- defined as a cognitive or behavioural compensatory strategy that reduces the likelihood of lapsing- would be able to culminate a high-risk situation in a lapse and therefore eliminate the tendency to give in to the temptation of substance use and decreasing the probability of a relapse. In turn, an ineffective coping response might decrease self-efficacy and a return to target behaviour will increase the probability for future lapses (Hendershot et al., 2011; Larimer et al., 1999; Witkiewitz & Marlatt, 2004). These participants were faced with temptation in society such as social gatherings where people consume alcohol in order to have a good time and a mere memory of their past experiences when they made use of heroin. These participants were faced with these situations and attempted to remain abstinent while others individuals seemed to enjoy themselves by consuming substances such as alcohol, drugs. This made them feel vulnerable or excluded from the group due to their history of

substance dependency and the decision to remain abstinent and therefore they did not partake in the consumption of substances. Participant 1 indicated the following:

P1: "Now I had to cope with all the shit around me, like people looking down on me, people picking on me you know, people telling me how shit I was my whole life and not having a way out."

For Participant 1 it was a constant struggle to be dealing with individuals who looked down on him for what he did in his previous lifetime of heroin use in that he had to partake in criminal activities that included stealing and housebreaking in order to feed his dependency to heroin. They resented him for not being able to control his dependency and remain abstinent from the use of heroin, and now that he had decided to remain abstinent to the use of heroin with the aid of the naltrexone pellet implant he had to face these high-risk situations of resentment from other individuals. This indicates the importance for the individual to be able to develop an effective coping response in order to deal with these high-risk situations that they might deal with in their everyday life. He indicated that *"Now I had to cope with all the shit around me"* in that he had to deal with the resentment of his family members which was one of the most difficult situations that he had to deal with. This in itself was one of Participant 1's high-risk situations in that he had to develop an effective coping response to situations as these for the purpose of remaining abstinent and decreasing the probability to relapse. Participant 2 had a different perspective to one of the high risk situations that she had to deal with:

P2: "Ok let me tell you this... on new year's, sorry, on new year's... I wouldn't drink ok, I wouldn't even take a sip of alcohol. Everyone, I was at a new year's party and everyone there was drunk. Everyone there was partying and I felt like an outsider, really badly and this would probably answer it... I felt like such an outsider because everyone was drinking and having a good time, cheering and having shots. And I would sit there and like lose it you know, like drinking my Tropica [juice] and whatever. You feel like shit, you feel sad, you feel excluded. "

Participant 2 relayed that she had to deal with a very difficult high-risk situation when she had made the decision to remain abstinent from the use of illicit substances such as heroin. She indicated that she was present at a New Year's Eve party where other individuals were making use of alcohol in order to have a good time. Seen as this particular time in the year was seen as a festive occasion that included the consumption of alcohol, Participant 2

was quite aware that she could not partake in the consumption of any illicit substance in order to remain abstinent from the use of heroin as she was dedicated to remaining abstinent from any illicit substance. She was aware that everyone else was having a good time by consuming alcohol, whereas, she had to avoid the consumption of alcohol and decided to rather consume juice. She indicated that she felt quite left out due to not consuming alcohol which made her feel like an outsider. Now this was quite a difficult situation for Participant 2 as she reported that due to her feeling of being segregated from the group due to refraining from consuming alcohol she could have given in and made use of alcohol in order to not feel excluded from the group. This would have led to her overstepping her boundaries of deciding to remain abstinent. In retrospect, she did in fact have the effective coping response to decline the use of alcohol which indicated that she had developed an effective coping response to what was a very seductive situation in consuming an illicit substance. She elaborated:

P2: "I was paranoid of people and this time, I just realised you know that this... I am sitting like this and I cannot partake with this and have a good time, even though I did. You know you feel excluded. The reason that I am in this position is that I did make the wrong choices."

She reflected on the reason why she did not partake in consuming alcohol was that she made the wrong choices in the days that she did in fact make use of illicit substances such as heroin in that she would always take the consumption of illicit substances further in that it led to the dependency of heroin. However, she still felt excluded from the group, yet despite this she was able to have a good time at the end of the day without consuming any form of illicit substance. This also indicates that she had developed an effective coping response in that she deviated from making use of alcohol. A similar situation was experienced by Participant 4 in that he indicated the following:

P4: "I had a good December and Christmas and everything, not because of the pill, but, because I felt the whole time that... even in shit situations, where I was sitting around the braai and my family was having a fight, I was still like happy."

Participant 4 had gone away with his family where the consumption of alcohol occurred. He indicated that his family would have a fight and that usually he would use this as an excuse to make use of heroin. After the aid of the naltrexone pellet implant and undergoing psychological support he was able to deal with this particular high-risk situation in that he indicated that even though his family was having a fight he was still able to sit there and be happy regardless of the situation around him. This indicated that Participant 3 had

developed an effective coping response to his high-risk situations which then increased his self-efficacy and, eventually, led to the decreased probability of a relapse occurring.

In the current study, the participants verbalised that they had faced various high-risk situations during the process of making use of the naltrexone pellet implant in that it supported them in being able to work on psychological aspects related to heroin dependency. Through the development of an effective coping response and the ability to face a high-risk situation, these individuals felt more confident in themselves which speaks to their increased self-efficacy in which they were able to have control over their environments and maintain their decision to remain abstinent from the use of heroin.

4.8 Conclusion

This particular study provides information from four heroin dependent individuals that made use of the naltrexone pellet implant, within the South African context. The researcher identified five superordinate themes relating to these participants' subjective experiences with regards to the use of the naltrexone pellet implant as an aid for relapse prevention from heroin use. These Superordinate themes consisted of life before the use of the naltrexone pellet implant, giving naltrexone pellet implant a chance, physical experiences of the use of the naltrexone pellet implant, naltrexone pellet implant as an aid for relapse prevention and psychological aspects related to the use of the naltrexone pellet implant. The researcher made use of interpersonal communication with the participants in this particular study, including dialoguing with these particular participants together with member checking in order to interpret the double hermeneutic perspective to the specific paradigmatic perspective of interpretative phenomenology used in this study. This allowed for clarification on certain quotes made by participants in order to interpret the experiences that these participants lived through when making use of the naltrexone pellet implant as an aid to remaining abstinent from the use of heroin.

The researcher collaborated with various professionals in the field of research methodology, specifically those that specialised in the field of phenomenological analysis in order to design the analytical framework for this specific study. Through an iterative process of interpretative phenomenological analysis and brainstorming the researcher was able to create an integrated process of clustering a vast amount of information to developing an analysis that would be readily available to an audience to follow the process of analysis in making sense of the study at hand. The researcher ensured to follow all the necessary steps

involved in interpretative phenomenological analysis in constantly being aware of the research question, paradigmatic approach as well as the contextual theory at hand when the analysis was conducted, this allowed for the researcher to be confident enough in answering the research question at hand. In order to maintain the authenticity of the participants' accounts of the topic at hand, the researcher decided to use narrative which was personally extracted from the transcripts and integrated the findings as well as the discussion sections by way of academic justification emanating from this study to form one coherent chapter. The chapter following will discuss the conclusion made from the current study conducted which will be followed by the limitations in the current study together with some of the recommendations made by the researcher.

CHAPTER 5: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights some of the important findings related to the subjective experiences and perceptions of heroin dependent individuals that made use of the naltrexone pellet implant as an aid for relapse prevention. This chapter will present the conclusion, limitations of the current study and recommendations for the treatment and further research studies within the field of heroin dependency.

5.2 Summary and Conclusion of Study

Heroin use and dependency continues to be a growing problem within South Africa across many sites, associated with this are the problematic health consequences related to the use of this particular illicit substance and the administration thereof (Plüddemann et al., 2013). These consequences ranges from dealing with infectious diseases due to the unhealthy sharing of needles when heroin is administered to the vast psychological modalities linked to the use and dependency to heroin that is inclusive but not limited to the vicious cycle of illicit substance use, abuse and dependency, not to mention the high mortality rates due to heroin use, abuse and dependency (Darke, 2011; Gorman, 2007; Plüddemann et al., 2013).

It cannot be ignored that there are in fact various treatment facilities available to assist individuals who are finding it difficult to remain abstinent from the use, abuse and dependency to heroin, however, these facilities mainly adhere to customary practices in the treatment process of heroin dependency. These customary practices are limited to three main alternatives that include detoxification that would be followed with long-term residential treatment and opioid maintenance treatments such as the use of methadone, suboxone and subutex just to mention as few (Kunøe et al., 2012).

Opioid maintenance treatments are agonist medications or medically dispensed heroin that are administered under controlled supervision and is seen as substituting or maintaining dependence on heroin. The opioid maintenance treatment has been found successful in reducing mortality, morbidity and drug-related criminal activity, however, there are concerns around the dropout rate during the initial months of treatment and that only a minority of these patients are able to achieve normal vocational and social functioning (Verthein et al., 2008). Therefore, constant dropout and failure to remain abstinent from the use of heroin

creates great concern regarding relapse rates of individuals attempting to remain abstinent from the use of heroin.

Relapse tends to be one of the most problematic areas to the recovery process of abstinence to Opioid Use Disorder. As a fundamental feature of the dependence to illicit substances after short or even prolonged periods of abstinence, it still remains as problematic as the idea of addiction and dependence (Giuliano et al., 2013). It has been determined that approximately 40% to 60% of individuals that suffer from some sort of substance use disorder tend to return to substance use within one year of treatment. In a study of relapse among heroin users after residential treatment Gossop (2002) *et al.* found that one third (34%) of the sample used heroin within 3 days of leaving treatment, 24% used within 7 days of treatment and 50% used within 14 days after leaving treatment. After just 30 days after leaving treatment 57% of the sample of 145 individuals had used again. Understanding the process of relapse is central to treatment of addictive disorders and can help clinicians and their clients to intervene in the process to guard against relapse or to reduce the severity or length of relapse (Brownell et al., 1986).

One particular theory and also one of the most prominent among psychological models is the cognitive behavioural approach that looks at relapse and addictive behaviour from a contemporary basis, including factors such as high-risk situations that may have an influence on the relapse process as a whole (Marlatt & Gordon, 1985b).

The relapse prevention model proposed by Marlatt and Gordon (1985b) formed the basis of the contextual theory that was used in this particular study. This particular theoretical framework consists of a cognitive-behavioural approach to the relapse process that focus on the high-risk situation and how the individual recovering from substance use tends to respond to the high-risk situation. If the individual does not have an effective coping response or some form of confidence in order to deal with the high-risk situation, the probability for them to give in to temptation would be high. The individual's decision to make use of a substance or stay abstinent is then mediated by their outcome expectancies for the effect of the use of the substance. Individuals that tend to make use of a substance may be susceptible to the abstinence violation effect which causes self-blame and the sense of loss of control over the use of a substance. This may then result in the increased probability to make use of a substance and therefore increase the probability of a full-blown relapse. However, if the individual posits an effective coping response towards high-risk situations through means of an increased or higher self-efficacy, the probability of the occurrence of a full-blown relapse

is lessened. A more comprehensive description of this particular theoretical concept was discussed in Chapter 2.

Due to the limitations of alternative treatment modalities, high relapse rates and poor social readjustment possibilities when it comes to the use, abuse and dependency of heroin, these individuals may go to many lengths in order to deal with their dependent lifestyle. For these individuals to be able to deal with the psychological factors related to heroin dependency, they should be able to find a way to deal with the physical factors related to heroin dependency (Dos Santos et al., 2010). Due to the limitations of valid information regarding alternative forms of treatment for heroin dependency the researcher decided to investigate this alternative form of treatment to the use, abuse and dependency to heroin through focusing on the aspect of relapse prevention and the use of the naltrexone pellet implant as an aid to remaining abstinent within the south African context.

Naltrexone, also known as naltrexone hydrochloride is sold under the trade names Revia, Depade or Vivitrol is a highly specific, non-addictive μ -opioid receptor antagonist which has a high attraction and combines to all opiate receptor sites. These receptor sites are involved with the development of opioid addiction, so the naltrexone will be the mechanism of action for the management of opioid addiction (Ling et al., 2011). This implies that it tends to attenuate or completely block the effects of exogenous opioids such as heroin, which causes the blocking of the euphoric and physiological effects of opioids which in return displace the euphoric effect of opioids when ingested by the human body (Kjome & Moeller, 2011; Tucker & Ritter, 2000). This potent antagonist has shown to have valuable properties for the effective treatment of the addiction to opioids such as heroin and agonist medications such as methadone. Naltrexone was originally developed and distributed in tablet format, however, due to low-compliance of the oral naltrexone tablets that are taken daily or bi-daily it has failed to show pre-eminence over its placebo, which was evident in rapid dropout and low retention rate in the active naltrexone group (Minozzi et al., 2011). This non-compliance is often associated with individuals that withdrew from the treatment process and returned to the use of heroin. Even individuals who have made progress with the oral format tend to relapse periodically (Hulse et al., 2004). Due to the lack of success with compliance and discontinuation typical of oral naltrexone format, research efforts were employed in order to develop a Sustained Release Naltrexone formulation (SRX) which will enabled the decreasing the problem of compliance that would essentially reduce the amount of dropout opportunities in human subjects. This removed the onus from patients to use daily oral

naltrexone (Kjome & Moeller, 2011). The oral format of naltrexone have shown great success in the treatment of heroin dependency in aiding with relapse prevention from heroin use (Hulse et al., 2004; Kjome & Moeller, 2011; Kunøe et al., 2012; Larney et al., 2014; Tiihonen et al., 2012). Due to the limitation of availability of the naltrexone pellet implant within the South African context, the researcher was quite interested to explore this particular topic in order to determine the individuals' subjective experiences and perceptions of the use of the naltrexone pellet implant in aiding them with the relapse prevention process in order to remain abstinent to the use of heroin (Weich, 2010).

This study adopted the Interpretative Phenomenological Analysis (IPA) paradigmatic approach that is deeply rooted in phenomenology and the hermeneutic school of thought (Smith et al., 2009). IPA allows for the interpretations of the research participants' subjective experiences by the researcher that can be viewed as a key strength of the approach, in that it facilitates an understanding of the participants' life worlds. One of the flaws in this regard would be the misinterpretation of the participants' world perspective. Therefore the researcher ensured to establish rapport with the participants within this particular study by means of member checking as to ensure trustworthiness of this particular study. After the analysis was complete, the researcher ensured to return to the participants in order to ensure that the themes that were extrapolated from the interviews were a reasonable reflection of their responses (Goldblatt, Karnieli-Miller, & Neumann, 2011). It was found that there was a general agreement among the participants that the themes that arose from this particular study represented a true reflection of their experiences of the use of the naltrexone pellet implant as an aid for relapse prevention from heroin use and dependency.

This particular study was conducted in order to answer the overall research question: 'What are the subjective experiences and perceptions of individuals who made use of the naltrexone maintenance therapy with pellet implantations as an aid for relapse prevention from heroin use and dependency?' The aim concerned with this particular research question was to gain a better understanding of these participants' subjective experiences and perceptions with the use of this particular alternative form of treatment in order to remain abstinent from the use of heroin. This was explored in order to form a platform of understanding the experiences that people go through when making use of the naltrexone pellet implant as an alternative form of recovery. The findings within this particular study was determined through a collation of keeping in mind some of the key components related to conducting a research study which included keeping in mind the contextual theory,

paradigmatic approach, research aim, research question and purpose of this particular study in mind when the analysis, findings and discussion process occurred in this particular study.

The analysis process of this particular study presented five superordinate themes together with twenty four subordinate themes. This analytical process made use of the IPA method in order to present the subjective worldview of the participants in this particular study. The first theme in this study found that the participants indicated that there was a life before the use of the naltrexone pellet implant. It indicated that none of these participants started off making use of heroin and that they had experimented with various other substances before they became dependent to heroin. These participants found themselves involved with criminal activities in that they had to steal, lie and cheat in order to buy or get hold of their next fix. Numerous failed attempts in remaining abstinent from the use of heroin were experienced by these participants in that none of the general treatment modalities such as detoxification, rehabilitation and opioid maintenance assisted them in remaining abstinent from the use of heroin. Shortly, after being discharged from rehabilitation centres, the participants found that they were even more tempted to make use of heroin than before they were admitted for treatment. Some of the participants in this study made use of agonist medications for the treatment of heroin dependency such as methadone to get high, thus creating a vicious cycle of opioid use. It was found that heroin use became part of their daily functioning.

Due to a strong will to remain abstinent to the use of heroin, the participants shared that they had made the decision to giving the naltrexone pellet implant a chance seen as this was their last resort to remaining abstinent. Their initial thoughts regarding the naltrexone pellet implant included that this particular aid was part of a hoax and that it seemed quite impossible to believe that this could act as a 'silver bullet' in order to rid them from their dependency to the use of heroin. However, these participants feared the use of the naltrexone pellet implant due to being informed that about the dangers of overdose when making use of heroin after the implant was inserted. Furthermore, they experienced some fear with regards of being able to stop making use of heroin in that they might not experience the euphoric effect they were so use to during their dependence.

Furthermore, participants experienced a vast amount of physical symptoms once the naltrexone pellet implant was inserted. One particular experience that stood out for these participants was the memory of the detoxification process that they had to endure before the naltrexone pellet implant was to be inserted in order to avoid severe withdrawals. Following

the detoxification, the participants recalled the memory of them experiencing some anxiety and nervousness in the physician's office minutes before the naltrexone pellet implant had to be inserted. This anxiety was mainly the fear of making use of an unknown aid in the attempt to remain abstinent from the use of heroin together with the inability to make use of heroin once the implant was inserted. Moreover, one of the most recalled memories regarding the experiences shortly after the insertion of the naltrexone pellet implant was the 'sickness' that these individuals experienced due to severe withdrawals. These severe withdrawals were experienced, mainly, by participants that made use of heroin, shortly before receiving the naltrexone pellet implant.

One of the core superordinate themes to this study is the use of the naltrexone pellet implant as an aid for relapse prevention in that participants indicated that the use of the naltrexone pellet implant was not a cure but rather an aid to the recovery process of heroin dependency. This was due to them indicating that one needed to make use of psychological intervention modalities together with the use of the naltrexone pellet implant in order to approach the problem of heroin dependency in a holistic manner.

The use of the naltrexone pellet implant acted as an aid to the recovery process in that its use decreased cravings and obsessions to heroin use due to the nature of the pharmacological modalities of the naltrexone pellet implant. The naltrexone pellet implant works specifically on blocking the opioid receptor sites which has an impact on the dopaminergic neurotransmitter system in that it has a direct effect on the cravings and obsessions regarding heroin use (Kjome & Moeller, 2011). This led the participants to focus on dealing with the psychological aspects of heroin dependency in that the cravings and constant obsessions gave way to focusing on counselling modalities in order to rid them of their dependent behaviour. Furthermore, it was indicated that these individuals experienced a sense of increased self-efficacy when they made use of the naltrexone pellet implant due to being able to take control of their emotional and environmental conditions in the abstinence of heroin use. This is interlinked with the relapse prevention model presented by Witkiewitz and Marlatt (2004), in that the probability of a relapse occurring will decrease once the individual has developed an effective coping response together with an increased sense of self-efficacy.

It was evident in these individuals' experience that the use of the naltrexone pellet implant did in fact aid them in remaining abstinent from the use of heroin in that once they were faced with a high risk situation, that they were able to remain abstinent due to the aid of

the naltrexone pellet implant that eliminated the craving and obsessions together with the development of effective coping responses and an increased sense of self-efficacy even though they were still very aware of their personal high-risk situations.

These participants indicated that various high-risk situations were evident during the use of the naltrexone pellet implant as an aid for relapse prevention of heroin use, however they were able to control these situations. There were some indications from these participants regarding making use or thinking of making use of heroin whilst making use of the naltrexone pellet implant. Some participants did indicate that they had attempted to make use of heroin while on the naltrexone pellet implant in which they indicated that the heroin had no euphoric effect on them. Thus, the use of the naltrexone pellet implant assisted them by means of not being able to experience the euphoria created by heroin use in that there was no more short-term outcome expectancies, therefore they experienced no value of making use of heroin whilst on the naltrexone pellet implant. Moreover, these participants indicated that there would be a time that they would have to cease the use of the naltrexone pellet implant seen as they would not like to be using the naltrexone pellet implant for the rest of their abstinent lifetime. This indicated that they felt confident enough to remain clean from any aid with regards to sustaining their abstinence from heroin use.

Furthermore, it was found that there was a psychological component to the findings of making use of the naltrexone pellet implant as an aid to relapse prevention from heroin use. The use of the naltrexone pellet implant enabled the participants to face their high-risk situations whilst in society, they recalled that the naltrexone pellet implant was more effective due to the ability to recovery whilst in society when facing their high-risk situations. This was due to many failed attempts in making use of the general treatment modalities made available for them in the current South African context such as detoxification, admission to rehabilitation centres and opioid maintenance. In this, they indicated that relapse occurred shortly after being released from the rehabilitation centres. They indicated that this is due to the rehabilitation facilities creating a safe haven with strict rules, emotional support, supervision and the lack of illicit substances made available due to the enclosed space of a rehabilitation centre. This highlights the necessity of counselling modalities to the recovery process when making use of the naltrexone pellet implant even when recovering within society.

In order to conclude, it was found that the use of the naltrexone pellet implant as an aid for relapse prevention to heroin use and dependency had various positive components

related to remaining abstinent. It was found that the naltrexone pellet implant as a particular aid or treatment method was experienced positively in a sense that these individuals found it beneficial to make use of the naltrexone pellet implant in remaining abstinent from the use of heroin.

In perspective to the contextual theory of relapse prevention the use of the naltrexone pellet implant as an aid to relapse prevention from heroin use for these participants indicated an increase of self-efficacy through the development of effective coping responses to high-risk situations (Marlatt & Gordon, 1985b). Therefore the use of the naltrexone pellet implant as an aid to the recovery process of heroin use and dependency and indicating the decreasing probability of a relapse from occurring when these participants are faced with high-risk situations whilst recovering in society, is confirmed. This brought the researcher to consider various limitations regarding this particular study which will be discussed.

5.3 Limitations of the Study

The purpose of this study was to explore the subjective experiences and perceptions of heroin dependent individuals making use of the naltrexone pellet implant as an aid to relapse prevention from heroin use. The researcher is aware that the participants did in fact discuss their experiences with follow-up implants and the process of remaining abstinent during this period. This section describes the limitations associated with the study at hand.

One of the limitations regarding this study is that of the recruitment of participants. The researcher did in fact experience difficulty in recruiting participants in Gauteng due to the limitations of the availability of the naltrexone implant and the process that needs to be followed in order for the individual that needs to receive the implant such as the Section 120 of the MCC. Furthermore, this study found that the participants were quite hesitant to speak about their experiences with the use of the naltrexone pellet implant as an aid for relapse prevention. It was found that these potential participants were not psychologically ready to speak about their experiences in that they were in a process of recovery and would not want to reflect on past experiences with the use and dependency to heroin.

The costliness of the naltrexone implant may also be a factor to explain the limited number of individuals making use of this form of treatment. Therefore the sample size of this particular study poses limitations in terms of representivity as the researcher recruited four participants. However, Smith et al (2009) indicates that even a small sample size of three participants could be sufficient for a qualitative study.

The majority of the sample selected for the participation of the study seemed to be more dependent on illicit substances that are not related to this study - such as cocaine, methamphetamine, ecstasy, CAT and so forth. And this study specifically aimed to explore individuals that's main substance in abuse is heroin. It was noted that the participant in this study did however have a polydrug use nature where they did not just make use of heroin but also tended to make use of other substances with the use of heroin. The limitation related to this is due to the assumption that naltrexone was most effective for the treatment of heroin dependency due to its neurobiological properties and its effect of blocking the opioid receptor sites. However, it should be noted that the researcher did in fact adjust and adapt the interview schedule before conducting the interviews with the participants in this study in order to focus on the use of heroin specifically.

Although the researcher initially proposed to interview various professionals in the field of naltrexone maintenance therapy with pellet implantation, it was decided that due to the nature of this study, the researcher is interested in what the individual's subjective experiences were with regards to making use of naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention from heroin use. Therefore, interviewing the professionals in this particular setting would not deem appropriate as they might not have lived this experience themselves. The researcher is aware that these professionals might have vast knowledge in this particular field and that they might have contributed in this study. However, due to the nature of enquiry it is not deemed necessary.

5.4 Recommendations for Future Research

As much as this study produced an exploration of the use of the naltrexone pellet implant as an aid for relapse prevention from heroin, the researcher have a few recommendations for future research related to this field of study.

It would be worthwhile to investigate these individuals' experience regarding ceasing the use of the naltrexone once they have gone through the therapeutic process in more detail. This is to elaborate or to explore the process in order to indicate if these participants will be willing to let go of the use of naltrexone and not going for additional implants from the standard three implants recommended by healthcare professionals. Exploring this component may open up the subsequent factors related to ceasing the use of naltrexone. It was found in this study that the participants feared being off the naltrexone pellet implant because they

feared relapsing again. It might also be that these individuals felt the naltrexone pellet implant was a safe haven for them in remaining abstinent.

The development of an adjunct naltrexone implant therapeutic process (counselling aspect) should be implemented and measured, this will aid the psychological aspect to remaining abstinent from illicit substances. Due to the nature of how naltrexone is available in the South African context, including the limited availability of naltrexone, it can be seen as an outpatient treatment method. Therefore, a step-by-step guide to the recovery process with the use of the naltrexone pellet implantation should be investigated and developed for these particular individuals making use of this alternative treatment modality. Furthermore, this will encourage the ceasing process of naltrexone implant therapy as to including a section whereby the individual should go through a process of 'letting go' of the naltrexone implant that may be a difficult task to accomplish due to the evidence found in the participants within this particular study.

Furthermore, an investigation of the counselling programme followed by the naltrexone support group should be conducted in order to determine its effectiveness with the support of the naltrexone pellet implant that was created by Participant 1. Seen as the counselling aspect to the recovery process was regarded as key by participants to remaining abstinent the researcher felt that this in itself could be a very important aspect to investigate.

Lastly, the researcher felt that the exploration of the naltrexone pellet implant should be investigated by a sample of participants that made use of various other substances besides heroin, in that the main illicit substance of abuse and dependence should be of another group of illicit substances besides that of the opioid group. This is to determine whether or not participants will have a similar experience as this particular study. If not, what would be some of the similarities and differences to this particular study? Finally, the researcher recommends that a similar study should be conducted on a larger representative sample, across the country or different contexts, in order to determine their lived experiences with the use of the naltrexone pellet implant as an aid for relapse prevention from heroin dependency.

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APPENDICES

Appendix A: Consent Form

INFORMED CONSENT FORM FOR PARTICIPATION IN RESEARCH STUDY

Research topic:

Naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention of heroin dependent individuals: a South African perspective.

Description of the research that you will be involved in

You are invited to participate in a research study conducted by Hugo Denton van der Walt in fulfilment of a MA (psychology) in Research Consultation degree, Department of Psychology, University of South Africa. The focus of the study would be to explore and understand the subjective experiences of heroin dependent individuals regarding the naltrexone implants as an aid for relapse prevention from heroin use.

Your participation will involve an interview which will be recorded. The reason for recording the interview is that the researcher would be able to transcribe and analyse the data in depth, which will result in more detailed data for the purpose of this study.

Risks and discomforts

There are no physical risks involved in conducting the research. Although there might be some topics that will be discussed during the interview that might be sensitive to the participant or that may cause emotional discomfort. This will be noted by the researcher and the necessary precautions will be applied in order to avoid any harm.

Potential benefits

Your participation in this research study would contribute towards understanding and helping other individuals struggling with the use of certain substances. Your participation may contribute towards the use of naltrexone as a viable aid in the treatment process for substance use disorders. Note that this study does not involve monetary compensation for participating.

Protection of confidentiality

Your name and personal details will not be mentioned within this study, you will be referred to by a pseudonym in order to protect personal information about yourself. The audio recording of the interview will be transcribed and stored in a safe place so that no one outside of the study would have access to this recording, after three years on completion of the study, all raw data will be destroyed. Note: that only the researcher and his supervisor will be able to have access the recording and the transcripts.

Voluntary participation

Your participation in this research study is voluntary. This means that you have the right to choose whether you want to partake within this study, and that you may withdraw your consent to participate at any stage during the interview process. You will not be penalized in any way if you decide that you no longer want to participate or withdraw in the interview process.

Contact information

If you have any questions or concerns regarding the interview process and the study or if any problems arise from this study- please feel free to contact the researcher, Hugo van der Walt at 072 958 6383, or study supervisor, Prof. Monika dos Santos, Psychology Department, University of South Africa, Email: dsantmml@unisa.ac.za. Tel: 012 429 8577.

I, (name and surname) _____ have read this consent form and have been given the opportunity to ask questions. I give my consent to participate in this study.

Participant's signature: _____

Date: _____

Witness: _____

Date: _____

Appendix B: Interview Schedule

INTERVIEW SCHEDULE

Topic: Naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention of heroin dependent individuals: a South African perspective.

You are hereby requested to partake in the proposed study mentioned above, in fulfilment of a MA Psychology (Research consultation) degree, Department of Applied Psychology, University of South Africa. This study aims to explore the use of naltrexone maintenance therapy with pellet implantations as a suitable option in aiding individuals who suffer from heroin addiction. To gain a better understanding of the subjective experiences of individuals who receive naltrexone maintenance therapy with pellet implantation in preventing relapse and maintaining abstinence from the abuse of heroin.

The interviews that will be conducted in this proposed study will be audio-recorded in order to be analysed and reviewed. All the information that you will contribute towards this interview will be kept confidential. You will be identified by a pseudonym or another name of your choice in order to stay anonymous. The duration of the interview would not exceed one hour.

The participant has the right to ask for a copy of the result of the final study, or a copy of the research proposal. This should be requested by the researcher, Hugo van der Walt, which can be contacted on 072 958 6383, or e-mail the researcher at: hugovanderwalt@yahoo.com

If you have any questions or concerns about this study, or should any problem arise as a result of the study, please feel free to contact the researcher.

Also feel free to contact the supervisor:

Prof. Monika dos Santos, Psychology Department, University of South Africa, Email: dsantmml@unisa.ac.za. Tel: 012 429 8577.

Discussion guide - Information

Research topic	Naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention of heroin dependent individuals: a South African perspective
Course	Masters in Research Consultation 2014
Student name	Hugo van der Walt
Student number	44715927
Student contact details	072 958 6383 hugovanderwalt@yahoo.com
Supervisor name	Prof. Monika dos Santos
Supervisor contact details	Tel: 012 429 8577 dsantmml@unisa.ac.za.
Department	Psychology Dept. Human Sciences
Institution	UNISA
Research participant	
Date of interview	
Time of interview	
Location of interview	

Participant contact details	
------------------------------------	--

Introduction

Hello, my name is Hugo van der Walt, thanks you for agreeing to participate in the study. As previously mentioned, I am conducting an academic study in order to complete my Master's degree in Research Consultation.

Please take note that your identity and the data being collected will remain anonymous at all times during the conduction of this study. I want you to know that this is a safe environment where you would not be judged about the information that is gathered. This study is about exploring what your experiences were, from your perspective, during the use of naltrexone as an aid for relapse prevention. I want you to please be as honest as possible about the answers that you give me in this interview.

Any questions before we start?

MAIN INTERVIEW QUESTION:

What are your personal experiences with the use of naltrexone maintenance therapy with the pellet implantation with regards to relapse prevention, and to aid you in the recovery process of heroin dependency?

Discussion guide

A. BIOGRAPHIC INFORMATION:

AGE: _____ GENDER _____ RACE _____

B. INTERVIEW QUESTIONS:

This interview will start of by focusing on your experiences with the use of heroin before you decided to make use of naltrexone, whereby we will then be moving on to exploring your experience during the use of naltrexone. And we will then be ending of with what your future perspective would be regarding the use of naltrexone.

Just to clarify, did you in fact have a problem with heroin use specifically?

1. Past experiences:**1.1 Could you tell me about your experiences of the use of heroin?**

- When did you first start using heroin?
- How long have you used heroin?
- Why did you use heroin? (the actual factors associated with its use)(Outcome expectancies)
- Was there a time that you decided to stop using and seek help?
- Rehabilitation centers, medication, counselling etc.
- Why did you make use of these forms of recovery?
- Were you then motivated to stop using heroin? And why?
- Were there any “triggers” that caused you to make use of heroin after trying to remain clean? And what were they? (Physical, emotional, social)

- Were you able to “bounce back” from using again? And what influenced your decision to do so/or not being able to do so?

2. During the use of naltrexone (We will now be discussing the process of making use of the naltrexone implant, so during the use of naltrexone)

2.1 How did you find out about the naltrexone pellet implant therapy?

- What did you think about this alternative form of recovery when you first found out about it?
- What led to your decision to make use of this form of treatment?

2.2 What did you experience during the first time that you received the naltrexone implant?

- What was the procedure like?
- Did you experience any side-effect of the use of naltrexone? If so, how did this influence your recovery process?
- What were some of the physical symptoms that you experienced during the use of naltrexone? (loss of cravings,
- Did you experience any withdrawal symptoms while on the naltrexone treatment? If so, how was it different from normal withdrawal symptoms when stopping the use of heroin? And did this have an impact on your road to recovery?
- What were some of the psychological symptoms that you experienced? (Mood, emotions)
- Have you made use of more than one implant since then? And why?

2.3 How did the naltrexone maintenance therapy with pellet implantation help you to remaining clean? (Avoid relapses from occurring)

- Throughout the process of making use of naltrexone implants did you experience any form of craving?
- How is this different from the usual cravings without the use of naltrexone?

- Did you ever try to use again when on naltrexone? And what did you experience when you used?
- If so, what led to your choice to use again? (High-risk situations)
- How did “using again” make you feel after you had the initial goal of remaining clean? (Abstinence violation effect)
- Did naltrexone help you “get back on the wagon” when you tried to use again? And how?
- Would you say that naltrexone helped you to avoid a relapse from heroin?

2.4 Did you undergo any form of counselling when you were making use of naltrexone? (Group meetings, personal counselling sessions etc.) (Self-efficacy)

- Why did you go for counseling?
- Did the use of naltrexone encourage you to seek psychological counselling? And Why?
- Do you think it is important to go for counselling when making use of naltrexone? Why so?
- How did the use of the naltrexone implant therapy affect your everyday life (for example: your emotions, thinking processes, behavior, and motivation to stay clean, social interactions with friend and family, relationships etc.)?
- Were there times when a social situation might have triggered you to use again while on naltrexone? (any conflict, social pressures, physical symptoms etc.)

2.5 How did the naltrexone therapy influence your road to recovery overall?

- Did it benefit you?
- Did it influence you negatively?

3. Future

3.1 Do you plan to get another implant? What are the reasons?

3.2 Would you recommend this treatment to other individuals that have difficulty remaining abstinent/clean? Why so?

3.3 Is there anything else you feel you would like to add regarding this subject?

End of interview

We have come to the end of the interview. Thank you very much for your time and participation. Are there any questions or concerns you might have that you would like clarity on or to discuss regarding the study?

Should you have any further queries regarding the study please feel free to contact me any time.

My contact details are hugovanderwalt@yahoo.com or 072 958 6383

Appendix C: Ethical Clearance Letter (UNISA)



Ethical Clearance for M/D students: Research on human participants

The Ethics Committee of the Department of Psychology at Unisa have evaluated this research proposal for a Higher Degree in Psychology in light of appropriate ethical requirements, with special reference to the requirements of the Code of Conduct for Psychologists of the HPCSA.

Student Name: Mr H D van der Walt **Student no.** 44715927
Supervisor: Dr M Dos Santos **Affiliation:** Dept. of Psychology, Unisa

Title of project:

Naltrexone maintenance therapy with pellet implantation as an aid for relapse prevention of heroin addicted individuals: a South African perspective

The application was approved by the departmental Ethics Committee on the understanding that –

- Because of the sensitivity of the information being sought and the fact that the participants come from a vulnerable population, it is required that all ethical principles related to informed consent, the right to withdraw, anonymity and confidentiality should be followed to the satisfaction of the supervisor;
- Any medical procedures must be conducted by and supervised by suitably qualified medical personnel;
- Referral services should be available if required.

Signed:

A handwritten signature in black ink, appearing to read "P Kruger".

Prof P Kruger
 [For the Ethics Committee]
 [Department of Psychology, Unisa]

Date: 20 August 2014

Appendix D: Confidentiality Clause of co-coder**CONFIDENTIALITY CLAUSE**

between

Monique Kock

and

Hugo van der Walt

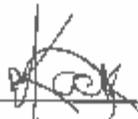
for the study exploring:

**NALTREXONE MAINTENANCE THERAPY WITH PELLET
IMPLANTATION AS AN AID FOR RELAPSE PREVENTION OF HEROIN
DEPENDENT INDIVIDUALS: A SOUTH AFRICAN PERSPECTIVE**

The research code of ethics mandates that confidentiality should be maintained throughout data collection, data analysis and report writing.

As a research consultant I understand that I have access to confidential information. By signing this statement, I am indicating my understanding of this responsibility and agree to the following:

- I understand that all information obtained or accessed by myself in the course of my work on this project is confidential. I agree not to divulge or otherwise make known to unauthorised persons any of this information, unless specifically authorised to do so.
- I understand that names and any other identifying information about study sites and participants are completely confidential.
- I agree to use the data safely for the purpose stipulated by the client.
- I agree to maintain the confidentiality of the data at all times and keep the data in a secure, password protected location.
- The data will be stored for a period of approximately three years for the client, after which time it will be deleted from the hard drive using secure delete applications which renders the file unrecoverable.


Signature

16-06-2016

Date

Appendix E: Co-coder certificate**THIS IS TO CERTIFY THAT**

Monique Kock, in my capacity as an independent Research Consultant, has co-coded the following qualitative data

for the study exploring:

**NALTREXONE MAINTENANCE THERAPY WITH
PELLET IMPLANTATION AS AN AID FOR RELAPSE
PREVENTION OF HEROIN DEPENDENT
INDIVIDUALS: A SOUTH AFRICAN PERSPECTIVE**

I declare that I have reached consensus with Hugo van der Walt on the major themes of the data during a consensus discussion.

Sign:



Date: 16-06-2016