

**PSYCHOSOCIAL PROFILE OF PERSONALITY TRAITS, SELF-REGULATION
AND SUBSTANCE ABUSE TENDENCIES OF ADOLESCENTS IN GAUTENG:
EFFICACY OF A COMPETENCY SKILLS PROGRAMME**

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“I have absolutely no pleasure in the stimulants in which I sometimes so madly indulge. It has not been in the pursuit of pleasure that I have periled life and reputation and reason. It has been the desperate attempt to escape from torturing memories, from a sense of insupportable loneliness and a dread of some strange impending doom.”

- Edgar Allan Poe -

DECLARATION

I, Ilze Barnard, hereby declare that this written research document is my own work. I have acknowledged content and concepts of various authors and provided an alphabetised reference list as required by the APA method of referencing.

Signed Ilze Barnard
Date November 2014

Promoter's Signature _____

Date _____

DEDICATION

I dedicate this thesis to my father and mother who have always believed in me.

ACKNOWLEDGMENTS

I would like to thank these individuals who have been instrumental in the achievement of this qualification and also in my life.

Most importantly my Heavenly Father who gave me strength and courage to complete this research project. *"I can do all things through Christ who strengthens me."* *Philippians 4:13.*

To my supervisor, Professor Idemudia, whose encouragement, kindness and insight taught me a great deal about research. I am thankful for your help and guidance.

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To my family, who through the years stood by me, believed in me, cried and celebrated with me. Thank you, Mommy, Daddy, Cobus and Liezl for always being there for me. Your involvement in my life is precious. Thank you, Cobus and Liezl, for helping me to put this document together.

ABSTRACT

Background: Using a 2-in-1 design approach, the study aimed to assess the relationship between substance abuse tendencies, self-regulation, personality and demographic attributes in the substance-abusing sample compared to a control group (Phase I) and empirically determine a competency skills intervention programme in Phase II.

Method: Eight hundred and ninety four ($n=894$) adolescents between the ages of 14 and 19 years randomly selected from urban, private and semi-rural high schools in Gauteng Province participated in the study (Phase I) and another pre-posttest group of 10 (Phase II) in addition to an existing pilot study conducted with 50 adolescents ($n=50$) to test the reliability and validity of the instruments for the study which included the Big Five Inventory, Self-Regulation Questionnaire (SRQ) and Adolescent Substance Abuse Subtle Screening Inventory (SASSI-A2). Statistical computations include: Means, skewness, t-tests, Chi-square, series of Analyses of Variance (ANOVA) and Analyses of Covariance (ANCOVA).

Results: Results in Phase I helped establish baseline data for adolescent substance abusers and non-abusers on the Big Five, SRQ, SASSI-A2 and demographic variables. Self-regulation was influenced by personality factors of extroversion and conscientiousness. Low self-regulation is a recipe for substance abuse among adolescents: Therefore adolescents with poor self-regulation, low conscientiousness and low openness will be more prone to abuse substances without realizing the impact of the abuse as well as lack of knowing that their behaviour is out of their control. ANCOVA results for Phase II did indicate that the effectiveness of the programme for the pre-posttest scores of the experimental group. In other

words, there was an improvement in self-regulation capacity and personality components, neuroticism, conscientiousness, openness and extraversion were altered noticeably.

Conclusions: Self-regulation interventions did help adolescent substance abusers in this study including emotional and behavioural control, planning and proactive coping. It is recommended that more research on the associations between self-regulation and adolescent substance abuse in the South African context be done as well as research on the impact of self-regulation as a concept in its own and its relationship with resilience. The need for good parenting was also recommended.

Keywords: Adolescent, Substance Abuse, Personality Traits, Demographic Attributes, Self-Regulation, Group Therapy, Competency Skills Programme, Conscientiousness, Agreeableness, Neuroticism, Openness

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LIST OF ABBREVIATIONS

BFI	-	Big Five Inventory
GSRS	-	Group Session Rating Scale
LSD	-	Lysergic acid diethylamide
MDA	-	Methylenedioxyamphetamine
MDMA	-	Methylenedioxymethamphetamine
MDP	-	Methylenedioxyphenylpropanone
SACENDU	-	South African Community Epidemiology Network on Drug Use
SASSI	-	Substance Abuse Subtle Screening Inventory
SES	-	Socio-Economic Status
SRQ	-	Self-Regulation Questionnaire
UNODC	-	United Nations Office on Drugs and Crime
WHO	-	World Health Organization

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CHAPTER 1

INTRODUCTION AND CONTEXTUAL BACKGROUND

1.1 Introduction

This chapter focuses on the contextual background of substance abuse and the impact thereof on adolescents. The rationale for the study, research problem, aims and objectives, as well as the theoretical and practical relevance of the study are presented in this chapter.

1.2 Background and Rationale

Substance abuse in South Africa is problematic due to the impact it has on an individual's health and psychological wellbeing (Statistics South Africa, 2014). This occurrence is not only a South African phenomenon, but its destructive consequences are seen internationally (United Nations Office on Drugs and Crime, 2012). Substances have been used throughout the centuries for medical, spiritual and recreational reasons. At the same time, substance use has been noted from Biblical times to Hippocrates, the latter providing detailed accounts of the effects of substances (Ellis, Stein, Thomas & Meintjies, 2012). The World Drugs Report for 2012 reports that 230 million people around the world - 1 in 20 of the world population - took illicit drugs in the last year (UNODC, 2012). The report also states that problem drug users, mostly heroin - and cocaine-dependent people, amount to about 27 million, which is roughly 0.6% of the world adult population. This is 1 in every 200 people (UNODC, 2012). The rise in substance use disorders is connected with an increased range of global and local negative results including risky sexual behaviours, sexually transmitted diseases, crime, violence, medical and psychiatric disorders and motor-vehicle accidents (Parry, Morojele, Saban, & Flisher, 2004).

According to the World Mental Health Survey (2005), South Africa has a very high incidence of substance abuse. South African results are amongst the highest documented in the world (Kessler, Chiu, Demler, Merikangas & Walters, 2005). Furthermore, the relationship between substance abuse and domestic violence and aggression in South Africa is of great concern (Gupta, Silverman, Hemenway, Acevedo-Garcia, Stein & Williams, 2008). Other factors that have influenced the rise in the prevalence of drug use in South Africa are not limited to, but include: poverty, growth in infrastructure, overpopulation, HIV, lack of familial support and lack of education (Statistics South Africa, 2014).

Illicit substance use research was virtually non-existent by the end of Apartheid (Rocha-Silva, de Miranda, & Erasmus, 1996). Previously research was solely focused on alcohol and tobacco consumption. The former president, Nelson Mandela, indicated alcohol and drug abuse as a problem that needed to be addressed (Mandela, 1994). The Drug Advisory Board (1999) noted a rise in substance abuse and revealed that the age that individuals began experimenting with substances dropped to adolescence. The age of the youngest substance abuser in South Africa has been documented as 8 years old (South African Community Epidemiology Network on Drug Use, 2013b). The cost of substance abuse to South Africa is estimated to be between R2.4 - R6.3 billion per annum (UNODC, 2009). The National Drug Master Plan indicated that substance abuse in South Africa results in injury and disability due to risky behaviour, premature deaths, poverty, reduced productivity and unemployment. It furthermore causes an increase in chronic diseases (E.g. Tuberculosis, HIV/AIDS), is prominent in substance-related crimes and results in having a very dysfunctional family life (Drug Advisory Board, 1999).

South Africa was comparatively secluded from international trade during Apartheid. Substance abuse in South Africa at this time was limited to locally available and produced substances. These substances included alcohol, tobacco and cannabis. In order to examine substance abuse in a South African context, one needs to understand the drug trade in relation to sanctions placed on South Africa during the Apartheid era (Peltzer, Ramalagan, Johnson & Phaswana-Mafuya, 2010). Sanctions hindered the availability of drugs in South Africa, as importation was virtually impossible, hence the use of certain illicit drugs was essentially absent (Peltzer et al., 2010).

Post-apartheid South Africa saw a rise in international trade, specifically during the 1990s and early 2000s. This period was marked by positive social and political transformation. However, research indicates that substance-related problems have increased since international trade was re-established. A definite increase has been noted in motor vehicle accidents, crime and violence where individuals were under the influence of substances.

There is a dearth of indigenous literature on substance abuse research particularly as it relates to the South-African society. The available data were obtained from the police by means of substance-related arrests and surveys at schools where substance use was monitored. Statistics from mortuaries added to the data available concerning substance-related deaths.

The South African Community Epidemiology Network on Drug Use (SACENDU) is now responsible for publishing substance-related studies. According to SACENDU (2013), alcohol remains the substance of choice to abuse whilst in adolescence, whilst cannabis is the most likely illicit drug used by adolescents. Adolescent males are seen to be

more prone to abuse substances. Racial differences are seen in the choice of substance which is abused.

SACENDU (2013), provides relevant and reliable data on substance abuse trends. However, very limited information is available and research studies conducted focused on the varied South African population. As an increasing share of society's resources is directed toward coping with substance abuse and its consequences, the need for sound, scientific information on the factors contributing to substance use is urgent. Aldous Huxley (1951) seemed to understand human desire to retreat from the harsh realities of life when he wrote: "That humanity at large will ever be able to dispense with Artificial Paradises seems very unlikely. Most men and women lead lives at the worst so painful, at best so monotonous, poor and limited, that the urge to escape, the longing to transcend themselves, if only for a few moments, is and always has been one of the principal appetites of the soul" (p. 56).

The initiation of substance use usually occurs during the critical period of entering adolescence (Ellis et al., 2012). This occurrence could be explained by the fact that adolescence is marked by a complex interplay of physical, social and psychological factors. Traditional substance preventative educational programmes have attempted to make adolescents aware of the dangers and costs involved in substance use in an attempt to decrease the prevalence of adolescent substance abuse. Botvin, Baker, Dusenbury, Botvin and Diaz (1995) conclusively indicated that the preventative substance abuse literature does not have a high success rate. In other words, it does not impact the adolescent enough to want to abstain from abusing substances, despite having knowledge of the associated risks.

Many adolescents experiment and engage in substance use activities due to the general acceptability and pressure put upon them by their peer group (Ellis et al., 2012). Consequently, adolescent substance abuse is an area that needs attention in South Africa as adolescents are still prone to engage in activities that might potentially be debilitating and risky. The media reports almost daily about drug-related crimes, overdose-related deaths and drug-related tragedies. These trends are not just seen in adulthood, but significantly more during adolescence (Ellis et al., 2012).

Substance abuse implies many risks for adolescents and society at large. Substance abuse includes alcohol and drug use, as well as addiction. Traffic accidents, risky sexual behaviour, juvenile delinquency, sub-par academic performance and developmental problems in the adolescent brain are among the effects and risks of substance abuse. Some of these effects can lead to death, or permanent injury or disability. Influences that impact development can potentially debilitate the functioning of the still developing brain that can have long-term consequences on the adolescents' ability to use sound reasoning, make good decisions and use proper judgement.

The Gateway Theory of substance abuse indicates that adolescents who experiment with and excessively use substances such as alcohol, or engage in cigarette smoking, are more likely to progress to illicit substances (Greydanus & Patel, 2005). Local and international studies indicate that there are psychological, environmental, social and physical influences in adolescence that impact their development (Brook, Morojele, Pahl & Brook, 2006; Parry, Morojele, Saban & Flisher, 2004). These factors or influences play a part in reaching the developmental milestone of adolescence, and the adolescent's susceptibility to use substances that influence their behaviour.

Research focusing on the psychometric profiles of abusers and non-abusers differ in their opinions why some adolescents use substances and others do not. The nature versus nurture debate is rife in relation to the understanding of what plays a principal role in the development and maintenance of adolescent substance abuse. According to the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994), two major types of substance-related problems are classified. These disorders include substance abuse (which is the usage of substances that lead to psychological, social and physical harm) and substance dependence. However, Martin and Winters (1998) point out that these classification systems have been developed with adult samples and have limitations when applied to adolescence.

Various local studies have investigated the factors that play a role in adolescent substance abuse (Brook et al., 2006; Flisher, Parry, Evans, Muller & Lombard, 2003; Gana, 2004; Parry et al., 2004; Swartz-Fillies, 2007; Visser & Routledge, 2007; Ward, 2008). Studies focusing on the various factors that impact the risk to develop a substance abuse problem are prominent (Flisher et al., 2003). These factors include individual as well as demographic factors. Ward et al. (2008) indicated that heightened levels of stress together with occupational stress are factors associated with substance abuse, whilst religious involvement provides a protective function against the development of substance abuse.

Gana (2004) indicated that the risk to develop a substance use problem is higher for adolescents within single-parent families, as well as for adolescents who are very closely attached to their adolescent peers. Swartz-Fillies (2007) concluded that adolescents, who perceive their family life as unstable or unsafe, are more likely to be at risk of developing a substance abuse problem. These strained familial environments can cause an adolescent to feel hopeless and despondent, thereby increasing feelings of depression. The focus on the

social-environmental relationship indicates that the development of substance usage during adolescence is more prominent if there is substance use or abuse in the family home (Parry et al., 2004). Adolescents with substance-abusing parents are more at risk to develop substance-abuse problems themselves, in comparison to adolescents whose parents do not have substance-abuse problems. South African studies indicate that adolescents who use substances are more likely to have parents who use substances. There is also a correlation between parenting styles and parental substance abuse. The relationships in the family home of non-substance abusers are more nurturing and conflict is handled more effectively (Brook et al., 2006). Visser and Routledge (2007) studied the connection between substance abuse and psychological health. Results indicate that adolescents with low levels of psychological health are more prone to turn to substance abuse, in relation to adolescents who are satisfied with life.

Adolescents experience various negative life events at much younger ages. These events include severe trauma, death of loved ones and violence (Holmes, 1995). As a result, it is of utmost importance to identify and develop the skills and factors that will assist in the safeguarding of adolescents from developing substance problems. Theories attempting to understand adolescent development largely focus on factors that might serve as risk or protective factors. These factors can influence the susceptibility of an adolescent to engage in risky behaviour. Adolescents with high levels of social competency are seen to be very resilient and self-efficacious.

Adolescents need to be protected from negative influences. Therefore, the understanding of social competence with regards to how it is developed, how it is preserved and how it can be optimally developed is important. Understanding of these core dimensions

can assist in helping adolescents to fulfil their full potential. Adolescents who adopt self-regulatory strategies do not engage in early substance use (Botvin & Griffin, 2001).

Less substance use later in life is associated with adolescents who have good competence skills and greater subsequent well-being. Resilience research indicates that competence skills have positive protective qualities. The greater the perceived psychological well-being in adolescents, the greater resilience is experienced. The focus of interventions should therefore be on promoting adolescent competency (Botvin & Griffin, 2001).

Research furthermore suggests that personal competence skills ultimately result in positive outcomes. Adolescents, who experience themselves and perceive themselves as competent, improve not only their self-esteem and self-confidence, but also their psychological well-being and mastering of developmental tasks efficiently and effectively. This in turn protects the adolescent from vulnerability, as well as from diverse influences that promote deviant behaviour (Botvin & Griffin, 2001).

1.3 Research Problem

Adolescent use and abuse of legal and illegal substances is problematic in South Africa (Morojele, Rich, Flisher & Myers, 2012). An increase in the availability of different substances is noted in conjunction with the increased manufacture of substances in South Africa. Cannabis, Methamphetamine, Crystal Methamphetamine (Tik), Heroin, Lysergic acid diethylamide (LSD), Ecstasy, Mandrax, Nyaope and Methacatinone (Khat) are among the locally manufactured substances (UNODC, 2009).

Substance usage has long- and short-term consequences for adolescents. The earlier usage is initiated, the greater the risk of development of a substance-related disorder or substance-related problems later in life (York, Welte, Hirsch, Hoffman & Barnes, 2004). The most severe consequence of substance abuse is death and disability from overdose (Jernigan, 2001), together with social, psychological, physical and mental problems. Reportedly, 3.6 million deaths globally among people between 15 and 29 years are substance related (Toumbourou, Stockwell, Neighbours, Marlatt, Sturge & Rehm, 2007). Of these statistics, 86% are due to hazardous alcohol use. Furthermore, Donson (2008) stated that substance use contributes most to intentional and unintentional injuries in South Africa. It has also been highlighted as the principal cause of death amongst South Africans. Substance use and abuse and the consequences thereof are seen in for example road traffic accidents, self-inflicted injuries and violence. In Johannesburg, Gauteng, 304 adolescents who died between 2001 and 2005 tested positive for alcohol (Swart, Seedat & Velemma, unpublished). Furthermore, the use of substances correlates with crime and violence among adolescents (Morojele & Brook, 2006).

Research has shown that a small number of adolescents are within the category of substance dependence and a larger proportion within the category of substance abuse (Fulkerson, Harrison & Beebe, 1999). Furthermore, another group of adolescents are within the category of experimentation or recreational substance use without manifesting visible problems (Martin & Winters, 1998). Estimated adult substance abuse rates in a South African study were as follows: 7% alcohol abuse, 15% alcohol dependence, 1% drug abuse and 3% drug dependence (Kleintjies, Flisher, Fick, Railoun, Lund, Molteno & Robertson, 2006). Kleintjies et al. (2006) furthermore stated that estimates for adolescents are lacking.

Studies on adolescent substance abuse highlight the fact that certain demographic factors are consistently associated with levels of substance use. A higher tendency to abuse alcohol and drugs is mostly associated with male adolescents and older adolescents, while black females are least likely to abuse any substances (Flisher, Parry, Evans, Muller & Lombard, 2003; Reddy, Resnicow, Omardien & Kambaran, 2007). Research studies show that substance abuse is associated with personality characteristics like impulsivity, aggression, low levels of constraint and rebelliousness (Swendsen, Conway, Rounsaville, & Merikangas, 2002; Elkins, McGue, Malone & Iacono, 2004). Poor social coping skills, low self-esteem, early aggressive behaviour and feelings of rejection and failure are among the individual risk factors for adolescent substance abuse (Ellis et al., 2012).

The public health approach to addressing substance abuse focuses on primary, secondary and tertiary prevention (Commission on Chronic Illness, 1957). This approach aims at preventing substance use, reducing substance usage of those already involved and treating substance abuse and dependence disorders. Primary sources of information on substance abuse among adolescents in South Africa focus on gaining information from sentinel surveillance (SACENDU, 2011; Parry et al., 2004), school-based surveys and household surveys. Information concerning trends of drug use is limited, as well as programmes attempting to help adolescents to delay or reduce abusing substances. Together with a lack of adolescent programmes in treatment facilities. Most rehabilitation centres treat adolescents with available adult programmes (Pluddemann, Dada, Williams, Bhana, Pereira, Carelsen et al., 2009). Adolescent specific treatment programmes are a new addition to the treatment system, but are still restricted according to Pluddemann et al. (2009). In South Africa the adolescent-specific programme centres treating adolescent substance abuse use adult-modelled programmes and treat adolescents together with adults (Fakier & Myers, 2008;

Louw, 2004). This is an area of great concern, as programmes developed for adults are neither appropriate nor effective for adolescents.

Behaviour and severity of the adult substance abuse presentation may negatively influence adolescents receiving treatment alongside adults (Ellis et al., 2012). Furthermore, the treatment needs of an adolescent on a developmental and intellectual level are different to those of an adult (Deas, Gray & Upadhyaya, 2008). This is due to the different levels of maturity, reasoning, planning, decision-making and judgement. Research has shown that adults are more capable of thinking about the consequences and weighing up the advantages and disadvantages prior to making a decision than adolescents (Halpern-Felsher & Cauffman, 2001). Doremus-Fitzwater, Varlinskaya and Spear (2010) postulate that adolescents process data differently from adults and are more sensitive to positive rewarding properties of substances and less sensitive to the aversive properties of substances. Therefore, it is of paramount importance that a programme is developed that is developmentally appropriate, integrated and based on sound clinical principles.

Most adolescent substance treatment programmes do not comply with evidence-based practices (Louw, 2004; Myers, Burnhams & Fakier, 2010). Most approaches follow life-skills or religion-oriented programmes in a drug-free environment and fail to address the core substance-related problems and prevention to relapse (Fakier & Meyers, 2008; Louw, 2004; Meyers & Fakier, 2007).

Research has identified that there is a link between negative life events which impact psychosocial functioning during the life span and an adolescent's predisposition to abuse substances. Developmental pathways are negatively impacted when adolescents abuse

substances during their formative years (Erikson, 1980; Jessor & Jessor, 1977; Bandura, 2000).

Hence, the current study took the initiative to develop and implement a competency skills programme that is developmentally appropriate and based on sound clinical principles to addresses the significant gap in the literature and allows for the provision of a programme for adolescent substance abusers. For the purpose of this study, the focus was on adolescents between the age of 14 and 19 years of age in Gauteng, South Africa. The abuse of alcohol and illegal substances (Mandrax, LSD, Cocaine, Heroin, Khat, Tik, Cannabis, Ecstasy, Nyaope, and Crystal Methamphetamine) was taken into account

1.4 Aims of the Research

This study aimed to assess and present the relationship between substance abuse, self-regulation, personality and demographic attributes in the substance-abusing sample in phase one in relation to the non-substance abusing sample. In phase two, an empirically determined competency skills development programme for adolescent substance abusers was created based on the findings in phase one. An analysis of literature provides evidence of a limited number of studies in the South African context focusing on the treatment of substance-abusing adolescents.

In consideration of the aforementioned findings, the present study completed a baseline assessment on the relationship between substance abuse, personality, demographic characteristics and self-regulation of substance-abusing adolescents in Gauteng, South Africa. Moreover, this study implemented a competence skills development programme on a selected group of substance-abusing adolescents from the information derived from the psychometric

profiles. The study used the baseline assessment data to empirically determine the competence skills development programme, which was based on the understanding of the behavioural characteristics of substance-abusing adolescents, self-regulation of substance abusers and the personality traits of substance-abusing adolescents.

1.5 Objectives of the Study

The specific objectives of the study included the following:

- Pilot study: To validate instruments for use in this study.
- Phase one: To establish baseline data for adolescent substance abuse and compare those with non-substance abusing adolescents on personality traits (NEO), self-regulation (SRQ), substance abuse (SASSI-A2) and demographic variables. Objectives include:
 - Investigating the relationship between adolescents' self-regulation and substance use among substance abusers and non-substance abusers.
 - Examining the relationship between personality profiles of adolescent substance abusers and non-substance abusers. Traits include neuroticism, extraversion, openness, agreeableness and conscientiousness.
 - Investigating the relationship between demographic factors and abuse among adolescent substance abusers and non-abusers.
 - Profiling adolescent substance abusers based on their self-regulation, personality and demographic data
- Phase two: Using the baseline information to empirically determine a competence skills development programme for adolescent substance abusers. Specific objectives include:
 - Developing a competence skills programme derived from the information in phase one.
 - Implementing and evaluating a competence skills development programme for substance abusing adolescents.

1.6 Relevance and Significance of the Study

The Department of Social Development (2006) aims to implement a holistic and affordable approach to reduce the availability and use of substances and to decrease the consequences of substance abuse in South Africa (Ellis et al., 2012). Five areas of focus were identified by the NDMP to assist in this quest, namely focusing on decreasing criminal activities, increased awareness of health and well-being in the community and assisting the youth of South Africa. This study is significant in that it will provide information and proposes a programme to assist adolescent substance abusers. This programme aims to equip adolescents with personal and social competence that promotes long-term psychological well-being. This study also holds significance as adolescents are currently treated with adult-modelled programmes and not developmentally appropriate programmes.

Considerable evidence points to substance abuse programmes and psychotherapeutic interventions as being effective in the treatment of individuals battling with a substance problem (Miller, 2009). Emsley (2001) postulated that providing treatment or intervention at an early stage of a substance abuse problem has the potential to prevent enormous disability. Furthermore, McGovern and Carroll (2003) indicated that counselling and therapies targeting behaviour carry an important component of an effective substance abuse treatment programme. The substance abuse recovery process is a long-term process (Miller, 2009; Moos, 2007).

Methodologically the new psychometric properties using South Africa adolescents for the validation would provide local norms which would be useful for future researchers in this area. With respect to clinical psychology practice the competency skills program developed

would form basics for use of this treatment approach thus improves the quality of life and psychological well-being of these adolescents.

1.7 Organisation of the Study

The thesis is organised in the following chapters:

Chapter 2: Operational Definitions of Concepts and Theoretical Framework. This chapter focuses on the different terms and concepts used in the study. Operational definitions of concepts and terminology is provided. The different theories that informed this research were also presented in detail.

Chapter 3: Literature Review. Chapter three serves to present the review of the relevant literature, deliberating on the prominent aspects significant to the study.

Chapter 4: Research Methodology. Chapter four explores the research methodology, including the rationale for employing the specified methodology used in the study.

Chapter 5: Results and Discussion of Results. Chapter five focuses on the results of the study and a discussion thereof. The merging of results with relevant literature provides an integrated account of the data obtained.

Chapter 6: Conclusion, strengths, limitations and recommendations. Chapter six focuses on the conclusion, strengths, limitations and recommendations of the study are also presented.

CHAPTER 2

OPERATIONAL DEFINITION OF CONCEPTS AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter focuses on the operational definition of different terms and concepts used in the study as well as the theoretical framework for the present research work.

2.2 Operational Definitions of Terms and Concepts

The following definitions include both conceptual definitions taken from relevant literature, as well as operational definitions that indicate how these constructs were measured in this study. McIntyre (2005) stated that an operational definition is an exact specification of how a particular variable will be measured. The following terms and definitions will provide insight into the chapters that follow:

Adolescence: This term refers to the period of maturation between childhood and adulthood (Sadock & Sadock, 2009) and is seen as the time frame between the ages of 12 and 19 years. It is also defined as a stage where decision making grows, relationships with peers deepen, independence is formed and intellect and social stimulation is desired (Sadock & Sadock, 2003). For the purpose of this study the adolescents were those between the ages of 12 and 19 years.

Identity: Erikson defines identity by indicating that it is not static and represents a self-image. Identity develops through experiences of the crises and contradictions which every individual has to overcome in order to grow to the next development phase.

Foreclosure: The adolescent has made a commitment without exploration of different identities (Marcia, 1976).

Moratorium: This is the phase in which an adolescent is pursuing and exploring different identities, but has not decided on a direction for his/her life. Identity moratorium is the status of individuals who are in the middle of a crisis, whose commitments are either absent or are only vaguely defined, yet are actively exploring alternatives (Marcia, 1980).

Identity Achievement: It is the indication that the adolescents have completed the process of exploring available options and have subsequently committed themselves to their identity after careful consideration (Marcia, 1980).

Identity Diffusion: It refers to the adolescent who has not yet made a clear decision in relation to committing to a specific developmental undertaking (Marcia, 1976). Identity diffusion is the status during which adolescents have not experienced any identity crisis yet. They have yet to explore meaningful alternatives and they have yet to make any commitments.

Identity Status: Marcia (1966) conceptualised identity statuses in terms of individual differences “as individual styles of coping with the psychosocial task of forming an ego identity” (p. 558). In this sense, the statuses represent different individual states or dispositions.

Problem Behaviour: Problem behaviours in adolescence include truancy, substance use, oppositional behaviour, problem drinking, violent acts and risky behaviours such as unprotected sex (Jessor, 1991).

Five Factor Model of Personality: This is a personality model consisting of five domains which aim to understand personality. These domains include neuroticism, openness to change, agreeableness, extraversion and conscientiousness (Costa & McCrae, 1992). Personality can also be defined as the encompassing psychological conceptualisation of a human being at any period in their life time. Personality contains the collective whole of character, thoughts, beliefs, traits, temperament, skill, intellectual capabilities, attitudes and much more that was obtained over time (Warren & Carmichael, 1930). The five domains of personality are measured with a 44 item inventory by Costa and McCrae (1995). A composite score on each sub-domain would represent how high or low the person is on the attribute measured by each sub-scale.

Demographic Attributes: The attributes included in this study are: age, race and gender of adolescents, the educational status and marital status of parents of adolescents, parental substance use, peer substance use, family mental illness and lastly cigarette smoking.

Self-Regulation: Self-regulation is the ability to decide on and execute behaviour in order to achieve an anticipated goal (Shah & Kruglanski, 2000). Self-regulation is also the capacity of an individual to change behaviour and to manage their emotions successfully (Baumeister & Vohs, 2007).

Social Competence: Social competence can be defined as a collection of positive and adaptive behaviours and abilities (Botvin, 1996). Programmes designed to enhance social competency often include educational information regarding improving health, as well as having a focus on life skills (Botvin, 1996; Danish, 1996). The focus of social competency is also to diminish problematic behaviour through preventative psycho-education. The goal of

social competence is to bring about the reduction of risky behaviours and in turn enhance the development of well-adjusted and healthy behaviour.

Substance: This refers to a drug of abuse, a medication, or a toxin (American Psychiatric Association, 2000).

Psychoactive drugs: These include a wide range of agents that alter an individual's mood and/or behaviour which are ingested to become intoxicated or high. The abuse of psychoactive drugs is associated with dependence and addiction. (Forsyth, Kelly, Fuse, & Barrios, 2005).

Substance Abuse: This concept refers to a maladaptive, patterned use of a substance in which the user consumes the substance in amounts or with methods condoned by medical professionals. Substance abuse often includes problems with impulse control and impulsivity. Fisher and Harrison (2009) defined substance abuse as the continued use of substances in spite of negative consequences. Substance abuse progresses to substance dependence. Abuse occurs when the use of any drug does not comply with the approved medical or social protocols (Sadock & Sadock, 2009).

Substance Dependence: Substance dependence is evident if an individual continues the usage of substances despite the negative consequences associated with their usage (DSMIV-TR, 2004). Repetitive and compulsive use increases tolerance and withdrawal symptoms which are evident when usage is terminated. Although addiction often starts with the "use" phase, dependency is often used interchangeably with addiction. Substance dependence is when a person has developed a tolerance for a particular substance (needing

increased amounts to experience the effects) and has withdrawal symptoms when not using the substance for a period of time. Dependency simply means that you would have a hard time living or functioning without the substance, and that either using or not using it causes significant distress. Fisher & Harrison (2009) defined dependence as the compulsive use of substances regardless of the consequences. The level of substance dependence is based on the physical effects, as well as on the constellation of behaviours occurring at a given time.

Behavioural Dependence: With “behavioural dependence, substance-seeking activities and related evidence of pathological use patterns are emphasized” (Sadock & Sadock, 2009, p. 381).

Physical Dependence: This refers to the physiological effects of the multiple uses of substances. It manifests as an altered physiological state (Sadock & Sadock, 2009).

Psychological Dependence: This term is often referred to as habituation and is characterised by either continuous or intermittent craving for the substance in order to avoid a dysphoric state (Sadock & Sadock, 2009).

Misuse: This applies to the improper use of medication prescribed by physicians and abuse of drugs (Sadock & Sadock, 2009).

Intoxication: The term is used to describe “a reversible non-dependent experience with a substance that produces impairment” (Sadock & Sadock, 2009, p. 381).

Withdrawal: The term is used to describe a substance-specific syndrome, which occurs after reducing the dose of the drug or substance used or stopping use completely after regular use over a period of time (Sadock & Sadock, 2009).

Tolerance: Tolerance develops through repeated administration of the drug or substance, where the given dose of drugs produces a decreased effect, or where increased doses must be administered to obtain the effects of the original dose (Sadock & Sadock, 2009).

2.3 Theoretical Framework

A theoretical framework is required to comprehend the cause of a phenomenon such as drug abuse in adolescence. A theory is simply an explanation for a general category of phenomena. The theoretical framework will discuss the relevant theories involved in the understanding and execution of the project. Substance abuse is conceptualised as a multifaceted problem that has roots in the social, environmental, physical and psychological domains of an adolescent (Arif & Westermeyer, 1988). A collective theory of substance abuse in adolescence that attempts to explain the phenomena must include; (1) the various categories of substances used together with the frequency of usage in order to fulfil the criteria for abuse, (2) the predictability in the abuse of various substances amongst different cultural or ethnic groups and for individuals from the same culture or ethnic group, and (3) the impact of social or peer groups on the commencement, maintenance and termination of substance abuse (Eddy et al. 1965). A theory that achieves this will also need to address other variables at play such as the impact of personality, social environment, cultural or ethnic background, genetic predisposition and familial relationships on the development of substance abuse.

2.3.1 Theories of Adolescence

Adolescence offers opportunities for growth, not only physically, but also in cognitive and social competence, autonomy, self-esteem and intimacy (Papalia, Olds & Feldman, 2009). The impact of external factors was identified by Erikson (1980) in his psychosocial theory of development. The factors contributing to substance abuse have been linked to parental input, the pressures of society and the development of personality.

2.3.1.1 Erik Erikson – *Psychosocial Theory of Development*

Erikson (1959) proposed and developed a theory to understand human development across the life span. Erikson expanded contemporary views of development by including an individual's social and cultural context and moved away from classic psychodynamic perspectives of development.

According to the psycho-social stages of development, every individual moves through a series of stages over the entire life cycle (Erikson, 1980). The eight stages are inter-related. During each stage, individuals face a core developmental conflict. The extent to which individuals succeed in resolving such a conflict determines the likelihood of transitioning smoothly to subsequent developmental tasks.

To illustrate this, Erikson's psychosocial theory specifically relates to identity development, as is illustrated in the first stage of development termed, "trust versus mistrust." This stage centres on the new born infant acquiring a stable representation of the world. In the earliest stages of life an infant is entirely dependent on his/her caregivers who provide food, warmth and respond to vocalisations of distress. As these initial experiences evolve over time, the quality of the caregiver-infant relationship becomes the infant's first mental representation

of the world. The infant gains an initial understanding of its “*self*” from this sense of mutuality, providing it with a basic sense of identity that is carefully sharpened through life experiences. The understanding of the “*self*” which is stored in memory provides a foundation of social interactions and will eventually guide the infant’s future. When caregivers respond to the infants’ vocalisations and provide the desired warmth, nourishment, and physical contact, infants develop stable and positive representations of the world. These initial cycles of learning provide a sense that the world can be trusted. However, infants whose basic needs are not met with regularity and comfort develop a sense of mistrust; one that eventually promotes anxiety, fussiness, and irritability. The lack of mutuality and the daily inconsistencies that abound between caregiver and infant eventually give way to feelings of hopelessness.

As important as the early stages in Erikson’s theory are to later development, this study focuses on the stage of identity versus role confusion, which Erikson characterises as the powerful crossroad that adolescents face in their journey to become mature adults. Adolescents begin to cross different paths in life and search for personal meaning. Major decisions that the youth face during this time centre on exploring and beginning to follow their educational and vocational ambitions. Many young individuals use their adolescent friendships as a springboard to lifelong friendships and to encounter their first experience with romantic attachments. The period marked by adolescent yearnings is also the start of a long process of devising a plan filled with wishes and desires that will help many young people fulfil their life’s dreams.

Hesse (1951) used his literary character, Siddhartha, to capture the never-ending cycle of human self-discovery that begins in adolescence and suggests that the major

accomplishments of this period centre on spiritual enlightenment and solving the “riddle of the self.” Through the process of formulating an identity, the youth poignantly asks, “Who am I?” and “Who will I be when I grow up?” These efforts are all part of the enduring search for self, which, according to Erikson, represents a critical developmental task. Considerable research suggests that the quest for identity is fuelled in part by massive biological and pubertal transformations (Susman & Dorn, 2009), cognitive growth (Lehalle, 2006) and increased social awareness (Brown & Larson, 2009). Whether viewed individually or collectively, these transformations lead adolescents to view themselves in unique ways.

The major task of the adolescent period, as well as of the transition to adulthood, is to weave together these contrasting psychological forces and construct a personal identity (Kroger, 2004). Whereas the psychosocial work of childhood rotates primarily around internalising parental and societal standards, adolescence involves rethinking these positions, developing new personal roles, testing new emotional and psychological boundaries, starting to formulate a life plan and the setting of individual goals (Meeus, van de Schoot, Keijsers, & Branje, 2012).

Erikson viewed identity as a continuum ranging from synthesis, or a set of self-determined ideals, to confusion, or an inability to derive a self-determined set of ideals, with the ideal identity located somewhere in the middle of these two end points (Schwartz, 2001). Individuals successfully resolving this stage could combine and integrate relevant earlier identifications into a unique personal sense of self, thereby arriving at a sense of coherence within their identity. Those who do not successfully resolve the identity crisis, remain in a state of role confusion where the individual is unwilling or unable to adhere to an amalgamated

moral and value system, belief system and set of objectives. Instead the adolescent jumps from one set of commitments to the next.

Up until the fifth stage, development and reaching developmental milestones depend on what an individual experiences directly. During this time frame and in this stage, adolescents, development shifts into a new direction where their development now depends primarily upon what they do. Adolescents battle to find their identity through the ebb and flow of social interactions and through the development of a moral compass indicating whether their decisions are right or wrong. Furthermore, adolescents battle to fit in as they themselves feel lost in their understanding of themselves.

Some adolescents attempt to delay maturing, moving into adulthood and taking adult responsibilities (Papalia et al., 2009). If an adolescent does not successfully complete this stage of development, he or she might experience disruptive behaviours and role confusion. Substance abuse, joining of cults and hate groups can possibly be a result of role confusion (Papalia et al., 2009). Adolescence is also known as a time during which adolescents develop strong connections and attachments to the goals and ideas of their friends.

Familial conflict, depression, and risky behaviours are more common during adolescence than during any other parts of the life span (Arnett, 1999). It can be concluded that disruptions in an individual's development could cause them to turn to substances. Marcia's (1966) identity status paradigm is closely linked to Erikson's psycho-social theory of development. Marcia's identity status paradigm is understood by examining the experiences of crisis in relation to exploration as an adolescent, or through commitment. Figure 1 illustrates the adolescent developmental changes according to Chown & Kang

(2004). It focuses specifically on the existential questions adolescents ask themselves during different stages of adolescence and furthermore identifies the major developmental issues adolescents face. Cognitive development and other major adolescent concerns are outlined to illustrate the critical and sensitive period of adolescence.

Early (10 – 14 years)	Middle (15 – 17 years)	Late (>17 years)
CENTRAL QUESTION		
"Am I normal?"	"Who am I?" Where do I belong?"	"Where am I going?"
MAJOR DEVELOPMENTAL ISSUES		
☐ Coming to terms with puberty ☐ Struggle for autonomy commences ☐ Same sex peer relationships all important ☐ Mood swings	☐ New intellectual powers ☐ New sexual drives ☐ Experimentation and risk-taking ☐ Relationships have self-centred quality ☐ Need for peer group acceptance ☐ Emergence of sexual identity	☐ Independence from parents ☐ Realistic body image ☐ Acceptance of sexual identity ☐ Clear, educational and vocational goals, own value system ☐ Developing mutually caring and responsible relationships
MAIN CONCERNS		
☐ Anxieties about body shape and changes ☐ Comparison with peers	☐ Influence of peers ☐ Tensions between family and individual over assertions of autonomy ☐ Balancing demands of family and peers ☐ Prone to fad behaviour and risk taking ☐ Strong need for privacy ☐ Maintaining ethnic identity while striving to fit in with dominant culture	☐ Self-responsibility ☐ Achieving economic independence ☐ Developing intimate relationships
COGNITIVE DEVELOPMENT		
☐ Still fairly concrete thinkers ☐ Less able to understand subtlety ☐ Daydreaming common ☐ Difficulty identifying how their immediate behaviour impacts on the future	☐ Able to think more rationally ☐ Concerned about individual freedom and rights ☐ Able to accept more responsibility for consequences of own behaviour ☐ Begins to take on greater responsibility within family as part of cultural identity	☐ Longer attention span ☐ Ability to think more abstractly ☐ More able to synthesise information and supply it to themselves ☐ Able to think into the future and anticipate consequences of their actions

Figure 2. Adolescent Development Stages retrieved from Chown & Kang (2004)

2.3.1.2 James Marcia – Identity Status Paradigm

James Marcia (1991) indicated in his theory that the process of identity development can be divided into two steps. Firstly, adolescents need to move away from previous beliefs

as a child in order to enable themselves to explore other possibilities in certain areas, in other words finding alternative options for identity development. Secondly, an adolescent needs to make a commitment to the chosen identity in that specific area.

Marcia (1980) distinguished between four Identity Statuses. These statuses describe the process of identity development. During adolescence certain aspects of identity might be foreclosed. Marcia refers to certain decisions and commitments around identity that have been decided without exploring or experiencing alternatives. Identity commitments might be based on the beliefs, goals, ideas and dreams of the adolescents' parents. The adolescent identity is based on accepting parental ideals without questioning them.

When adolescents question their own beliefs and those of their parents and their upbringing, they enter a moratorium, according to Marcia (1980). The moratorium status is the phase during which an adolescent actively starts exploring new ideas and is open to alternatives to his known norms. This is seen, for example, when adolescents try out new roles, or new ways of being in the world. These experimentations with alternative strategies may be followed by identity achievement (Marcia, 1976).

Identity achievement occurs when adolescents have appropriately and significantly explored various paths and then commit themselves to their multi-faceted identity. Adolescents explore various parts of their identity through engaging in different social contexts. Commitment can occur at various time frames for various factors; adolescents might form and commit to aspects of their identity sooner in some areas than in others. Factors related to identity can include spirituality and the adolescent's ethnic or cultural identity. Adolescents can also become overwhelmed by the task of identity formation, achievement

and commitment and as such avoid exploring alternatives and do not commit themselves. This process is known as identity confusion, according to Marcia (1980). The lack of exploration and commitment can impact an adolescent and result in social isolation.

Identity achievement is nurtured through having communities that focus on identity development, the support and input from parental authority figures and through the input and impact of the school the adolescent attends. The continual focus on identity achievement is pivotal in the development of an adolescent. This impacts the progress of a positive self-esteem and in the enhancement of moral reasoning and improved critical thinking abilities of the adolescent. Identity achievement during adolescence serves as groundwork to enter the adult world with goals for oneself, together with greater expectations of one's behaviour (Whitbourne, 1987). When adolescents enter adulthood, they enter this developmental milestone with their current identity and their current understanding of themselves. This lifespan construct is developed as one's adolescent identity propels one into a specific direction upon entering adulthood (Kail & Cavanaugh, 2000). Identity development is the result of a life long journey. Each developmental stage offers an individual the opportunity to bring about changes after re-evaluation his or her identity. This process, however, starts during adolescence, yet can be revisited throughout one's life.

Similar to Erikson (1980), Marcia (1980) also concluded that events that occur during adolescence that are perceived as a crisis by the adolescent becomes an important catalyst and developmental factor to facilitate movement through the different identity statuses. The perceived crisis causes the adolescent to feel internal turmoil and emotional disequilibrium. The crisis therefore assists adolescents to question their current way of thinking, feeling and acting and adopt new possibilities. The notion is that when adolescents allow themselves to

explore alternative strategies, they may make different choices and adopt new ways of dealing with the world.

Marcia's (1980) theory does not state that all adolescents will experience all four statuses of identity. A different status may occur in different domains and an adolescent can experience contradicting statuses in different areas of life. Furthermore, Marcia (1980) stated that various identity statuses can also be multi-directional. An adolescent that experiences violence in the form of an armed robbery or hijacking may re-evaluate his beliefs and values systems. These crises can cause the adolescent to regress to a previous identity status or assist him to process the event and make sense of it. Adolescent substance abuse has been linked to Marcia's (1980) identity statuses. Adolescents in the diffused identity status are more likely than their peers to experiment or become involved with problem behaviour. (Jones, Hartmann, Grochowski & Glider, 1989).

Table 2

Marcia's Identity Status Model

Identity Status Model	Identity Status	
	Crisis	No Crisis
No Commitment	Diffusion	Moratorium
Commitment	Foreclosure	Achieved

Note. Retrieved from Marcia (1980).

Various risk factors have been established which increase the likelihood of drug abuse during adolescence (Guo, Chung, Hill, Hawkins, Catalano & Abbot, 2002). These risk factors

include; (1) difficult temperament, (2) poor impulse control and tendency to seek out sensation, (3) peer rejection, (4) early initiation to drug use, (5) favourable attitudes towards substance abuse, (6) association with drug abusers, (7) academic failure, (9) early and persistent behavioural problems, particularly aggression, and (10) family influences (genetic predisposition to substances, parental use and abuse of substances, inconsistent parenting practices, family conflict, distant family relationships).

2.3.2 Theories of Substance Abuse

Many theorists have tried to understand and explain the prevalence and maintenance of adolescent substance abuse. The continued risk behaviour despite the awareness of the negative consequences remains a mystery. However, researchers and theorists are still attempting to solve the mystery. A strong biological and genetic predisposition to abuse substances has been considered, whilst other theorists maintain the importance of the impact of the environment and social contexts (Lettieri et al., 1980). All the above-mentioned factors have been widely researched and the relevance of all these variables in the development of adolescent substance abuse has been confirmed, yet no singular factor can be identified as the core condition of adolescent substance abuse (Arif & Westermeyer, 1988). Due to the various variables that play a role in the development of substance abuse; the biopsychosocial model attempts to take all these variables into account in order to provide a more contextual model.

2.3.2.1 Biopsychosocial Model

The bio-psycho-social model was developed (WHO, 1981) in order to identify the impact and influence of the various factors on the development of adolescent substance abuse. It is therefore important to be cognizant of the model in order to understand the underpinnings of this study. The biological, psychological, cultural, social factors and learning experiences

were all indicated as influencing the adolescent to abuse substances. The impact might be immediate, or a factor might only exist later in the individual's life. The model also indicates that these factors can motivate an adolescent to abuse substances. However, the opposite is also true, namely that these factors will change due to an adolescent's abuse of substances. Figure 2 depicts the variables that influence substance use together with their own underlying interactions contributing to problem behaviours.

The effects of substance use can impact the biological responses of the adolescent using the substance. This includes withdrawal symptoms or the physical experience of the substance or even other substance-related medical or physical consequences, such as increased blood pressure. These responses to the substance can impact the individual by having either an antagonistic response to substance use and therefore not wanting to experiment or engage with the behaviour, or cause a reinforcing response where the physical effects are enjoyed by the participant. Even though withdrawal symptoms might initially serve as a way to deter the adolescent from further substance abuse, eventually taking more and more substances to defer the withdrawal can strengthen substance abuse. Repeated withdrawal due to substance abuse can stimulate a classical conditioning response.

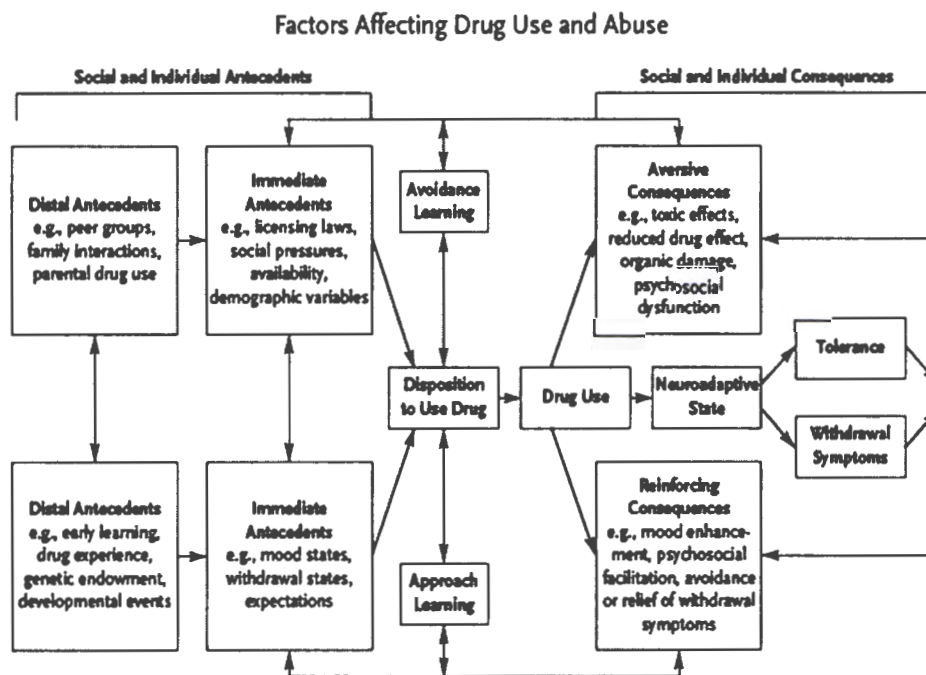


Figure 2. Factors affecting drug abuse retrieved from Edwards et al. (1981).

Through consistent use of substances, the adolescent becomes unable to distinguish between internal and external cues that are not necessarily due to withdrawals. These factors can include anxiety, stress or depression which become generalised. Due to the inability to effectively read one's own bodily and emotional cues, the adolescent relies more on a substance to relieve these internal or external stressors instead of accessing his internal resources to find alternative ways of dealing with the situation.

The model depicted in Figure 2 furthermore emphasises that substance abuse can be curtailed by making the actual experience less rewarding. In contrast, abstinence or reduced usage should be perceived as a rewarding experience. This change in perception of the reward qualities of substance abuse can be achieved via interventions in more than one domain of an adolescent's life. Therefore a programme that includes biological, social, environmental and

psychological components might have better success in reducing the prevalence of adolescent substance abuse.

2.3.3 Theories of Adolescent Substance Abuse

Substance abuse theories in adolescence include various theoretical frameworks. The theoretical foundations for competence enhancement approaches have been designed to prevent and treat substance abuse often include two prominent theories. Firstly the social learning theory has been successfully used in substance abuse prevention programmes (Bandura, 1977). Secondly, the problem behaviour theory is included as part of the psycho-educational component of preventative programmes and as a means to conceptualise substance abuse behaviour (Jessor & Jessor, 1977).

2.3.3.1 Albert Bandura – Social Learning Theory

The foundation of the social learning theory is the notion that “environmental contingencies play an important role in guiding behaviour” (Durkin, 1995 p.21). The theory postulates that each individual is mindful of their environment and surroundings due to their cognitive awareness, yet at the same time each individual is also a social being that is part of a system. Due to the cognitive awareness an adolescent is therefore also able to learn through observation and experience, according to Bandura (1989).

Adolescents learn about the world through experiencing and observing other individuals in the world. Adolescent behaviour can therefore become reinforced through experience or observation. Maladaptive behaviours are also learnt through observation or through experience and can also be reinforced by consistent exposure to maladaptive patterns of behaviour, for example through substance abusing parents. The opposite is also true for

adaptive behaviours. If adaptive behaviour is not reinforced, experienced or observed, it might be rejected by the adolescent due to the lack of reinforcement or available rewards.

According to Bandura's theory (1977), substance abuse can be understood as an activity that is observed and socially learned. In contrast, adaptive behaviour is seen and defined as a learned functional behaviour. Modelling, imitation, and reinforcement are the processes through which substance abuse behaviour is learned and is impacted by the adolescent's pro-substance beliefs, values, cognitions and attitudes. These concepts, together with a lack of social and life skills, can lead to an adolescent being more open to the abuse of substances. Social learning theories assume that adolescents acquire their beliefs about substance use and other delinquent behaviours from their role models, friends, and parents. From this perspective, it is important to provide adolescents with positive role models and teach them refusal skills and the belief that they can resist drugs. The perceived expectations of the impact and effect of abusing a substance are thought processes and therefore seen as cognitions about substance use. Therefore, these cognitions are influenced and susceptible to operant and classical conditioning to abused substances. Due to conditioning, cognitions and expectations of adolescents, substance abuse does not only feature due to the reward of usage, but also through the reaction to stimuli and the consequences of substance abusing behaviours. This basic principle of social learning theory (Bandura, 1977) emphasises that an adolescent is therefore self-aware, is an active participant in the learning process and is not a victim of his own situation.

The theory also emphasises that modelling impacts the learning process of an adolescent. Adolescent's learning is furthermore impacted by the consequences of their behaviour and is therefore seen as within their control. The adolescents' reaction to stimuli

and the potential reward or punishment associated with the stimuli is modified through changes in cognitions. Moreover, reactions to stimuli, rewards and punishments are arbitrated and altered by changes in cognitions. The social learning theory also emphasises the importance and the impact on behaviour if an adolescent is able to self-regulate, reward himself, discipline himself and takes up responsibilities (Bandura, 1989).

There is a strong relationship between an adolescent's social learning and his substance use (Wilson, 1988). In addition, treatment interventions following a social learning approach have a greater success rate than other approaches for treating adolescent substance abuse (Health Canada, 1999). Available treatment methods incorporating social learning principles are training programmes that incorporate social skills, cue-exposure and self-control.

2.3.3.2 Problem-Behaviour Theory

The problem-behaviour theory consists of a framework incorporating social-environmental factors and psychological factors derived from Rotter's (1954, 1982) alteration of the social learning theory. The foundation of this theory postulates that behaviour is the result of the complex interaction between the adolescents and their environment (Lewin, 1951). Problem behaviour is defined as any behaviour associated with negative consequences. This behaviour can be associated with clashes with authority or behaviour that is the opposite of the perceived societal norm that requires a social control response. Adolescent substance abuse is also classified as problematic behaviour.

The problem-behaviour theory discusses the proneness of adolescents to engage in problem behaviour. The three variables underlying this theory include personality factors,

behaviour factors and lastly the perceived environment (Jessor, 1991). Each set of factors serves as either protective factors against problem behaviour, or as encouragements to engage in problem behaviour. The interplay between the encouragers of substance abuse and the protectors against substance abuse impacts on the proneness of the adolescent to engage in problem behaviour.

Jessor & Jessor (1977) maintained that the perceived-environment factors include modelling the behaviour of others, social-control and supportive structures such as family or peers. Personality factors include the adolescents' attitude to themselves and to society, their morals and values, their belief system, as well as their view of themselves and the outside world. Problem behaviour proneness in personality is displayed in various milieus. It is displayed in adolescents who devalue the importance of going to school and academic achievement, adolescents who display a low self-esteem, low levels of self-regulation, poor frustration tolerance and oppositional attitudes towards authority (Jessor & Jessor, 1977).

Lastly, behavioural factors are influenced by problem and conservative behaviours. Substance abuse, delinquent behaviour, risky sexual behaviour and hazardous driving fall under problematic behaviour (Jessor & Jessor, 1977). Engagement in problem behaviour increases the likelihood of involvement in other areas that are also perceived as problematic.

International studies investigating problem behaviours in adolescents indicate the prevalence of substance use, early sexual intercourse, smoking and high levels of risk taking behaviour (Jessor, 1991). Problem behaviours correlate with other problem behaviours, whereas a negative relationship is manifest between problem behaviour and pro-social behaviours.

The problem-behaviour theory distinguishes between protective factors and risk factors (Jessor, 1991). The variables in problem-behaviour theory are protective in nature which serve as a control against participation in problem behaviour. The purpose and role of the protective factors in adolescence is to assist the adolescent against engaging in problem behaviour. Protective factors impact pro-social behaviour and assist an adolescent in becoming more resilient and optimistic. The role of risk factors is that they increase the probability of adolescent substance abuse.

Personality factors consist of different components in the problem-behaviour theory. These components include the adolescent belief and motivational systems and the ability to control impulses (Jessor, 1989). The motivational system of the adolescent is categorised into two phases. Firstly, it refers to the ability of the adolescent to set objectives. Secondly, it refers to the adolescent being able to motivate himself to reach those set objectives. This is the process of moving into action through self-motivation.

The personal belief system consists of thought processes that hinder the development of problem behaviour or assist in the development of problem behaviour. These thoughts or cognitions are related to self-esteem, criticism from peers, locus of control and isolation (Jessor, 1991). Whether these factors are prevalent or not, they impact problem behaviour either through controlling against it, or motivation for engaging in it.

2.3.4 Five Factor Personality Theory

Personality research has sought to identify personality characteristics that can be linked to substance abuse. Research suggests that substance abuse is more common among adolescents who display specific personality traits (Kandel & Yamaguchi, 1985; Stein et al.,

1987; Shedler & Block, 1990). Various theorists and researchers have explained the connection between substance abuse and early traumatic experiences, exposure to domestic violence, family discord and peer pressure (Crjeervaldsen, Byrvang, & Opjordsoen, 2000; Khan & Salman, 2003; Kirkcarldya, Siefenb, Surallb, & Bischoff, 2004; Labouvie & McGee, 1986). Various studies have investigated the link between substance abuse and personality (Cox, 1985, 1987; Earlywine, 1995; Labouvie & McGee, 1986; O'Connar, Berry, Morrison, & Brown, 1999; Tarter, 1988). The link between personality and substance abuse is multifaceted (Cox, 1985). It is also difficult to explain as personality factors may influence the abuse of substances on various levels.

There are many well-established instruments for the measurement of the Big Five personality traits. These measurements include the NEO (Costa & McCrae, 1985, 1992; Ostendorf & Angleitner, 2004; Borkenau & Ostendorf, 2008) and the shorter version of the NEO, namely the Big Five Inventory (John, Donahue, & Kentle, 1991; Lang, Lüdtkke, & Asendorpf, 2001; Rammstedt, 1997).

Personality traits have a definite place in the etiological understanding of substance abuse development (Howard, Kivlahan, & Walker, 1997). Various approaches have been developed to assist with understanding the importance and impact of personality traits. The Big Five factor model has been successfully used in international studies (Costa & McCrae, 1992, 1995; Digman, 1990; Goldberg, 1982, 1990; John, 1990; Wiggins & Trapnell, 1997).

This model has been researched extensively and has received strong empirical support specifically related to research in the field of substance abuse. The Five Factor Model (FFM) is an empirically validated personality theory. The FFM suggests that there are five domains

that can adequately measure an individual's personality. The FFM theory has been used in previous studies and has been seen as a useful measure in the conceptualisation of personality traits (Costa & McCrae, 1992; Goldberg, 1992). The present study used the FFM of personality which expansively covers the five domains of personality. Furthermore, the traits of the FFM are able to define personality across cultures (Terracciano & McCrae, 2006).

Neuroticism is the inclination of an individual to experience negative emotions. Extraversion is the tendency of an individual to be assertive, have a warm personality, seek out stimulation in their environment and be generally optimistic. Openness to experience is the inclination of an individual to be sensitive to emotions and artistically pleasing stimuli. It also includes openness to new experiences and the ability to embrace change. Agreeableness is the inclination of an individual to display interpersonal relations. These relations include being able to work as a team, having trust in peers, having a modest view of the self and displaying a genuine concern for the well-being of others. Conscientiousness is the inclination of an individual to be hard working, eager to meet goals, persistent and organised in planning and being reliable and accountable.

Personality traits have been researched extensively and the authors agree that certain traits are risk factors for substance use, but altogether, substance use also impacts an individual's personality traits. There is a demand and a need to develop personality specific programmes. Personality traits are expected to relate to specific substance-related motivations, especially motives that are directly related to internal self-regulation, since personality traits are thought to influence the motivation of behaviour in general.

A summary of the five domains with their related facets are presented in Table 2. These traits assist in the accurate identification of personality traits needed to profile an adolescent.

Table 2

The Big Five Factors

Big Five Dimensions	Facet (and correlated trait adjective)
Extraversion vs. introversion	Gregariousness (sociable) Assertiveness (forceful) Activity (energetic) Excitement-seeking (adventurous) Positive emotions (enthusiastic) Warmth (outgoing)
Agreeableness vs. antagonism	Trust (forgiving) Straightforwardness (not demanding) Altruism (warm) Compliance (not stubborn) Modesty (not show-off) Tender-mindedness (sympathetic)
Conscientiousness vs. lack of direction	Competence (efficient) Order (organized) Dutifulness (not careless) Achievement striving (thorough) Self-discipline (not lazy) Deliberation (not impulsive)
Neuroticism vs. emotional stability	Anxiety (tense) Angry hostility (irritable) Depression (not contented) Self-consciousness (shy) Impulsiveness (moody) Vulnerability (not self-confident)
Openness vs. closedness to experience	Ideas (curious) Fantasy (imaginative) Aesthetics (artistic) Actions (wide interests) Feelings (excitable) Values (unconventional)

Note. Retrieved from John & Srivastava (1999).

2.3.5 Theories of Self-Regulation

Self-regulation is the ability to regulate one's emotions and behaviour to achieve predetermined goals (Brown, Miller, & Lawendowski, 1999). This process includes various

variables that harness motivation and other self-processes. Various self-regulation theories have been developed, but most of them agree on the characteristics of the self-regulatory process (Zeidner, Boekarts & Pintrich, 2000). Self-regulation, therefore, is seen as the process where an adolescent can proactively direct his emotions and behaviour. This strategy assists in reaching predetermined goals. It is important to note that adolescents learn from feedback to change their approaches in order to obtain a better outcome. This feedback includes cognitive processes, motivational factors and emotional responses (Zimmerman, 1989).

Adolescents have the ability to use reflection as a tool to assist them to imagine the consequences of their actions. This strategy allows control to a degree over one's behaviour through the ability to foresee an outcome and therefore change one's behaviour to avoid the negative outcome. Bandura (1991) postulated that behaviour is the result of the complex interplay of factors in an adolescent's life. These factors are considered to be internal or interpersonal, or external and intrapersonal. According to Bandura, adolescents' behaviour can therefore influence the external environment they are part of. However, the external environment can also in turn influence and impact the adolescent's internal world.

The interactive nature of the triad (behaviour, person and the external environment) means that they constantly interact with one another and therefore directly influence one another. External factors are known to impact the ability of an individual to self-regulate. The external factors serve as a societal norm for behaviour. Internal factors in turn also impact self-regulation. This includes the ability of the adolescent to reflect through self-observation, thus allowing the judgement of behaviour which results in either reinforcement of behaviour, or the disciplining of behaviour.

Lastly, self-regulation aids adolescents to avoid violation of their internalised morals and values through activating or disengaging internal control. Selective activation is a skill that an adolescent needs to master. This refers to the voluntary action of using self-regulatory principles through positive decision making (Bandura 1991).

Disengagement of internal control is understood as the decision an adolescent makes to actively choose to avoid thinking about the possible consequences of his behaviour or decision making. Adolescents will often justify or rationalise behaviour using defence mechanisms (Bandura, 1991). Adolescents might diffuse taking responsibility for their actions or minimize the consequences of their actions through cognitive restructuring.

Zimmerman (2000) indicated that the self-regulatory capacity can take two forms. On the one hand, self-regulation can be seen as being autonomous, and on the other hand as controlled. Autonomous self-regulation is understood as being a self-sufficient process where emotions, thoughts or behaviour are regulated and controlled as the adolescent finds the process meaningful and in line with his morals and values. Controlled self-regulation is a process that occurs due to the pressures adolescents experience; this consequently places them in a situation where they would choose the opposite of what they believe in. The reasoning for the contrasting decision is understood as a means of survival in order to avoid shame, conflict, ridicule or rejection (Baumeister & Vohs, 2007).

According to Baumeister & Vohs (2007), the greater self-regulatory skills an adolescent displays, the more flexible and successful the adaptation of his behaviour. Self-regulation therefore puts one's morals and values above one's impulses. Self-regulation thus aids an adolescent to do what is right, moral and pure (Baumeister & Bushman, 2008). Lastly,

self-regulation assists the adolescent to avoid costly consequences for actions through not engaging in short-term beneficial behaviour, yet being able to regulate selfish impulses effectively and appropriately (Baumeister & Vohs, 2007).

Self-regulation allows the planning and execution of successful outcomes through delaying immediate satisfaction (Carver & Scheier, 1982). Kanfer (1970a, 1970b, 1971) postulated that the self-regulatory process consists of three inter-related stages. An adolescent firstly needs to be able to monitor his thoughts, emotions and behaviour. Secondly, the adolescent needs to evaluate his thoughts, emotions and behaviour and the impact they can have. Lastly, the adolescent needs to reinforce his thoughts, emotions and behaviour for a positive outcome. Miller & Brown (1991) were of the opinion that the self-regulatory process is a seven-dimensional process. The dimensions include; (1) the input of internal and external information, (2) self-monitoring of one's behaviour in relation to the task at hand and the desired outcome, (3) inspiration and flexibility for variation, (4) pledging to reach the personal outcome, (5) proposal to reach personal outcomes, (6) sticking to the decided plan of action, and (7) re-evaluation of the plan of action to reach the desired outcome.

The definitive goal of self-regulation is to assist and empower adolescents to manage impulses effectively and develop into psychologically healthy adolescents. Furthermore, self-regulation assists the adolescent to change his weaknesses into strengths. To aid in this process, Miller & Brown (1991) suggested three steps; (1) empowering adolescents, (2) adding to the adolescent's internal coping resources, and (3) encourage adolescents to use feedback to re-establish goals and outcomes.

In summary, the self-regulation theory postulates that an adolescent's self-regulatory capacity is directly linked to maintaining planned behaviour. In essence, adolescents with poor self-regulatory capacity are at greater risk to submit to impulses and immediate gratification. Adolescents with intact self-regulatory capacities are able to monitor their emotions and behaviour and use self-reflection and self-observation to assist them to reach their planned outcomes. Therefore, when applying the theory to substance abuse, it suggests that the lower the level of self-regulation, the greater the likelihood of involvement and maintenance of substance usage.

2.3.6 Theoretical Background of Substance Categories

Adolescents engaging in substance abuse are prone to be influenced by their opinions about the substance (Becker 1967). What adolescents know about the substance they are abusing, what they have heard from their peers and how the substance is conceptualised, directly influences the way they use it, interpret the effects thereof, and how they respond to the consequences of the substance used. The major effects of a substance can be expressed in terms of specific classes. The major classes of substances include stimulants, depressants, opioids, hallucinogens, psychotherapeutics and Marijuana. These major classes and other specific substances will be described below in detail in terms of clinical description, diagnosis, etiology and epidemiology (Siegal & Fischler, 2012).

These categories are included as the following substances are widely abused by adolescents (SACENDU, 2013b) and was specifically reported as being the substance of choice of the participants in the current study.

2.3.6.1 Alcohol

The excessive usage of alcohol can have detrimental consequences for the adolescent. These consequences can be physical or psychological in nature (Babor, Higgins-Biddle, Saunders & Monteiro, 2001). Alcoholism is defined as “a primary, chronic disease characterised by impaired control over drinking, preoccupation with the drug alcohol, use of alcohol despite adverse consequences, and distortions in thinking” (Ripley & Stephens, 2011, p. 1335). Alcohol abuse should be differentiated from dependence by focusing on the quantity of usage, frequency of usage, maintenance of the disorder and treatment thereof (Mack & Frances, 2003).

Alcohol use disorders are very common and are lethal conditions, which often co-present with other psychiatric syndromes. It has been estimated that alcohol-related deaths total 22 000 per annum, with 2 million non-fatal injuries being recorded each year in South Africa.

2.3.6.1.1 Effects of Alcohol and Absorption

Alcohol is the “organic molecules that have a hydroxyl group attached to a saturated carbon atom. Ethyl alcohol, also called ethanol, is the common form of alcohol sometimes referred to as beverage alcohol. ethyl alcohol is used for drinking” (Sadock & Sadock, 2009, p. 393). Alcohol absorption occurs in the stomach and the intestines. The maximum blood concentration of alcohol is reached within 30 to 90 minutes (Sadock & Sadock, 2009).

2.3.6.1.2 Effects on the Brain and Behavioural and Physiological Effects

Alcohol functions as a depressant, when it comes to behavioural effects. Cognitive functions such as reaction time, judgment and inhibitions are relaxed where there is a level of

0.05 percent of alcohol in the blood stream. Motor action usually becomes clumsy at a concentration of 0.1 percent, whereas the areas related to emotion and emotional control become depressed at 0.2 percent (Sadock & Sadock, 2009). Alcohol use may have negative effects on the liver, kidneys and gastro-intestinal system. Increased alcohol consumption impacts blood pressure, results in cerebro-vascular diseases, increases heart rate and impacts the deregulation of lipoproteins (Sadock & Sadock, 2009).

2.3.6.1.3 Alcohol Dependence and Alcohol Abuse:

According to the DSM-IV-TR (2000), all substance-related disorders have the same diagnostic criteria for both dependence and abuse. Certain behaviours are often associated with an adolescent's drinking patterns. This may include the inability to cut down or stop drinking, periods of temporary abstinence or restricting drinking to certain times of the day, binges, occasional consumption, the progression of drinking despite knowing the consequences of drinking (Sadock & Sadock, 2009; American Psychiatric Association, 2000).

2.3.6.1.4 Alcohol Intoxication and Alcohol Withdrawal

The diagnostic criteria for alcohol intoxication are based on evidence of recent ingestion of ethanol, maladaptive behaviour, and at least one of six possible physiological symptoms of intoxication (Sadock & Sadock, 2009). Legally an individual's blood alcohol concentration levels measure the level of intoxication. Alcohol withdrawal can be very serious and may include seizures and autonomic hyper activity. Some conditions may predispose and aggravate withdrawal symptoms and include fatigue, malnutrition, physical illness, and depression. Alcohol withdrawal requires the reduction or cessation of alcohol use: that was prolonged and heavy, as well as the presence of specific neuro-psychiatric disorders. Classic signs of alcohol withdrawal include tremulousness and can expand to include psychotic

symptoms, seizures and symptoms of delirium tremens. General irritability, gastro-intestinal symptoms, anxiety, facial flushing, sweating, arousal and mild hypertension are among other symptoms of alcohol withdrawal.

2.3.6.1.5 Etiology

There are various factors that affect an adolescents' decision to drink. Social, religious and psychological factors influence the initiation of alcohol intake. There is also evidence that genetic characteristics also contribute to it; it has been found that there is interplay between genetic and environmental influences. Studies indicate that genetic influences amount to 60 percent of developed alcoholism. Environmental components are responsible for 40% of developed alcoholism. Other substance-related disorders also share a similar etiology (Sadock & Sadock, 2009).

2.3.6.1.6 Psychological, Psychodynamic, Behavioural and Socio-cultural Theories

There are numerous theories that relate to the uses of alcohol to maintain or develop certain desired qualities. For example, alcohol can be used to increase self-esteem and self-confidence, or to establish a sense of power and invincibility. Alcohol is also used to manage perceived negative emotions such anxiety and depression. It can also assist an individual to manage his physical as well as emotional pain. This is evident in a variety of observations where adolescents with alcohol-related problems often report that the use of alcohol reduces their anxiety and assists them to cope with peer pressure or home issues. Classic psychoanalytic theory suggests that fixation in the oral stage has caused the individual to use alcohol (Sadock & Sadock, 2009). The perceived expectations of alcohol initially influence adolescents to use alcohol. Their cognitions play a role in the engagement, maintenance and termination of usage. Socio-cultural theories postulate that the social environment plays a

role in how alcohol is perceived and used. Lastly, social and psychological theories identify factors that can play a role in the development of an alcohol problem (Sadock & Sadock, 2009).

2.3.6.1.7 Childhood History and Genetic Theories

Research has found that childhood factors play a role in the development of alcohol abuse. A combination of genetic and environmental factors can set the stage for the development of a possible high risk adolescent. Evidence suggests that a child is prone to develop alcohol-related issues during adolescence if a family member abuses substances or due to definite genetic components if there is substance abuse in the family tree (Sadock & Sadock, 2009).

2.3.6.1.8 Epidemiology

It is evident from studies conducted in the United States that approximately 90 percent of the population drink at some time during their lives, with most individuals beginning their alcohol intake in early to middle teens (Sadock & Sadock, 2009). Epidemiological surveys done in South Africa indicate that adolescent alcohol usage is rife. Males are more prone to use alcohol in comparison to their female counterparts. Furthermore, the quantity and frequency of usage increase with age. Alcohol is freely available in South Africa and sellers do not always adhere to the age limit when selling alcohol to minors. Alcohol usage has also been reported by adolescents as a means to manage the pressures of school and home, as well as a means of experimentation owing to peer pressure or boredom (Seggie, 2012).

2.3.6.2 Amphetamine (or Amphetamine-like)

Amphetamine refers to a synthetic stimulant of the central nervous system which is closely related to methamphetamine. This group includes stimulants and hallucinogens. Stimulants like Ritalin or Concerta are used in treatment of attention-deficit hyperactivity disorder and narcolepsy. Amphetamines can be taken orally, sniffed through the nose or be injected directly into the bloodstream (Europol, 2011).

Amphetamines stimulate the central nervous system and are also known as uppers. Prescribed amphetamines are used to treat attention and sleep disorders, but are increasingly used illicitly. These amphetamines include Dexedrine, Ritalin and Benzedrine (Sue, Sue, Sue & Sue, 2014). These drugs are also known by their street names that include crystal, crystal meth, speed, and ice. The general class, amphetamines, is referred to as analeptics, stimulants, psycho stimulants, and sympathomimetics. Additional amphetamine-like substances include pseudoephedrine, ephedrine, and phenylpropanolamine. A potent form of amphetamine, methamphetamine, is inhaled, smoked, or injected intravenously (Sadock & Sadock, 2009).

An improvement in attention and increase performance in written, oral, and performance tasks are general results of a small dose. There is also a reduction in fatigue, induction of anorexia, as well as a heightened pain threshold associated with the use of amphetamines. However, undesirable effects result from the use of high doses for long periods of time. Large doses of amphetamines may trigger delusions of persecution, which resemble paranoid schizophrenia, and may also lead to assaultive or suicidal behaviours. Amphetamines are both psychologically and physically addictive and the body rapidly builds up tolerance of them. This means that chronic abusers may use the drug in amounts that would be lethal to non-users. For individuals who exceed the prescribed doses, the consumption of

amphetamines results in heightened blood pressure, rapid speech, tremors, confusion, sleeplessness, loss of appetite and enlarged pupils (Butcher et al., 2013).

Other physical effects of amphetamine abuse include specific life-threatening conditions such as severe hypertension, cerebrovascular and myocardial infarction. A number of neurological symptoms are also associated with increasingly high doses of amphetamines, including twitching, comas, seizures and death. Intravenous use can transmit HIV and hepatitis and the further development of endocarditis and lung abscesses. Serious health consequences, including permanent damage to the lungs, heart and immune system can be caused particularly by Amphetamines (Sue et al., 2014).

2.3.6.2.1 Amphetamine Dependence and Abuse

Amphetamine dependence may result in a rapid downward spiral of an individual's abilities to cope with work- and/or family-related responsibilities and stresses. Amphetamine abuse and dependence are conceptualised as the progression of usage escalating in frequency and quantity of usage of the substance (Sadock & Sadock, 2009).

2.3.6.2.2 Amphetamine Intoxication and Withdrawal

The intoxication syndromes of cocaine and amphetamines are similar. Clinical findings of cocaine abuse have strongly influenced literature on amphetamines. The DSM-IV-TR (2000) specifies that the symptoms of amphetamine intoxication are mostly resolved after four hours and are generally completely resolved after 48 hours (American Psychiatric Association, 2000). The withdrawal symptoms generally peak two to four days after cessation and are resolved within a week. Depression is the most serious withdrawal symptom and can

be very severe after the sustained use of high doses of amphetamine. It may further be related to suicidal ideation or behaviour (Sadock & Sadock, 2009).

2.3.6.2.3 Etiology

The etiology of substance abuse and dependence is not clear; however it is believed that a complex interplay between numerous factors is related. Psychoactive properties of the drug, individual differences such as genetic and personality features, as well as sociocultural and economic variables are included. Classic amphetamines are highly reinforcing and the pleasant energy and euphoric effects of the drug clearly influence the addictive processes. Individual experience of the effects of the drug is disproportionate; those who interpret the effect of amphetamines in a more positive way may be at greater risk for developing abuse and dependence (Sadock, Sadock, & Ruiz, 2009).

Social and cultural factors can also be strong motivators for drug use and are often the initial reason that some individuals use amphetamine stimulants. MDMA, METH and associated ring-substituted amphetamines are commonly used in large organised settings known as raves.

Moreover, certain genes also appear to play a role in addiction vulnerability and account for 30 to 60 percent of the overall variants at risk for developing drug addiction. Behaviours associated with drug abuse and dependence can also be determined by learning and conditioning (Sadock e al., 2009).

2.3.6.2.4 Epidemiology

A national survey conducted in 2001 in America indicated that 7.1 percent of individuals 12 years and older reported usage of stimulants. Evidence also suggests that there is a definite link between amphetamine abuse and crime. Amphetamine use also occurs in all socio-economic groups and is increasing among white professionals. No reliable data are available on the epidemiology of designer amphetamines, but they are greatly abused (Sadock & Sadock 2009).

According to DSM-IV-TR, the life time prevalence of amphetamine abuse and dependence is 1.5 percent and has a sex ratio between male and female of one to one (American Psychiatric Association, 2000).

2.3.6.3 Cannabis

The initial references to the cultivation of the cannabis plant, from which marijuana is produced, date back to at least 10,000 BCE. The chemical responsible for the psychoactive effects of ingesting marijuana plant products is known as tetrahydrocannabinol (THC) and is botanically contained in cannabis plants. The earliest evidence of a cannabis product dates back to about 10,000 BCE in China and was in the form of a piece of cord attached to pottery. The first reliable evidence that the plant was also used to make a product that could be smoked was also discovered in China. The use of cannabis products for purely recreational purposes appears to have had its origins in the United States in the 1910s, when immigrants fleeing the Mexican Revolution arrived in the country, often bringing with them a long-standing recreational habit of smoking marijuana. It is one of the most abused drugs worldwide today (Newton, 2010).

Dilation of the conjunctiva blood vessels or red eyes and mild tachycardia are the most common physical effects of cannabis. Other common effects of cannabis intoxication may include increased appetite, often referred to as the 'munchies,' as well as dryness of the mouth. The most serious adverse effects of cannabis use are those caused by inhaling the same carcinogenic hydrocarbons present in conventional tobacco. Some data also indicates that heavy cannabis users are at risk for chronic respiratory disease and lung cancer. When smoking cannabis-containing cigarettes, referred to as 'roaches,' it further increases the intake of tar. Research shows that long term cannabis use is also associated with seizure susceptibility, chromosomal damage, birth defects, impaired immune reactivity, cerebral atrophy, alteration in testosterone concentrations, as well as deregulation of menstrual cycles (Sadock & Sadock, 2009).

2.3.6.3.1 Cannabis Intoxication

Cannabis intoxication commonly increases an individual's awareness to external stimuli. This increased awareness reveals sensory highlights in terms of making the adolescent aware of new details, making colours seem livelier and impacting the orientation to time. To a large degree, it is as if time is standing still. When used in high doses, adolescents may experience depersonalisation and their orientation to time, place and person becomes warped. Motor skills are impaired by cannabis use for eight to twelve hours after use and remain after the subjective and euphoric effects have resolved (Sadock & Sadock, 2009).

2.3.6.3.2 Etiology

The etiology of cannabis-related disorders shares many of the same predisposing factors that characterise other substance-related disorders. A variety of factors have been implicated including the amount of exposure to the substance, personality traits, peer support

and genetic predisposition. For those who have used marijuana before, the relative probability of ever becoming dependent on the substance is estimated to be 9 percent. Developing dependence is higher among individuals who have smoked marijuana more frequently and who have used it more than five times. The risk of dependence is 17 percent (Roffman & Stephens, 2006).

Learning and conditioning can again form part of why individuals use cannabis. The initial desire to achieve the high, together with the perception that cannabis use is not dangerous, often leads to experimentation. It is evident that daily cannabis users experience numerous withdrawal symptoms such as aggression, stomach pain, anxiety, and irritability. It is further believed that the increased availability, higher potency, and lower price of cannabis in recent years all contribute to the increase of cannabis-related disorders (Hurley, 2000).

2.3.6.3.3 Epidemiology

A national survey conducted in 2003 estimated that 90.8 million adults 18 years or older had used marijuana at least once during their life time (Sadock & Sadock, 2009). There is a 5 percent rate for cannabis abuse or dependence (American Psychiatric Association, 2000). Research indicates that marijuana use by males is almost twice that of females aged 26 and older. Both ethnicity and race have been found to be associated with marijuana use; however, the relationship varies by age groups (Sadock & Sadock, 2009). Data derived between 2002 and 2004 in a South African Stress and Health (SASH) study estimated a cumulative occurrence of cannabis use at 8.4 percent in a sample of 4351 adults (Van Heerden, Grimsrud, Seedat, Myer, Williams & Stein, 2011). Cannabis is also seen as the gateway drug to other illicit drugs and usually the first drug adolescents experiment with.

2.3.6.4 Cocaine

Cocaine is a plant product, which was discovered in ancient times and has been used ever since. The freebase form of a cocaine derivative is known by the street name 'Crack'. Cocaine arouses a euphoric state of four to six hours. During its duration, a user experiences feelings of both contentment and confidence (Butcher et al., 2013). Cocaine can be chewed or smoked. The coca leaves are often chewed, whereas coca paste is smoked. A cocaine alkaloid, referred to as 'freebase' or 'Crack' is often smoked. Many users also mix cocaine and heroin, called 'Speedballing.' This combination is dangerous because of the respiratory depressant effect the substance has (Mack & Frances, 2003).

Cocaine dependence is conceptualised as a collection of behavioural, physiological, and cognitive symptoms. Cocaine usage is often maintained despite the negative consequences thereof (Sadock & Sadock, 2009). Cocaine use escalates into dependence at a rapid speed. The half-life of cocaine is very short and therefore use is often frequent (Mack & Frances, 2003). Dilution of cocaine powder or cutting cocaine with amphetamine is common. Usage of this powdery substance is often inhaled through the nose. It can also be ingested intravenously or smoked (freebasing) (Sadock & Sadock, 2009).

Crack refers to a freebase form of cocaine. This variation of cocaine is extremely potent, is referred to as 'Rocks' and is highly addictive. Emphasis placed on the drug-using behaviour regarding cocaine dependence, its maladaptive nature and on how the adolescent voluntarily chooses to engage in that behaviour shifts over time and becomes constrained as a result of interactions with the drug (Sadock & Sadock, 2009).

2.3.6.4.1 Etiology

Sociocultural factors, pharmacological factors, genetic factors, learning and conditioning have all been found to play a role in the etiology of cocaine-related disorders. There is a genetic influence in cocaine dependence. A number of studies have found that monozygotic twins have higher rates for stimulant dependence. Genetic and environmental factors are prevalent as in all substance related etiologies (Sadock & Sadock, 2009).

Initial use, continued use and relapse can also be determined by economic, cultural and social factors. In countries where cocaine is readily available, excessive use is far more likely. Pharmacological factors are also involved in the etiology. The central nervous system's response to cocaine can mimic an enhanced state of being. This sense of euphoria, well-being and a sense of alertness is highly addictive due to the subjective response of usage. Some users also experience decreased hunger, less need for sleep and belief that it enhances sexual performance. Additional perpetuating factors considered important in cocaine use involve learning and conditioning. Cocaine yields a rush and euphoric experience which reinforces the antecedent drug-taking behaviour each time it is used (Sadock & Sadock, 2009).

2.3.6.4.2 Epidemiology

It was found that between 2002 and 2003 5.9 million individuals aged 12 and older used cocaine. Research further indicates that more than 1.5 million individuals older than 12 years met the criteria for the abuse of or dependence on cocaine between 2002 and 2003. The current cocaine use is on a decline, which may be due to increased awareness of the risks and campaigns about its effects (Sadock et al., 2009; American Psychiatric Association, 2000).

Cocaine usage escalated by 20% in the last two years in South Africa. A national survey conducted in 2008 indicated that approximately 290,000 South Africans used cocaine in that year alone. The estimated cost was over 500 million South African Rand (Rehab Asia, 2012).

2.3.6.5 Hallucinogens

Hallucinogens include “indolamine derivatives (LSD, morning glory seeds), phenylalkylamine derivatives (mescaline, STP, and ring-substituted amphetamines - MDA [methylenedioxyamphetamine; old ecstasy], MDMA [methylenedioxymethamphetamine; new ecstasy], MDEA [methylenedioxyethamphetamine]), indole alkaloids (psilocybin, DMT [dimethyltryptamine]) and miscellaneous other compounds” (Mack & Frances, 2003, p. 130). Most hallucinogens are usually taken orally (Mack & Frances, 2003).

LSD (lysergic acid diethylamide) or acid, mescaline, and psilocybin are hallucinogens that are thought to cause hallucinations. LSD, an odourless, tasteless and colourless drug is the most potent of the hallucinogens. Intoxication can be produced with an amount smaller than a grain of salt. An individual typically goes through about eight hours of mood swings, sensory perception, feelings of depersonalisation (out of body experience) and attachment after taking LSD. The experience of taking LSD is not always pleasant and can be extremely traumatic. The distorted objects and sounds, illusory colours and new thoughts can be terrifying. Another hallucinogen, mescaline, is derived from small growths at the top of the peyote cactus. Psilocybin, another type of hallucinogen, is obtained from a variety of Mexican mushrooms. Both these drugs have mind-altering and hallucinogenic properties (Butcher et al 2013).

2.3.6.5.1 Etiology

Hallucinogens are appealing as recreational drugs, because they produce “out-of-this world” effects. It is known to be minimally addictive, but some individuals do become addicted and/or have very bad reactions to them, leading to exacerbated psychological disorders. An individual is always at a higher risk for becoming addicted to a substance if the person uses it several times, especially if he gradually increases the amount of the substance taken. Other possible causes for the use of hallucinogen are the fact that they are attractive to recreational drug users for a number of reasons. For example, they are minimally addictive and there are no physical withdrawal symptoms upon stopping the use, they do not cause memory loss with occasional use, they are easily and cheaply available, they produce a high that gives the illusion of increasing creativity, empathy, or self-awareness; and deaths from overdoses are rare (Giannini, 1999).

2.3.6.5.2 Epidemiology

The incidence of hallucinogen use has increased over time, as 10 percent of individuals have used a hallucinogen at least once in the United States alone. The lifetime rate of hallucinogen abuse is about 0.6 percent, with a one-year prevalence of about 0.1 percent (Sadock & Sadock, 2009, American Psychiatric Association, 2000). Additionally (NSDUH, 2007), there were approximately 1.1 million individuals aged 12 or older who reported using hallucinogens for the first time within the past 12 months in 2007 (Giannini, 1999).

2.3.6.6 Inhalants

Inhalants include aliphatic and aromatic hydrocarbons. These ingredients are commonly found in glue, permanent markers, petrol, correction fluid, paint thinners, cleaning products and aerosols (Mack & Frances, 2003).

Inhalants can be disinhibiting and produce feelings of excitement and euphoria, as well as pleasant floating sensations, even if taken in small doses. In high doses they cause psychological symptoms including fearfulness, distortion of body size, auditory hallucinations and sensory illusions. It can also lead to neurological symptoms including slurred speech, ataxia and decreased rate of speech production. Tolerance for inhalants does develop and long-term use is associated with irritability, impaired memory and emotional lability. It may also lead to organ pathology and neurological effects, including respiratory depression, cardiac arrhythmia, hearing loss, headaches, persisting motor impairment, memory loss, renal damage, permanent muscle damage and pulmonary symptoms (Sadock & Sadock, 2009). The substance is mostly inhaled. Vapour is sniffed through the nose or through taking deep breaths through the mouth. This gives the drug rapid access to the brain. Inhaling fumes are often from a plastic bag with the substance inside. Inhalants depress the central nervous system and the effects can be seen within a few minutes and can last up to 30 minutes, depending on the dose used (Sadock & Sadock, 2009).

2.3.6.6.1 Etiology

Etiologies regarding inhalant-related disorders are similar to the etiology discussed in the other substance-related disorders. The reasons why individuals may use inhalants include experimentation, peer group pressure, cost effectiveness and availability, convenient packaging and initial mood elevation. In some places, in particularly unprivileged communities where extreme poverty exists, inhalants are used to dull hunger pangs and to keep users from feeling cold (NIPC, 2011).

2.3.6.6.2 Epidemiology

Various factors contribute to the high use of inhalants among young and economically disadvantaged people, specifically because they are legal, easily available and inexpensive. Approximately 6 percent of individuals in the United States have used inhalants at least once, and about 1 percent of individuals are current users. Inhalant use accounts for 1 percent of all substance-related deaths and less than 0.5 percent of all substance-related emergencies (Sadock & Sadock, 2009; American Psychiatric Association, 2000).

2.3.6.7 Opioids

Opioids refer to heroin, synthetic heroin and morphine. The majority of individuals who abuse opioids develop a tolerance for the drug and need increased quantities to get the desired effects. Furthermore, this substance is widely known for its propensity to cause severe physical withdrawal symptoms (Mack & Frances, 2003). Opium is a mixture of more than 18 chemicals known as alkaloids. Individuals have used opium and its derivatives for centuries. In 1805 the alkaloid, which is the main ingredient, was found to be a bitter tasting powder that could serve as a sedative and pain reliever; it was named morphine. It was discovered later that if morphine was treated with an inexpensive and readily available chemical called acetic anhydride, it could be converted into another powerful analgesic called heroin. Heroin, however, proved to be an even more dangerous drug than morphine, being equally if not more addictive (Butcher et al., 2013).

Opioids include codeine (found in cough mixtures), synthetic analgesics such as pethidine, methadone and dipipanone, in addition to morphine and heroin. The pharmacological effects of opioids are primarily mediated through their interaction with specific opioid receptors (Gelder, Harrison & Cowen, 2006). Opioid abuse is a term used to

describe a pattern of maladaptive use of an opioid drug, which leads to clinically significant distress or impairment and occurring within a 12-month period (Sadock & Sadock, 2009).

Opioids may be consumed, sniffed intranasal, injected intravenously or subcutaneously. Opioids are subjectively addictive because of the euphoric high that the user experiences. This is especially true for individuals who take the substance intravenously. Associated symptoms include dry mouth, itchy face, facial flushing, warmth and heaviness of the extremities. After the initial euphoria, a period of sedation follows, known as nodding off in street parlance. Opioids may also lead to physical effects including pupillary constriction, smooth muscle contraction, constipation, respiratory depression and changed in heart rate, blood pressure and body temperature (Sadock & Sadock, 2009).

The most serious and common adverse effect associated with opioid-related disorders is the potential transmission of HIV and hepatitis through the use of contaminated needles by more than one individual. Death from opioid overdose is commonly due to respiratory arrest and includes symptoms such as marked unresponsiveness, hypotension, coma, slow respiration, hypothermia and bradycardia (Sadock & Sadock, 2009).

2.3.6.7.1 Etiology

The etiology includes psychosocial, biological and genetic factors. The prevalence of opioid dependence is not only a problem in low socio-economic classes, although social factors contributing to poverty are linked with the abuse of opioids. Research indicated that 50 percent of urban heroin users were not part of an intact family unit. The adolescents were part of a family unit of single or divorced parents. The study furthermore concluded that at least one member in the family unit had a substance-related disorder. Evidence of behavioural

problems in school seems to be particularly pronounced in adolescence with opioid dependence (Sadock & Sadock, 2009).

These patterns are referred to as heroin behaviour syndrome. This presentation is often the result of an underlying depression. Adolescents with such a depressed presentation are often agitated and anxious due to their fear of failure, or due to their impulsive behaviour and the dire consequences thereof. Research indicates that a drug-specific, genetically transmitted vulnerability factor exists. Adolescents are open to experiment with other classes of substances after experimenting with one specific substance. This is in line with the gateway theory discussed earlier.

Non-identical twins are more likely to abuse opioids. A strong genetic contribution also exists for heroin abuse. A biological link between abnormal functioning in the noradrenergic and dopaminergic systems have been found in opioid abusers (Sadock & Sadock, 2009).

2.3.6.7.2 Epidemiology

South Africa has seen a rapid increase in heroin abuse in the last few years. This prevalence has been seen in rural and urban settings. Heroin is referred to as 'sugars' and affects about 70 percent of households in Chatsworth, Kwazulu-Natal. In Soshanguve, Tshwane, adolescents are vulnerable to 'Nyaope.'. This substance is a mixture of heroin and marijuana that has become very popular (Rehab Asia, 2012).

2.3.6.8 Sedatives, Hypnotics, or Anxiolytics

The three groups of drugs associated with this class include benzodiazepines, barbiturates and barbiturate-like substances. They are combined, as they share many of the same effects. For example, sedatives reduce subjected tension and induce medical calmness, also common in anxiolytics; hypnotics are drugs used to induce sleep, and sedatives and anxiolytics produce the same effect; hypnotics in low doses produce daytime sedation, similar to sedatives and anxiolytics. These medications are used to treat a host of problems ranging from anxiety to insomnia. However, whilst benzodiazepines and barbiturates are valuable drugs used in treatment, these are open to abuse and can lead to dependency (Perkinson, 2008).

Barbiturates include substances that are easily available on the streets, including secobarbital, popularly known as reds, red devils and downers. Barbiturates are effective sedatives, but are highly lethal when ten times the normal dose is used. Barbiturate-like substances include a commonly known substance, Mandrax, which is used by individuals who believe that it will increase sexual pleasure (Sadock & Sadock, 2009).

Sedatives, hypnotics and anxiolytics may be consumed to obtain a constant and mild state of intoxication. A severe form of abuse involves the intravenous use of these substances. This form of use is associated with a pleasant, warm and drowsy feeling. When used intravenously, rapid and profound tolerance and dependence is present, as well as a severe withdrawal syndrome. This category of substances is highly addictive (Sadock & Sadock, 2009).

2.3.6.8.1 Etiology

The etiology also involves similar factors that those described in the above-mentioned substance-related disorders. The etiology is caused by the interaction of multiple factors including learning and conditioning, genetic predisposition, environmental factors, social factors, neurochemical factors and the actions of neurotransmitters (Sadock & Sadock, 2009).

2.3.6.8.2 Epidemiology

It is estimated that about 6 percent of individuals have used either tranquilizers or sedatives illegally. The age group with the highest prevalence of use is between ages 16 and 34. It is indicated that the female to male ratio is three to one and the white to black ratio two to one. It has been found that benzodiazepines are also used by those abusing stimulants, hallucinogens and PCP to help reduce anxiety (Sadock & Sadock, 2009).

2.3.7 Substance Abuse Psycho-Educational Groups

Substance abuse psycho-educational groups have the main objective of educating adolescents about the dangers associated with substance abuse, and in turn prevent the occurrence of substance-related behaviours. These groups are designed to be content specific and very structured. Information materials often include various modes of information transference such as lecture notes and video clips (Hampton, Senatore, & Gullotta, 1998). Furthermore, Hampton et al. (1998) stated that psycho-educational groups serve the purpose of providing information to adolescents in the direct area of need. These groups create self-awareness and an opportunity to grow and learn.

The major purpose of psycho-educational groups is multi-faceted. The creation of awareness in adolescents includes the physical, psychological and legal consequences of use.

In conjunction with the aforementioned factors, adolescents become aware of the impact of substance abuse on their academic achievement and their relational functioning at school and at home (Rockville, 2005). The incorporation of information is crucial and assists the adolescents to make better decisions and acts as a motivation to seek assistance for their problems (Rockville, 2005).

Corey (2009) stated that groups can neutralise the adolescents' denial about their usage. This can improve commitment to the rehabilitative process and effect change in maladaptive behaviours of the adolescent (Rockville, 2005). Corey (2009) concluded that psycho-educational groups teach adolescents to identify triggers, learn how to avoid triggers and provide assistance in overcoming them. Psycho-educational groups attempt to harbour participation from adolescents and serve as a learning platform in a way to manage their own substance abuse in a less threatening manner (Hampton et al., 1998).

In assisting an adolescent to gain maximum benefit from a psycho-educational programme, the facilitator needs to display congruence, unconditional positive regard and empathy (Rogers, 1961). Other skills the facilitator needs include are setting boundaries, active listening, reflection, confrontation and paraphrasing (Hampton et al., 1998). The facilitator also needs to display leadership in situations where conflict might arise, or boundaries need to be reinforced. Finally, Hampton et al. (1998) maintained that the facilitator needs to be well versed in the information shared as this contributes to the success of the group.

Kaminer, Burleson & Goldberger (2002) claimed that the success of the group depends on how the information is shared with the adolescents, together with how the adolescent is

helped to gain maximum benefit from the learning opportunity provided by the facilitator. These objectives of the group facilitator will assist adolescents to actively engage in learning (Kaminer et al., 2002).

Preventative measures aim to reduce the demand for the substances of abuse, therefore impacting the suppliers of substances of abuse (Abadinsky, 2001). A number of adolescent substance abusers enter a life-long battle with substances (Duncan & Petosa, 1995). The responsibility of society and mental healthcare practitioners is to protect adolescents from the consequences of substance abuse. Therapists dealing with adult substance abusers often consider ways of how to effectively intervene at younger stages as behaviour is often ingrained by adulthood.

Adolescence is a sensitive period when adolescents are mitigating multifaceted age-related tasks. Developmental tasks require mastery and doing so whilst under the influence becomes an unattainable task. This can lead to negative consequences impacting the adolescent's life in years to come.

2.3.7.1 Intervention Models

Adolescence is a period known for experimentation and proneness to engage in risky behaviour. Ellickson (1995) identified three available models that serve as intervention guidelines in dealing with adolescents. The models will be discussed in full.

2.3.7.1.1 Information Model

Adolescents will be able to escape the trap of substance abuse if they are adequately informed about the potential hazards and substance-related consequences. The information

model is psycho-educational in nature. “The information model posits a causal sequence leading from knowledge (about drugs), to attitude change (negative) and to behaviour change (non-use)” (Ellickson, 1995, p. 100). Information in this model is presented in a way that will evoke a response of fear or disbelief in the participant (Cohen, 1996). This includes stories of ex-addicts and video clips that provide a reality check for adolescents about the dangers associated with substances. This model has an educational underpinning and is focused on providing information so that the adolescent can make an informed decision (Abadinsky, 2001). The creation of awareness is the ultimate goal of this model.

2.3.7.1.2. Affective Model

This model focuses on the adolescents’ personality and their way of being. “The model assumes that adolescents who turn to drugs do so because of problems within themselves” (Ellickson, 1995, p. 101). This model focuses on group participation, allowing group interaction that aids with self-esteem and self-awareness (Abadinsky, 2001). “These assumptions are generally implemented through communication training, peer counselling, roleplaying and assertiveness training” (Abadinsky, 2001, p. 232). This model focuses on the space available to the adolescent in the group environment and how this can strengthen confidence and competency in a peer group.

2.3.7.1.3 Social Influence Model

This model focuses on making the correct choices. “The social influence model is centred on external influences that push students toward drug use, especially peer pressure, as well as internal influences, such as the desire to be accepted by the crowd” (Abadinsky, 2001, p. 229). The social influence model aims to allow adolescents to gain self-awareness of the experienced group peer pressures. The model furthermore assists adolescents with developing

internal resources that aid them with resisting group pressures and making effective choices with positive consequences (Abadinsky, 2001).

2.3.8 Group Therapy Model

Therapists acknowledge that the substance abuse population is a unique group of individuals who may often require more than one treatment approach (Barry, 1999). “Group therapy can be lively, challenging, poignant and sometimes difficult: experiences which can help individuals examine and explore their issues in great detail and achieve greater clarity, understanding and acceptance of oneself and others” (Moran, 2006, p. 1).

This is a basic goal for most groups and should be provided in a space that is seen as safe and supportive to allow for constructive change to occur. Group therapy provides a space for members to deal with their emotional difficulties, and to promote personal development of the group (Weinberg, 2000). Group therapy allows for both change and growth. Individuals may receive understanding, support and encouragement from others who are dealing with similar issues (Georgetown University, 2013). It provides psychotherapeutic treatment in a format where there is typically a single therapist who guides up to twelve participants who share similar problems. In group therapy individuals do not only improve from the interventions of the therapist, but also from the responses and wisdom of other group members (Herkov, 2006).

Group therapy thus offers the participants the opportunity to engage with other members who share issues that are similar within a contained environment. The group can try out new behaviours or role plays by engaging with others; this serves a dual and circular function in that feedback and insight are generated within the group (Herkov, 2006).

2.3.8.1 Group Therapy for Substance Abuse

Group therapy is an influential therapeutic tool in the treatment of substance abuse. Adolescents find group therapy very rewarding as they can gain awareness of themselves and other adolescents who also battle with substance abuse. Reducing isolation aids adolescents in realising that if a group member can recover, so can they. Group therapy is commonly defined as the assembly of individuals for a collective therapeutic purpose (Barlow, 2008).

Humanistic and existential psychotherapies emphasise the understanding of the human experience and focus on the client rather than the symptom (Corey, 2009). Psychological problems (including substance-abuse disorders) are viewed as the result of an inability to make authentic, meaningful and self-directed life choices. Consequently, interventions are aimed at increasing a client's self-awareness and self-understanding.

Humanistic and existential therapists place more value on the process in the group than on the actual techniques used. This is referred to as the "genuine encounter" (Corey, 2009, p. 162). For the humanistic therapists, techniques may be suggested when they facilitate the process of client and therapist being together in an empathic way, but there must never be attempts to 'do anything' to a client (Corey, 2009). Rogers (1961) believed the quality of the therapeutic relationship supplies both the essential and appropriate conditions for change. Roger's three core conditions of congruence, unconditional positive regard and accurate empathy (1961) are the key tenets of person-centred therapy (Corey, 2009).

Humanistic therapists emphasise the importance of the therapeutic relationship. The aim is to establish an authentic relationship that is non-judgemental and a joint partnership.

Contemporary existential psychotherapist, Irvin Yalom (1980), perceives the therapist as a 'fellow traveller' through life who uses empathy and support to elicit insight and change.

2.3.8.2 Interactional Group Process

Yalom's interactional group process model (Yalom, 1995) focuses on the relationships between group members and aids adolescents to not only understand themselves better, but to understand themselves within the relationship with others. An interactional group process assists adolescents with self-awareness into their behaviour, but also in becoming aware how their behaviour might impact others. In the group session. The facilitator allows the group process to be the changing agent in the group session. Yalom (1995) confirms that attention is fixated on the relationships within the group and how these relationships grow and mature in the here and now.

Yalom (2005) identified therapeutic values that play an instrumental role in the process. These curative factors include:

- Universality - The ability of adolescents in the group to share common experiences of similar problems allows them to feel part of a group and therefore reduces isolation. Their experiences are authenticated through universality and therefore improve self-esteem.
- Altruism - The group setting allows adolescents to assist one another. The experience of helping another person enhances self-esteem, improves coping strategies and enriches interpersonal relationships.
- Instillation of hope - In a group there is a possibility that adolescents are in different stages of recovery. Witnessing another group member prospering in recovery can motivate the adolescent who is struggling not to give up hope.

- Imparting information - Adolescents are more open to learning new information if they form part of a group. Learning through one another is beneficial as they are more open to their peers than to adults at times.
- Corrective recapitulation of the primary family experience - Adolescents often identify members of their own family in the members of the group. Dealing with transference in the group can serve as a valuable therapeutic tool. Gaining understanding with the help of the facilitator can help adolescents not to repeat debilitating past relational patterns in the here and now.
- Development of socialising techniques - The group is a haven where adolescents can practise new behaviour and new ways of dealing relationally with the world, in other words extending their skills safely in a contained environment.
- Imitative behaviour - Adolescents develop a new set of socialisation skills by observation and modelling other group members.
- Cohesiveness - The aim of the group is to provide the adolescent with a sense of belonging, a place where the adolescent feels validated, acknowledged and not judged. All humans have the intrinsic need to belong. Growth can only occur in the group if the adolescents feel that they are part of the group.
- Existential factors - The awareness that is created in adolescents is that they are the writers of their own destiny. Therefore they need to take responsibility for the decisions they make as they impact their life journey.
- Catharsis - The adolescents are able to tell their stories to others in the group who understand due to experiencing similar problems. They discharge their shame and feelings of guilt by sharing with a non-judgemental audience. This cathartic experience assists the adolescents to relieve emotions in a safe environment. Catharsis is often seen as a changing agent.

- Interpersonal learning - Adolescents who form part of the group enhance their personal self-awareness through group interactions. Giving feedback about the behaviour of others and receiving feedback as well, assist the adolescents to learn more about themselves and the impact they have on others.
- Self-understanding - Adolescents are assisted through interaction with other group members to become reflective about their behaviour and develop insight into the reasons for their behaviour.

Every group member will experience the group in a different way. All the factors will necessarily be present in all groups. Group interaction is seen as the changing agent in various research studies (Barlow, 2008). Therefore, the group therapy process aims to introduce these factors in phase two of the intervention.

The group is presented with the opportunity to change these weaknesses within the four major areas of the individual, namely self-esteem deficits, emotional regulations, self-care and relational problems (Barry, 1999). Adolescence is a sensitive period and substance abuse is a sensitive topic, therefore the combination of these two complexities will flourish in a group-type environment as the group provides a sense of safety and comfort (Barry, 1999).

Group involvement offers the adolescents a sense of security that allows movement away from their current behaviour trends to an unknown territory of recovery (Barry, 1999). The group setting therefore introduces a sense of universality as a way of bridging isolation, whilst dealing with the guilt and shame associated with the substance abuse (Barry, 1999).

Alcoholics Anonymous and Narcotics Anonymous are substance abuse support groups. The founders of these two groups identified the need of individuals who battle with substance abuse problems to belong to a group. Their focus is on breaking isolation and providing a non-judgemental environment where one can connect with others with similar problems. Belonging to a community serves an existential purpose for many substance abusers.

2.3.8.3 Cognitive Behavioural Group Therapy

Group psychotherapy has psychodynamic underpinnings and was initially used to deal with pathologies. Cognitive Behavioural Therapy (CBT) was developed by Aaron Beck and colleagues (Beck 1979). Traditionally group therapy valued the interactions between group members as the agents of change. CBT groups used cognitive behavioural strategies as the aim of the change within groups (Bieling 2006). Using psycho-education within the group therapy environment fits well with the education philosophy, as CBT is highly structured and very directive (Fennell 1989).

Group CBT does not only focus on learned skills, but also on the group process (Bieling 2006; Tucker 2007). Yalom's curative factors, as discussed above, have reported on the importance of the group process.

In any group process there will be patterns of maladaptive relational patterns (Burlingame 2004). CBT principles can be used to create awareness of the patterns, as well as offer suggestions of how to manage these patterns. Observational learning and modelling are CBT principles (Bieling 2006). White & Freeman (2000) indicated that focusing on the task at hand and the cohesion of the group are two essential variables that need to be present in

order for a CBT group to be beneficial to the adolescent group members. Cohesiveness is defined as “the degree of personal interest of the members for each other” (White 2000, p. xiii). Furthermore, a CBT group needs to have a goal which the group is working towards.

2.3.8.3.1 Cognitive Restructuring through Behavioural Experiments

The adolescent group provides the perfect setting for conducting behavioural experiments. In this setting the belief system, the thought process and the assumptions of adolescents can be tested and challenged. This then provides the adolescents with the opportunity to restructure their cognitions. This process occurs not only through the facilitator taking lead, but also through the observations and comments of the group who serves to a degree as co-therapists (Heimberg 1993).

2.3.8.3.2 Normalising through Identification with Others

Adolescents become aware of their anxieties, problems and emotional responses through the interactive process in the adolescent group. In turn they become more aware of the rest of the group struggling with the same concerns. When they realise that they are not alone and not unique in their thinking and behaviour, their experiences are normalised to a degree. The normalising experience reduces feelings of hopelessness, guilt and shame and also breaks the stigma attached to the person. This principle is similar to Yalom’s concept of universality (Yalom, 1995). The normalisation process within the group therapy environment is a cognitive restructuring technique (Heinberg, 1993).

2.3.8.3.3. Collaborative Therapeutic Relationships

Adolescent group members are at times more open to accept comments from group members that are their peers than from the facilitator. The relationship in the group should be

as facilitative as possible, allowing the adolescents to find value in the group. Therefore, comments and observations should be suggestive and not attacking or punitive. The best interest of each member in the group should be adhered to in the collaboration between the facilitator and the group members (White 2000).

2.3.8.3.4 'In-vivo' Exposure

Being part of a group reduces the fear and anxiety about introduction to a new situation or a new idea of behaving. A situation such as saying no to friends who abuse substances can be re-created in the group environment to make them familiar with the feared stimuli and manage the fear effectively. This technique links with cognitive restructuring (White, 2000).

2.3.8.3.5 Positive Reinforcement and Vicarious Learning in a Safe Environment

Lewinsohn (1999) suggested that adolescents in a group therapy environment are more willing to engage in a task in the group if the rest of the group members participate. Vicarious learning is known to be beneficial in group therapy. Therefore, once an adolescent has observed another group member engaging and completing a task, the greater will the person's willingness to engage be. The cohesiveness of the group and the motivation and encouragement received within the group assist adolescents to participate whereas they have previously been avoiding participation (White 2000). Reaching the goal of the task is reinforced by praise from the facilitator and other group members, which in turn serves as positive reinforcement (Lewinsohn 1999; Morrison 2001).

2.3.8.3.6 The Experience of Mastery

Education on dealing with problems and solving them effectively is an important aspect in a group therapy environment. Adolescents in general battle to be objective and solve

problems skilfully. However, adolescents find it very easy to solve problems experienced by their peers and other members within their group (Hollon 1979). The group therapy environment provides a safe and secure space to actively discuss solutions to problems (White 2000). Practising problem solving skills within the group provides the adolescent with a sense of mastery and achievement. The aim is to use these practised skills outside of the group as well and bring feedback to the next session. The generalisation of these skills motivates the adolescent to apply the skills in various settings and solve their own problems.

2.4 Conclusion

It is evident that the burden of alcohol and other illicit drug use by adolescents and adults all over the world has an enormous impact on public health, both epidemiologically and economically (Tetrault & O'Connor, 2008). The substance abuse problem in South Africa is currently on the rise and is deemed to be very serious (Rehab Asia, 2012). Substance abuse amongst adolescents is rife and problems with substances during this critical period in their lives often have lifelong consequences.

As discussed, alcohol and other illicit substances have numerous adverse effects on the user and may even lead to death. There is also evidence that substance use impacts adolescent health, plays a role in the rise of crime in the country and is evident in deviant sexual behaviour. It is therefore crucial that substance abuse is managed more effectively through preventative programmes in South Africa. Substance abuse holds risks not only for the individual user, but also for their families, unborn children, the community and the broader South African society (van Heerden et al., 2011). Programmes that assist, inform and guide adolescents during this developmental stage is therefore pivotal. Psycho-educational groups inform adolescents about the reality of substance abuse, as well as how they can avoid the

pitfalls of abuse. The group processes can actively change current behaviour and thought processes by having goal-orientated activities and allow group dynamics to bring about change. These groups can be successful when using the principles of CBT and the factors of the interactional group process.

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

This section includes a literature review which considers what has previously been published on this topic by accredited researchers and scholars. It looks at the effects of substance abuse, together with the impact of substance abuse on personality and self-regulation. The section concludes with hypotheses drawn from previous literature.

3.2 Literature Review

Adolescence is a critical developmental phase. Adolescents are faced with a number of trials during this period such as planning their future, developing independence and building relationships with peer groups. Furthermore, being confronted with the choice to experiment with substances is one of the many challenges that adolescents come across on a regular basis in South Africa. Experimentation with substances is understood as being part of the process where an adolescent wants to experience novel things, even if there are risks associated with the experimentation. However, not all adolescents who experiment with substances develop a substance-abuse problem. Those who do develop substance abuse problems are often impacted by this for the rest of their lives. Most adolescents make decisions about the use of substances because they are exposed to them at some point.

Very few substances have been declared illegal from the moment of discovery or synthesis, but were considered illegal due to various problems resulting after being used. Monitoring the Future Study in America concluded that the rise of substance abuse amongst adolescents is growing at an alarming rate (O'Malley & Bachman, 2000).

Early and primary prevention of adolescent substance abuse is intended to protect adolescents (Bandura, 2000). The promotion of resiliency, progressive and adaptive behaviour in adolescents is the primary goal of substance abuse interventions. In addition, interventions aim to reduce the number of new substance abuse cases, minimise risk and vulnerability factors and encourage psychological well-being.

3.3 Patterns of Psychoactive Substance Use

According to Smith and Landry (1988, p. 283) "As the substance dependency increases, so does the possibility for compulsive, dysfunctional drug use." Smith & Landry (1988) identified five reasons adolescents use substances. These include experimental use (short-term use) motivated by curiosity. Social-recreational use is prompted by the desire to share a pleasurable experience with friends and acquaintances. Circumstantial-situational use is motivated by the craving to achieve a known drug effect, in order to manage with a specific situation or event. The last identified use is compulsive use, which is frequent and extreme use which creates some dependence, whether physiological, psychological or both (Smith & Landry, 1988).

3.4 Age of Onset and Developmental Issues

The symptomatic behaviours of substance abuse typically develop in adolescence and show all the hallmarks of the intra-psychic conflicts of adolescence, often reflecting disturbances and difficulties at much earlier stages of development (Gleeson, 1991).

Age of first experimentation with substances plays a pivotal role in the development and management of this occurrence (Brown & Abrantes, 2006) and is reportedly an important risk factor. In research conducted by the National Longitudinal Survey of Youth (NLSY),

chances of developing alcohol dependency declines by 9 percent per annum for every chronological year the adolescent first experimented. There is consensus in literature that substance use before the age of fourteen is associated with the development of substance abuse (Mash & Wolfe, 2010).

Substance use and abuse is associated with adolescent tensions such as rebellion versus submission and autonomy versus conformity. Intra-psychic issues of parental and societal values, as well as the added peer group expectations that are exacerbated by external issues. The potential actual substance abuser is then confronted by fundamental, even philosophical questions of identity, e.g., “To what extent do I let myself go or control myself? What attitude do I adopt towards my feelings, my body and myself?” “To what extent do ideas of others, and my own ideas and expectation guide me in this? In what sense must I or can I be independent in my relationship with others and with myself?” (Gleeson, 1991).

The intensity of these questions and whether they are acted on or not via substance use depends primarily on social and historical factors, especially where certain substances are illegally available in abundance (Gleeson, 1991).

3.5 Characteristics of Adolescence

The period of adolescence is marked as a pivotal and sensitive phase where identity is formed and adolescents start directing their own futures (Lerner & Villarruel, 1994). Challenges occur daily during this period, including searching for moratorium, consolidating advanced cognitive abilities, transitioning through education and beginning employment, negotiating changing relationships with family, assuming legal responsibilities, evolving

sexuality, connecting with peers, launching self-decided morals and values and lastly establishing their identity (Cameron & Karabanow, 2003).

Most experiences are new and novel for adolescents (Burns et al., 2008). The shift from adolescence to adulthood has become more difficult in recent times due to the ever-changing stance of the world, which includes changes in the economy, societal changes, as well as advancement in technology (AIHW, 2007). Increased involvement in risk behaviour marks the adolescent period. Whilst these risky behaviours are a common occurrence in adolescence, it can expose adolescents to unfortunate long-term outcomes (Steinberg & Morris, 2001).

Kazdin (1993) emphasized that parents and society should not avoid intervention due to the stereotyped belief that it is a “stage that will be outgrown.” Theorists agree that conduct behaviours that surface during this time frame are “life-course persistent problems” (Moffitt, 1993) which are linked with acts of violence and experimentation with substances, as well as psychiatric difficulties (Moffitt, 1993; Moffitt, Caspi, Harrington & Milne, 2002).

Adolescence is not only associated with risk, but is also seen as the catalyst for positive growth and future success (Wekerle, Waechter, Leung & Leonard, 2007). Various physical changes, such as hormonal shifts and modifications in brain functioning, impact behaviour. This has been linked with impulsivity and risk taking behaviour during adolescence (White, 2005). An influx of pushing boundaries within the family unit and spending more time with peers than with family is common (White, 2005). Adolescence is a process of individuation and is the moving away from the ideas and beliefs of their parents to a process of finding their

own voice. It is also marked by the development of reasoning abilities. Therefore, adolescents in different stages of seeking their identity might need different modes of intervention.

Supporting an adolescent's path to independence can be a huge challenge for parents who might not know when to exercise control and assist with the choices their adolescent child makes. Parents want to allow independence, but not at the cost of negative life consequences (Ungar, 2004).

3.5.1 Prevalence and Significance of Behavioural and Emotional Problems and Risk Behaviours in Adolescence

Sawyer et al. (2001) indicated in an Australian study that the child and adolescent rates of mental health problems are almost equal. Depression is seen as the most prevalent psychiatric diagnosis amongst adults and adolescents (Australian Bureau of Statistics, 1998). Furthermore, it has been reported internationally that one in every four adolescents in the general population will have a depressive episode before they are eighteen years of age (NSW Health, 1999; NHMRC Clinical Practice Guidelines, 1997). Adolescents are also known to be more prone to internalize their anxiety and depression (Sawyer et al., 2001) and seek other ways of relieving these internal states. This often leads to self-medication with substances. Bond et al., (2005) also indicated that females are more prone to experience anxiety and depression and internalise the symptoms where males will rather externalise or act out their symptoms.

Risky behaviour is prevalent during adolescence. Unprotected sex and experimentation with substances are prominent. An Australian study indicated that 10% of 12 year-olds and 49% of 17 year-olds are using alcohol. Of the current drinkers, 30% of 15 year-

olds and 44% of 17 year-olds abuse alcohol (White & Hayman, 2006a). Furthermore, the study added that 18% of students aged between 12 and 17 years have experimented with Dagga (White & Hayman, 2006b). Lastly, the study revealed that 16% of 12-year-olds experimented with smoking cigarettes and this figure rises to 55% among 17-year-olds (White & Hayman, 2006c).

A definite relationship between substance use and emotional and behavioural problems is noted. A sense of hopelessness experienced by adolescents may be a cause of self-medication through substances (Townsend et al., 2001).

3.5.2 Risk and Protective Factors

Individual characteristics of the adolescent, the family of origin and the associated peer group can serve as risks or protective factors in the development of a substance abuse problem. For example, current research indicates the following; (1) Family factors such as poor family functioning are strongly related to depressive symptoms in adolescents (Bond, Toumbourou, Thomas, Catalano & Patton, 2005), (2) family discord including substance abuse, abuse and neglect, family stress, poor communication styles and parental mental health problems predict self-harming behaviours in adolescents (Miller & Glinski, 2000), and (3) negativistic behaviour is linked to poor parenting, involvement with anti-social peers, early substance use and peer rejection (Bassarath, 2001).

Ungar (2004) indicated the importance of the adolescents family. An adolescent needs nurturing, care and backing during this stage of his life. There needs to be equilibrium between independence and parental input. Protective factors such as being part of a loving family who supports the adolescents in their endeavours are necessary. Other protective factors include

other adult or caregiver support, a positive peer group, religiousness, a positive school climate and lastly optimism about the future (Perkins & Jones, 2004).

3.5.3 Risk factors

The five domains in which risk factors can be categorised that impact the progress of maladaptive behaviour include; (1) Individual (developmental delays, personality variables), (2) family (family conflict, coercive parenting, mental illness, low socio-economic status), (3) peer relations (deviant peer-group membership, peer rejection), (4) school (low commitment to school, academic failure), and (5) community (poverty, neighbourhood) (Bond et al., 2004).

Research has indicated that risk factors are often associated with other negativistic behaviours. These behaviours include the abuse of a substance, suicidal or self-mutilating behaviour and the occurrence of psychiatric disorders (Miller & Glinski, 2000). The study by Bond et al. (2005) found that increased risk factors were associated with depressive symptoms in all areas of the adolescent's functioning.

Miller & Glinski (2000) investigated the factors associated with adolescents who were prone to self-mutilate and who reported suicidal ideation. The factors playing a role in this presentation incorporate conduct disorders, personality disorders, drug and alcohol misuse and mood disorders. Other factors that are also relevant are a lack of communication and an influx of conflict in the family unit, family stress, psychiatric diagnosis in a parent, abuse and mistreatment (Miller & Glinski, 2000).

Puberty is also linked to behavioural problems, as well as emotional and risk behaviours in relation to individual risk factors. The earlier a child reaches puberty the greater

the opportunities to engage in substance abuse (Burt et al., 2006; Costello et al., 2007; Reardon, Leen-Feldner & Hayward, 2009). The nature of relationship between these variables is not yet clear.

The stresses related to low socio-economic environments bring another set of variables that impact adolescent development. The population of adolescents displaying substance abuse behaviour or other forms of delinquency is rife due to a lack of economic and social resources. Resources do not only include monetary resources, but also a lack of parental involvement. Additional pressures are experienced by adolescents who are victims of abuse. Wekerle et al. (2007) indicated that adolescents with a history of maltreatment in the form of abuse or neglect face challenges. These difficulties relate to poor self-regulation of emotions, problems in forming an attachment to others, hyper vigilance, psychiatric concerns, risk-seeking behaviour and a negativistic self-image linked with self-sabotaging behaviours.

Smith, Ireland & Thornberry (2005) suggested that there is a general opinion that adolescents are better guarded and protected against the impact of stressors than children. Due to this the impact of stressors during adolescence are often not included in literature as the focus often lies with children who are perceived as the more vulnerable population. Studies indicate that if abuse occurs in adolescence, the result is often engagement in substance abuse (Ireland, Smith & Thornberry, 2002; Smith, Ireland & Thornberry, 2005).

3.5.4 Protective Factors and Resilience

Protective factors are the variables that buffer against, or offset the effects of risk factors. Resilience refers to the capability of an adolescent to overcome challenges or adversity or the ability to bounce back from tough times. Resilience and protective factors are

often seen as complimenting concepts in literature. Ungar (2004) identified resilience as the result of a complex interplay between the environment and the individual, where the result is a psychologically healthy individual. Researchers have found that a large portion of children are able to adjust and become successful in their life endeavours despite dire environmental and social situations. This phenomenon has gained a strong following where theorists are eager to understand the concept of resilience (Grotberg, 1997).

Protective factors are understood as including the following; (1) Attachment to parental figures, school and the community, (2) social and academic prowess, and (3) the creation of multiple friendships by being involved in extracurricular activities. Adolescents who value their family relations, as well as their education were seen as being protected from substance abuse and other health problems (Resnick et al., 1997). The importance of other caregivers and parents in building resilience in high-risk adolescents was recently studied by Ungar (2004). It was found that adolescents want the support of their parents and they need to stay connected to their parents whilst seeking independence. Ensuring the development of a resilient adolescent, Ungar (2004) indicated that parents need to stay involved in the lives of their adolescent children. Parents need to provide structure for the adolescent with enough space to be independent, but also with firm boundaries in place that will ensure that the adolescents will master their challenges and develop into well-adjusted and psychologically healthy adults.

3.5.5 Identity and Individual Adjustment

Considerable research suggests that the extent to which adolescents successfully develop a coherent and structured sense of identity exerts a strong influence on psycho-social and relational adjustment (Kroger & Marcia, 2011). A consolidated sense of self serves to

guide one's life pathways and decisions (Kroger, 2007). According to Adams & Marshall (1996), one's identity fulfils five functions; (1) One's identity offers structure and gives the opportunity to understand oneself in relation to the world; (2) identity offers a sense of harmony, unity and consistency in one's thoughts, emotions, behaviours, morals and values and commitments; (3) identity offers individuals a link between what was, what is and what is to come, creating a sense of purpose; (4) identity offers individuals a life course filled with chosen values, desired outcomes and commitments, and (5) identity offers competence to manage decisions, manage thoughts, emotions and behaviours and creating meaning in the process (Berzonsky, 2011; Schwartz, Côté, & Arnett, 2005).

A substantial body of empirical evidence indicates that adolescents who achieve a stable identity are more likely to be protected from various forms of risk behaviours including alcohol use, illicit drug use and unsafe sexual behaviour. Conversely, adolescents who struggle to reach their personal goals and who experience stress associated with a lack of meaningful commitments may be more vulnerable to engage in delinquent acts (Schwartz, Beyers, et al., 2011).

3.5.6 Identity Development

James (1890) and Cooley (1902) suggested that individuals obtain a great deal of personal and reflective information by interacting with significant others. Cooley (1902) referred to the reflective process through which individuals gauge both their self-worth and their value to the world. Erikson (1968) supported this metaphor and conceptualised identity development as occurring at the intersection between the individual and their social environment. A requirement for developing a healthy and adaptive sense of self and identity is the need to experience and balance individuality and belongingness (Adams & Marshall,

1996; Erikson, 1968; Koepke & Denissen, 2012). Development through frequent positive contact with other people and through stable and reliable parent-child relationships is called the need for belongingness, on an interpersonal level (Baumeister & Leary, 1995).

Many of the social interactions that guide the development of identity have their roots in the family context, leading Cooley (1909) to state that the family is “fundamental in forming the social nature and ideals of the individual” (p. 25). Parent-child relationships provide constant feedback on the self, and this feedback can either enhance or detract from one’s psychosocial development (Schachter & Ventura, 2008). Family not only represents the first context in which individual development occurs, but it strongly influences how individuals will experience other important contexts (peers, adult authority, and school), as well as the process and content of identity development (Scabini & Manzi, 2011).

Parental socialisation strongly impacts identity formation. Based on analyses of parents’ stories of their childrearing, Schachter & Ventura (2008) found that parents shape their children’s identities by (1) conveying what they believe to be good and proper expressions of self, (2) actively engaging themselves with their children and adjusting their own personal goals to best fit the needs of the child, (3) remaining informed about their child’s development within the larger social context, and (4) adopting their own goals and parenting strategies rather than simply rehashing memories of their own parent-child relations.

Parents shape their child’s identity through the ways they build trust and foster attachments. As defined within the framework proposed by Bowlby (1979, 1982), attachment refers to a deep-seated emotional bond that individuals form with their primary caregivers. From an evolutionary point of view, new-borns and young infants who stay close to their

caregivers have a much better chance of survival when facing inevitable threat or danger. Over the years, the definition of attachment has widened to include other attachment figures and developmental periods (Buist, Deković, Meeus & Van Aken, 2004).

Leading scholars in the field of attachment, including Ainsworth, Blehar, Waters, and Wall (1978) have posited that attachment security refers to expectations of relationship security based upon the internalisation of child-parent interactions. The attachment between a child and a caregiver is optimised when the attachment figure (the object of the attachment) provides physical proximity, a safe haven and a safe base from which one can go through the world (Bowlby, 1982). This portrayal of attachment resonates well with Erikson's psycho-social concept of basic trust versus mistrust (Erikson, 1970). An individual's unique attachment history gives rise to what Bowlby called an internal working model of self and others (Bowlby, 1973; Rholes & Simpson, 2004). The internal model of others informs the child as to whether attachment figures are expected to be dependable (positive) or insensitive, neglectful or abusive. Likewise, the internal model of self informs the child as to whether they are lovable (positive) or unworthy of love (Bowlby, 1980; 1988). This first conception of self as lovable or unlovable may serve as the earliest indication to one's sense of identity.

Furthermore, although Bowlby's (1979) particular emphasis was on the attachment bond that a young child forms with primary caregivers, he stressed that attachment behaviour characterises human beings throughout their lifespan. Internal working models continue to evolve with new relationships throughout life, and these working models may continue to feed into an adolescent's early sense of identity. Moreover, in developmental terms, secure attachments serve as a prerequisite for guilt-free and shame-free exploration (Kroger & Marcia, 2011).

Furthermore, Bowlby (1979) argued that a secure sense of attachment, or the knowledge that one or more trusted people will come to one's rescue when needed, is important for exploration at any age. Accordingly, the identity literature has suggested that secure attachments promote a secure base from which adolescents will feel free to explore the environment (Marcia, 1989). The secure attachment bond between parent and child communicates a sense of acceptance that agrees for freedom to attempt new roles and make independent choices and decisions while being able to count on parents for support (Beyers & Goossens, 2008).

Recently, studies using Erikson's (1970) identity framework, have focused on additional components of parent-child relationships and have provided some empirical support associating positive family functioning and identity development. For instance, longitudinal studies have found that parental involvement and communication, as well as family cohesion in early adolescence, are positively predictive of identity coherence and negatively predictive of identity confusion (Reis & Youniss, 2004; Schwartz, Mason, Pantin, & Szapocznik, 2008). Further, the relationship between family functioning and identity becomes increasingly bidirectional over time during adolescence (Schwartz et al., 2009).

3.5.7 The Identity Status Paradigm

Erikson's (1950, 1968) model of identity formation was strongly rooted in his clinical observations. Therefore his writing was heavily descriptive and theoretical. Although this emphasis provided a rich and expansive perspective on human development generally and on identity formation specifically, the lack of precision and empirical focus made it difficult to operationalise his basic concepts of psychosocial development (Côté, 1993). Marcia (1966) was among the first writers to provide a concrete empirical foundation for Erikson's concepts.

He suggested that adolescents engage in at least two key formative processes as part of identity formation, i.e. exploration (weighing of various identity alternatives and active questioning) and commitment (which entails adhering to a set of beliefs, goals, and values) (Schwartz, 2001).

Marcia derived four identity statuses based on a combination of these two identity processes, where an identity status represents “an individual’s style of coping with the identity crisis” (Marcia, 1967, p. 119). There is a considerable amount of evidence about the correlation between the beginning of adolescence and beginning of substance abuse. The impact of identity styles on the development of substance abuse has been studied by various researchers. The correlation between identity style and adolescent substance abuse reported a durable and opposite linear correlation for the involvement of identity status with adolescent substance abuse, according to Bishop et al. (2002). Adolescents with higher identity difficulties show an increased level of substance abuse.

3.5.8 Identity Statuses and Problem Behaviours

Despite considerable expansion of the identity status literature, little empirical work has examined identity status in relation to a wide range of problem behaviours, specifically substance abuse amongst adolescents. A limited number of studies that have studied relations between identity status and problem behaviours have produced inconsistent findings. To illustrate this, Jones & Hartmann (1988) found that diffused high school students reported the highest level of cigarette, alcohol and marijuana use, foreclosed youth reported the lowest levels and adolescents in the achieved and moratorium statuses reported intermediate levels of use of these drugs. Jones, Hartmann, Grochowski & Glider (1989) examined the connection between identity status and substance abuse comparing adolescents in a rehabilitation

treatment centre and a matched school-based sample. They found relevant and important differences between the two groups on achievement (higher in the school sample) and foreclosure (higher in the treatment sample).

Nelson, Padilla-Walker & Carroll (2010) did not find significant associations between identity statuses analysed in different domains (religion, values, family, and dating) and drug use in a population of youth attending a religious university. Similarly, Frank, Jacobson & Tuer (1990) discovered that occupational identity status was not related to alcohol consumption in male and female young adults, and Spruijt, De Goede, Iedema, Maas, and Duindam (1999) reported that identity was only weakly associated with drug use in Dutch sample of adolescents and emerging adults.

To summarise, research on identity status and externalising problem behaviours suggests that adolescents characterised by a diffused identity status are viewed as more vulnerable to problem behaviours. The lack of a coherent or synthesised identity structure observed in the diffused status (Schwartz, Beyers, et al., 2011) may prevent adolescents and young adults from delaying gratification and from avoiding pleasure-seeking behaviours that are harmful to one's health. However, the full range of studies on this topic is quite limited, and there does not appear to be a conclusive set of findings.

3.5.9 The Identity Styles

One of the primary extensions of the identity status model has been identity style (Berzonsky, 2011; Schwartz, 2001). Drawing on Kelly's (1955) constructivist tradition, an extensive body of research has developed within the identity literature, viewing the individual as an intentional agent who participates in the construction of his or her intrapersonal and

social world (Berman, Schwartz, Kurtines & Berman, 2001). Viewed through a constructivist lens, successful identity development is marked by being proactive in making identity-related choices through forming and testing hypotheses in a rational manner (Grotevant, 1987). In contrast to this perspective, Berzonsky (1989) introduced identity style, a social-cognitive framework, to index the way in which an individual typically processes, organises, uses and revises information related to the self (Smits, Soenens, Vansteenkiste, Luyckx & Goossens, 2010)

By late adolescence, adolescents have acquired the skill to use all three identity styles. Research suggests that both the informational and normative styles are generally more adaptive than the diffuse-avoidant style (Berzonsky, 1990; Berzonsky, 2011). In contexts where self-determined decision making is advantageous or required, the informational style may be more adaptive than the normative style (Berzonsky & Kuk, 2000). Moreover, research has also indicated that diffuse-avoidant adolescents delay and avoid conflict or making decisions (Berzonsky & Ferrari, 2009). Diffuse-avoidant adolescents lack commitments, do not manifest self-awareness, respond to life choices or dilemmas with emotion-focused strategies (denial, wishful thinking, and tension reduction), and allow immediate gratification or situational demands dictate their choices. In contrast, adolescents adopting an informational style apply their mental resources and are effortful, evaluative, and deliberative (rational) as they gather information that is relevant to them, they are cognitively complex, self-aware and tend to delay judgment as they engage in self-construction.

Adolescents utilising an informational identity style use problem-focused strategies, are open minded, goal directed, apply self-management skills and seek out alternatives when making decisions. Individuals utilising a normative style cannot tolerate ambiguity, appear

closed and require externally imposed structure. Berzonsky & Luyckx (2008) suggested that normative processing may be automatic (an implicit or intuitive approach) and underlies defensive or rigid reasoning and lack of self-reflection.

3.5.10 Identity Styles and Problem Behaviours

Several studies highlighted the role of identity styles in adolescent adjustment (Berzonsky, 2011). The diffuse-avoidant style has been connected with (1) hyperactivity and conduct problems (Adams et al., 2001), (2) neuroticism (Dollinger, 1995), (3) depression and anxiety disorders (Nurmi, Berzonsky, Tammi & Kinney, 1997), (4) eating disorders (Wheeler, Adams, & Keating, 2001), (5) criminal behaviour (Adams, Munro, Munro, Doherty-Poire & Edwards, 2005) and (6) hopelessness and low self-esteem (Phillips & Pittman, 2007).

In conclusion, the literature on identity styles and problem behaviours suggests that adolescents who rely mainly on a diffuse-avoidant style are more likely to endorse problem behaviours, specifically substance abuse (Emler & Reicher, 1995, Vega, Apospori, Gil, Zimmerman & Warheit, 1996).

3.6 Effects of Adolescent Substance Abuse

Adolescents who struggle in some areas of their life are more likely to experience problems in other areas of their lives (Dryfoos, 1990; Gottfredson & Hirschi, 1994; Jessor & Jessor, 1977). Unfortunately, the abuse of substances is common in today's adolescent communities. Many adolescents today use substances as a way to cope with everyday pressures such as school, after school jobs, sports activities, domestic violence and peer pressure. Adolescents turn to substances because they offer escape from a variety of problems that they might be experiencing at home or in school.

Social scientists have tried, over a period of time, to understand why some adolescents do and others do not experiment with substances. Adolescence has been found to be a period of weakening bonds with parents and strengthening bonds with peers (Flay, 1994). According to one study, marijuana use by teenagers who have prior anti-social problems can quickly lead to dependence on the drug (Crowley, 1998). Research increasingly shows commonalities of violence, criminal acts and delinquency with substance abuse.

According to SACENDU (2011) the following consequences are noted when adolescents abuse substances:

- Health consequences
 - Adolescents are at a greater risk to be involved in violent acts and accidents that can result in death, disability or serious injury.
 - Adolescents are more prone to display risky sexual behaviour. This leads to possible sexually transmitted diseases and HIV. The risk of unwanted pregnancies and abortions also increases.
 - Adolescents are prone to have ideas and thoughts about suicide.
 - Adolescents often develop co morbid psychiatric conditions.
- Social consequences
 - Adolescents are often absent from school, prone to malingering and show a definite decline in academic functioning.
 - Adolescents are alacritous to get involved in criminal activities as well as “gangsterism”.
 - Adolescents show a definite decline in coping skills and in their relational functioning. There is a decline in dealing with peers and their families appropriately.

3.7 Personality and Adolescent Substance Abuse

The relationship between personality and problem behaviour has received a lot of attention in research studies. Due to various personality definitions and theories, there is a definite need for a comprehensive personality measure (Popkins, 1998). Research focusing on the impact personality has on substance abuse indicates that impulsivity, depressed affect, sensation-seeking, and sociability are linked with substance abuse (Aneshensel & Huba, 1983; Wills, Sand, & Yeager, 2000; Youniss & Yates, 1997). Theorists agree that substance abuse is the result of the negotiations between various factors and personality. These factors can be social, environmental, psychological or biological in nature (Sher, Trull, Bartholow, & Vieth, 1999).

Personality is seen as playing a part in pre-disposing an adolescent to substance abuse and other delinquent behaviours (Theakston, Stewart, Dawson, Knowlden-Loewen, & Lehman, 2004), therefore the earlier identification of possible risk factors, the greater the opportunity for successful intervention (Roberts & DeVecchio, 2000). Theorists agree that biological and environmental factors play a role in the development of personality (Pickering, Farmer & McGuffin, 2004).

Bewley (1986) postulated that substances impact personality traits and not vice versa. A Japanese proverb sums up Bewley's sentiments: "First a man takes a drink, then he takes another drink, then a drink takes a drink, then a drink takes a man" (Bewley, 1986, para 4). Lastly, Visser & Moleko (1999) stated that adolescents use substances to forget their problems, making it the most pertinent reason for substance use.

3.7.1 Global Personality Traits and Substance Abuse

The FFM has successfully been used to profile substance abusers (Walton & Roberts, 2004). There is a possible relation between global traits and substance abuse. Ruiz et al. (2003) reported links between the FFM and substance abuse. The results indicate that substance abusers are prone to display high levels of Neuroticism, as well as high levels on Openness to change and Extraversion. The scores on conscientiousness and agreeableness are low (Miller et al., 2004).

When substance abusers score high on Neuroticism, it indicates that they experience negative feelings in terms of the Five Factor theory of personality. Non-substance abusers are not as emotionally labile as abusers. They are less rash, less anxious and less depressed. When substance abusers score high on Extraversion, they are prone to look for stimulating or adventurous situations that are often seen as high risk situations. Furthermore, they seek group cohesion and are able to stand up for themselves. Many earlier findings support this outcome (Jackson & Matthewes, 1988). Activity, sociability, risk-taking behaviour and impulsivity have been related with the dimension of extraversion (Costa & McCrae, 1992).

3.7.1.1 Neuroticism

Neuroticism has been related to the ability of an individual to adjust to emotional or stressful situations and is defined as negative affect (Costa & McCrae, 1992). Adolescents who are prone to negative emotions score high on Neuroticism. These include aggression, anxiety and depression (Parry & Bennets, 1998). Howard & Howard (1995) linked substance abuse to neuroticism. More substances are consumed to reduce negative states (Cooper, Frone, Russell, & Mudar, 1995). Substance abuse is often interpreted as the attempt of the adolescents to self-medicate their negative affect (Blane & Leonard, 1987; Wills & Shiffman, 1985).

Substance abuse has been linked to rash behaviour. Adolescents are prone to react hastily and impulsively to stimuli (Colder & Chassin, 1997). Furthermore, Holder (1998) concluded that a correlation between the active seeking of pleasure and substance abuse exists. Adolescents scoring lower on impulsiveness have been linked with better self-regulatory capacities, as well as being able to delay gratification (Costa & McCrae, 1992). Adolescents prone to substance abuse have also been perceived as vulnerable, according to Bewley (1986). Vulnerable adolescents engage in substance abuse as an attempt to deal with or avoid stressful home or peer situations (Stewart, Zvolensky, & Eifert, 2001). A depressed mood is also associated with possible substance abuse (Aneshensel & Huba, 1983). The abuse of substances is seen as a two-way process. Adolescents who are depressed are prone to abuse substances; and substance abuse causes depression (Aneshensel & Huba, 1983; Donovan, 2004; Dorus & Senay, 1980). Research indicates that females are more prone to score high on neuroticism in relation to their male counterparts (Nolen-Hoeksema & Girgus, 1994).

3.7.1.2 Extraversion

Extraversion has been linked to substance abuse (Ruiz et al., 2003). Adolescents who seek excitement are prone to engage in substance abuse, according to Leigh & Stall (1993). The greater the thrill-seeking behaviour, the greater the opportunity to engage in other risky behaviour (Cloninger, 1994; Zuckerman, 1993; Zuckerman, Ball, & Black, 1990). Substance abuse is also linked to sociability. The consensus amongst theorists is that an adolescent who is highly sociable will be more prone to engage in substance use (Wills, Sand, & Yeager, 2000; Youniss & Yates, 1997).

High extraversion scores are also linked with engaging in risky sexual encounters and having multiple sexual partners, according to Miller et al. (2004). This finding has been

corroborated by Jessor (1991). Interestingly, Rankin, Stockwell & Hodgson (1982) concluded that long-term substance abuse results in lowered extraversion scores. Trull & Sher (1994) seconded this finding and postulated that if an adolescent is socially isolated due to substance abuse or Neuroticism, the score on extraversion will be low.

3.7.1.3 Openness to Experience

The link between openness to new experiences and substance abuse exists (Ruiz, Pincus & Dickinson, 2003). Research has concluded that adolescents who are adventurous and eagerly seek out novel experiences will be at risk to abuse substances (Stewart & Devine, 2000). There is also a racial link between openness and substance abuse. Heuchert et al. (2000) indicated that due to cultural background and traditions, adolescents might have various perceptions about substance use and will as a result be more open to use.

3.7.1.4 Agreeableness

A negative correlation between agreeableness and substance abuse exists (Cooper, 1994). Substance abusers predominantly score lower on agreeableness and might be perceived as being offensive (Ruiz et al., 2003; Walton & Roberts, 2004). A hostile adolescent often displays low levels of empathy, lack of trust in others and the world, inconsideration to others, manipulative tendencies and dishonesty. This pattern of antagonism is linked with substance abuse (Theakston, Stewart, Dawson, Knowlden-Loewen, & Lehman, 2004).

3.7.1.5 Conscientiousness

Conscientiousness is understood as the adolescent's ability to make effective decisions with regards to their commitments and follow through on moral obligations and duties with self-discipline. The higher the scores on conscientiousness, the lower the probability of using

abuse substances, according to Miller et al. (2004). Adolescents who act impulsively and lack self-discipline might choose to indulge in a potentially more dangerous activity (driving under the influence), rather than delaying gratification. Kashdan, Velter & Collins (2005) indicated that conscientiousness serves as a protective factor against the development of substance abuse. Researchers agree that adolescents who are self-disciplined and conscientious will be able to withstand substance use due to having well developed self-regulatory skills and good self-control (Friedman, Tucker, Schwartz, Martin, Tomlinson-Keasey, Wingard, & Criqui, 1995).

Parry & Bennets (1998) concluded that adolescents who do not use substances are more future and goal orientated. Negative attitudes about the drinking of alcohol and experimenting with substances, on the one hand, and motivation to comply with parental wishes, on the other, is mostly found among adolescent abstainers who score high on conscientiousness.

3.8 Demographic Attributes and Adolescent Substance Abuse

An adolescent's risk of developing a substance-abuse problem is impacted by demographic factors. Evidence suggests that adolescents are impacted by various stressors which include social, environmental and economic stressors, according to Arthur (2002). Poverty and a lack of resources in terms of household amenities play a role (Fisher & Harrison, 2009). It is hypothesised that if the environmental stress level is high, the risk to develop a substance abuse problem increases.

South Africans experience numerous environmental stressors; (1) political transformation, (2) an ever-worsening HIV/AIDS epidemic, (3) violence and crime, (4)

technological changes and (5) high rates of unemployment. In addition, changes in the economy, political climate and demographics have been linked with adolescent substance abuse. Furthermore, the increased availability of substances also plays a prominent role (Morojele & Brook, 2006).

Arthur (2002) indicated that escalating rates of drug use and juvenile crime were associated with neighbourhoods where the adolescents did not display a strong connection with or attachment to their neighbourhood. An adolescent who has a parental figure who abuses a substance is more likely to engage in substance use activities, according to Arthur (2002). Furthermore, poor family attachment and poor communication styles in the family have also been identified as risk factors for abuse. A lack of parental monitoring and the setting of age-appropriate boundaries are also linked to the development of substance abuse. The occurrence of cohesion in the family unit and discipline are the elements of family interaction. Arthur (2002) maintained that involvement with a peer group with pro-substance cognitions also serves as an indicator for abuse.

The impact of economic hardship, socio-economic factors and substance use on adolescent adjustment is prominent. The adverse effects of socio-economic status have been identified as factors impacting on possible substance abuse presentation (McLeod & Shanahan, 1996). Evans & Rosenbaum (2008) indicated that adolescents from a low SES background battled with self-regulation. The escalation of substance use occurs at a higher pace in low SES environments in relation to where more resources are available (Brown, Catalano, Fleming, Haggerty & Abbott, 2005). Low socio-economic status is ascribed by many studies as a clear risk factor for substance abuse. It is, however, important to note that a bell-shaped distribution is found in the abuse of substances in adolescence, specifically in

relation to their socio-economic status. This indicates that there is an equal opportunity of low SES and high SES families to have adolescent substance abusers with rare occurrences of substance abuse in middle-income families (Diala, Muntaner, & Walrath, 2004; Luthar & Latendresse, 2005).

Competency approaches are more comprehensive than other approaches and emphasise the impact of the environment on an adolescent. They should therefore be included and accounted for in the prevention of substance abuse in adolescents (Fisher & Harrison, 2009). Adolescents that are socially competent, valued and given opportunities to contribute to society have a sense of belonging (Gullotta, 1990), which is made possible by the relationship within the different social environments where adolescents live, such as family, school and community.

Through supportive relationships and a supportive socio-cultural and physical environment; inhibitors of social competence such as cultural and social barriers (based upon factors such as the race of the adolescent, the SES and the gender of the adolescent) can be curtailed. These factors need to be kept in mind in the facilitation of the development of social competence, known social support (Bloom, 1990). In addition, research on resilience (Rutter, 1987) points to protective processes and individual qualities which influence the ability to overcome adverse environments and work competently.

3.9 Self-Regulation and Adolescent Substance Abuse

Research is available which connects the self-regulation capacity of an adolescent to substance (Dembo & Eaton, 2000; Senécal, Koestner & Vallerand, 1995; Wills, Walker, Mendoza & Ainette, 2006). Self-regulation has been related with success or failure in many

different problems that impact society (Baumeister & Vohs, 2004). Insufficient self-regulation can lead to substance abuse, risky sexual behaviours, anger control problems, eating disorders and underachievement in school (Baumeister & Bushman, 2008).

Furthermore, adolescents with poor self-regulation are known to battle with keeping their jobs in adulthood and have difficulties in managing their relationships. The ability to monitor one's behaviour and emotions is the main aim of self-regulation. The abuse of substances not only occurs due to poor self-regulation, but poor-self-regulation is also the result of substance abuse (Baumeister & Bushman, 2008).

Baumeister & Vohs (2007) concluded that academic success, as well as success in relationship are linked to effective self-regulatory strategies. Bandura (2000) advocated that self-regulation techniques provide effective methods for improving behaviour. According to Baumeister & Vohs (2007), self-regulation plays a role in substance abuse based on the importance of response inhibition and conscious restraint. Furthermore it was found that self-control is an aspect of self-regulation in which one consciously exercises the will to achieve certain results and goals, yet at the same time consciously exercises control over not engaging in problem behaviour.

Baumeister & Bushman (2008) established that the division of self-regulation can be divided into four main components: standards, monitoring, strength (willpower) and motivation. The lack of any of these components can cause the failure to self-regulate. A study by Worden, Flynn, Merrill, Waller & Haugh (1989) found that drinking and driving can be prevented by implementing self-regulation training. Baumeister & Vohs (2007) described self-regulation as the process where higher order processes override lower processes.

Therefore, an inability to self-regulate allows lower order processes such as substance abuse to surface. Schmeichel & Baumeister (1994) also emphasised the commonalities between addiction, poor self-management and other behavioural problems. The self-regulation theory allows for the possibility that there are stable individual differences in propensity to exercise self-control that may pre-exist and contribute to the development of a substance abuse problem (Schmeichel & Baumeister, 1994).

3.10 Overview of Substance Abuse in South Africa

SACENDU conducts research in all nine provinces in South Africa namely Western Cape (WC), Eastern Cape (EC), KwaZulu-Natal (KZN) and Limpopo (LP) (combined as the Northern Region: NR); Gauteng (GT: Johannesburg, Pretoria); Mpumalanga (MP); Free State (FS), Northern Cape (NC), and Northwest (NW) (combined as the Central Region (CR)). The following information will explore the data available from treatment admissions from the 10677 patients seen across the 67 rehabilitation programmes in the first half of 2013 (i.e. 2013a).

Alcohol stays the dominant substance of abuse across all provinces, except the WC and the NR. Between 20% (WC) and 51% (CR and KZN) of patients in treatment have alcohol as a primary drug of abuse. The number of patients reporting it as a primary drug of abuse remains fairly stable across all sites except in the CR. In the CR a slight decrease was noticed when compared to the second half of 2012 (SACENDU, 2013). Treatment admissions for alcohol-related problems in individuals younger than 20 are generally less common, but in this period 53% of patients in KZN reported alcohol as their primary substance of abuse, a significant increase from 23% over the previous period. A significant decrease from 13% to

5% in CR was also noticed in this period (SACENDU, 2013).

Between 23% (EC) and 69% (NR) of patients attending specialist treatment centres named cannabis as their primary or secondary drug of abuse, compared to between 2% (NR) and 23% (WC) for the Cannabis/Mandrax (methaqualone) 'white-pipe' combination (SACENDU, 2013) in all provinces in South Africa. In GT, KZN, CR and NR in 2013a, the number of treatment admissions for cannabis as a primary drug increased and slightly decreased in the EC and the WC when compared to the previous period (SACENDU, 2012b).

In all provinces cannabis is reported as the primary substance of abuse by the majority of patients younger than 20. Treatment admissions for cocaine-related problems showed a decrease over the past few reporting periods and remain low across all provinces, although cocaine is more often reported as a secondary substance. Between 4% (WC) and 29% (EC) of patients in treatment indicated cocaine as a primary or secondary drug of abuse, remaining fairly stable across provinces. Relatively few patients younger than 20 are admitted for cocaine-related problems.

Compared to the previous period, treatment admissions for heroin as a primary drug of abuse increased across all provinces, except in KZN where it remained stable. Heroin is mostly smoked, but patients with heroin as their primary drug of abuse in WC, GT and NR, 6%, 13% and 3% respectively, reported the use of injections. Injection use of heroin has remained fairly stable in WC and GT compared to the previous period, but decreased substantially in NR (2012b) (SACENDU, 2012b). The proportion of heroin patients who were Black/African increased to 77% (from 67% in 2012b) (SACENDU, 2012b) in GT and to 86% in the NR (from 76% in 2012b). In the NR and GT the majority of heroin patients younger

than 20 was Black/African (91%). Patients reported heroin as a primary or secondary substance of abuse as follows in 2013: WC (19%), GT (21%) and in the NR (30%) (SACENDU, 2013).

Club drugs and methamphetamine (MA), Ecstasy and LSD as primary drugs of abuse are low except in the WC. Across sites only 1% to 5% of patients had Ecstasy as a primary or secondary drug of abuse (SACENDU, 2013). MA (also known as 'Tik') remained the most common primary drug reported by patients in the WC in 2013a, although the proportion decreased significantly from 39% in 2011b to 28% (SACENDU, 2011b). Among patients under 20 years of age the proportion reporting MA as a primary or secondary substance of abuse was 29% compared to 32% in 2012b (SACENDU, 2013).

Treatment admissions related to MA use as a primary or secondary drug remain low in most provinces, except the EC (23%). Port Elizabeth continues to see an increase of local patients admitted for MA since 2009b (SACENDU, 2009b). The abuse of the following over-the-counter (OTC) and prescription medicines: slimming tablets, analgesics and benzodiazepines (e.g. diazepam and flunitrazipam), continues to be an issue across all provinces. Treatment admissions as a primary or secondary drug of abuse were between 2% (WC) and 22% (EC).

Although the number of patients reporting inhalants as their primary drug is low, inhalant and solvent use among adolescents continues to be an issue across all provinces. Methcathinone ('KHAT/CAT') use was noted across sites, with 13% of patients in GT reporting 'CAT' as a primary or secondary drug of abuse. Poly-substance abuse remains high, with between 54% (WC) and 62% (KZN) of patients indicating more than one substance of

abuse (SACENDU, 2013). The proportion of patients under 20 ranged from 16% (EC) to 34% (KZN). The proportion of Black/African patients in treatment is still substantially less than would be expected from the underlying population demographics in all provinces; however, these proportions have increased among young patients in GT and the NR specifically over time (SACENDU, 2013). In GT (77%), and in NR (88%) of patients younger than 20 years of age were Black/African in 2013a (SACENDU, 2013a).

The following tables retrieved from SACENDU (2013) specifically focus on the prevalence of substance abuse in adolescents in Gauteng. These statistics are the latest available in South Africa and focus specifically on gender, race, and education, primary drug of choice, secondary drug of choice, mode of usage and how the adolescent was referred for treatment.

	Jan-Jun 2009	Jul-Dec 2009	Jan-Jun 2010	Jul-Dec 2010	Jan-Jun 2011	Jul-Dec 2011	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013
	%	%	%	%	%	%	%	%	%
GENDER									
Male	87	89	89	87	89	92	84	86	90
Female	13	11	11	13	11	8	16	14	10
ETHNIC GROUP									
Asian	2	1	2	2	3	2	3	2	1
African	66	76	70	66	70	71	64	73	77
Coloured	14	10	18	18	15	15	19	17	13
White	18	13	10	14	12	12	14	8	9
EDUCATION									
None/Pre-primary	-	-	1	1	-	-	-	1	<1
Primary	14	14	13	13	28	13	13	17	11
Secondary	84	84	84	84	71	84	87	81	87
Tertiary	2	2	2	1	1	3	<1	1	1

Figure 3. Gender, Race and Education of Patients Aged 20 Years and Younger (Gauteng)
retrieved from SACENDU (2013b)

Up to 77% of patients younger than 20 are of Black African descent, and this proportion has slightly increased when compared to the previous period, while only 54% of patients older than 20 are Black. This review period also shows a slight decrease in the proportion of < 20 females seeking treatment (10%) (SACNDU, 2013).

Males are more prone to abuse substances than their female counterparts. The drug of choice for males in Gauteng is predominantly Cannabis and for females abuse of over the counter medication is prominent (SACENDU, 2013).

	Jan-Jun 2010		Jul-Dec 2010		Jan-Jun 2011		Jul-Dec 2011		Jan-Jun 2012		Jul-Dec 2012		Jan-Jun 2013	
	n	%	n	%	n	%	n	%	n	%	n	%	N	%
Dagga/Mandrax	33	5	15	2	12	2	12	2	4	1	5	1	12	1
Crack/Cocaine	9	1	12	2	14	2	14	4	9	1	6	1	7	1
Heroin	65	10	86	14	88	14	67	11	75	11	51	6	59	6
Ecstasy	2	<1	3	1	1	<1	1	<1	4	1	-	-	3	<1
OTC/PRE	5	1	2	<1	7	1	3	1	2	<1	4	1	2	<1
Inhalants	29	5	32	5	26	4	27	5	24	3	27	3	24	2
Meth-cathinone ('Cat')	3	1	17	2	12	2	37	6	27	4	20	2	32	3
Methamphetamine ('Tik')	6	1	8	1	8	1	5	1	22	3	11	1	12	1
Other	-	-	-	-	-	-	-	-	-	-	4	1	-	-
Khat	-	-	3	1	2	<1	2	<1	4	1	2	<1	3	<1
Nyaope	-	-	-	-	-	-	-	-	-	-	17	2	23	2
TOTAL	642	100	621	100	610	100	576	100	702	100	862	100	1002	100

Figure 4. Primary Substance of Abuse for Patients Aged 20 Years and Younger (Gauteng) retrieved from SACENDU (2013b).

The most common primary drug of abuse amongst young patients is cannabis, followed by alcohol and heroin (SACENDU, 2013).

	Jul-Dec 2008	Jan-Jun 2009	Jul-Dec 2009	Jan-Jun 2010	Jul-Dec 2010	Jan-Jun 2011	Jul-Dec 2011	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013
	%	%	%	%	%	%	%	%	%	%
Swallowed	15	28	16	16	14	11	12	8	7	11
Snorted	7	9	5	6	8	7	13	9	7	6
Injected	2	2	1	1	1	1	<1	11	<1	<1
Smoked	74	61	78	77	74	81	75	82	86	82
Other	1	-	-	<1	<1	-	-	-	<1	-
Smoke/Snort	<1	-	-	-	-	-	-	-	<1	-
Smoke/Inject	<1	-	-	-	-	-	-	-	-	-

Figure 5. Mode of Usage of Primary Substance of Abuse for Patients Aged 20 Years and Younger (Gauteng) retrieved from SACENDU (2013b)

The majority of adolescent substance abusers prefer smoking their substance of choice (SACENDU, 2013).

	% AFRICAN			% COLOURED			% ASIAN			% WHITE		
	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013
Alcohol	77	66	81	12	21	7	-	-	3	11	13	9
Dagga	66	69	79	21	22	14	4	1	1	9	8	6
Dagga/Mandrax	100	100	58	-	-	33	-	-	-	-	-	8
Crack	11	33	71	11	17	14	-	-	-	78	50	14
Cocaine												
Heroin	82	84	91	3	10	2	-	-	2	15	6	5
Ecstasy	75	-	100	-	-	-	-	-	-	25	-	-
Inhalants	79	100	79	13	-	17	-	-	-	8	-	4
OTC/PRE	50	50	50	-	-	50	-	25	-	50	25	-
LSD	-	-	-	-	-	-	-	-	-	-	-	-
Meth-cathinone ('Cat')	15	5	13	26	40	36	3	10		56	45	46
Methamphetamine ('Tik')	18	9	18	55	55	36	5	9	-	22	27	46
Khat	-	-	-	-	50	33	25	50	-	75	-	67
Nyaope	-	100	96	-	-	-	-	-		-	-	4

Figure 6. Race by Primary Substance of Abuse for Patients Aged 20 Years and Younger (Gauteng) retrieved from SACENDU (2013b).

Ninety-one percent of teenage heroin patients are Black, compared to 74% of patients aged 20 or older. This proportion increased slightly compared to the previous review period (84%). A significant decrease was also noticed in the proportion of White crack/cocaine patients, from 50% to 14% in this period (SACENDU, 2013)

In figure 7 it is indicated that cannabis, tobacco and heroin remain the most commonly abused secondary drugs in Gauteng (SACENDU, 2013).

	Jul-Dec 2010		Jan – Jun 2011		Jul-Dec 2011		Jan – Jun 2012		Jul-Dec 2012		Jan-Jun 2013	
	n	%	n	%	n	%	n	%	n	%	n	%
Alcohol	60	10	60	10	74	13	55	8	124	14	131	13
Dagga	117	19	138	23	94	16	82	12	229	27	122	12
Dagga/ Mandrax	21	3	20	3	12	2	17	2	24	3	18	2
Crack	44	7	36	6	31	5	25	4	20	2	19	2
Cocaine												
Heroin	109	18	194	15	58	10	48	7	81	9	70	7
Ecstasy	7	1	6	1	4	1	5	1	2	<1	7	1
LSD	5	1	-	-	2	<1	-	-	1	<1	-	-
Inhalants	28	6	12	2	26	5	16	2	27	3	14	1
OTC/PRE	1	<1	11	2	6	1	15	2	4	<1	2	<1
Methcathinone ('Cat')	23	4	17	3	18	3	31	4	31	4	39	4
Methamphetamine ('Tik')	11	2	10	2	13	2	26	4	16	2	19	2
Nyaope	-	-	-	-	-	-	-	-	-	-	7	1
Other	116	19	105	17	94	16	102	15	13	2	58	6
Tobacco	-	-	-	-	-	-	-	-	167	19	272	27
TOTAL	621	100	610	100	576	100	702	100	862	100	1002	100

Figure 7. Secondary and Tertiary Substance of Abuse for Patients Aged 20 Years and Younger (Gauteng)

A higher proportion of patients (37%) are referred to treatment centres by school' and this has increased slightly compared to the previous period. This is followed by 'self/family/friends (35%) and court/correctional services (17%) (SACENDU, 2013). The statistics are presented in figure 8 below.

	Jul-Dec 2008	Jan-Jun 2009	Jul-Dec 2009	Jan-Jun 2010	Jul-Dec 2010	Jan-Jun 2011	Jul-Dec 2011	Jan-Jun 2012	Jul-Dec 2012	Jan-Jun 2013
	%	%	%	%	%	%	%	%	%	%
Self/Family/Friends	45	35	42	48	45	42	39	36	39	35
Work/Employer	1	1	<1	<1	<1	<1	1	<1	1	<1
Health professional	3	4	3	3	2	4	2	4	2	1
Religious body	<1	0	<1	1	<1	<1	1	1	<1	1
Hospital/Clinic	1	1	1	2	<1	1	1	<1	1	1
Social Services/Welfare	10	8	15	8	14	10	13	9	8	8
Court/Correctional services	13	16	12	12	19	15	14	8	13	17
School	25	33	24	24	17	25	25	40	34	37
Other	2	2	3	2	3	2	4	2	1	1
Unknown	-	-	-	-	-	-	-	-	-	-

Figure 8. Referral Sources for Patients Aged 20 Years and Younger (Gauteng) retrieved from SACENDU (2013b).

An overview of the illicit drugs currently used in South Africa is presented in table 2. The development of the drug together with the mode of usage and the retail price is indicated through combining the research done by the various authors

Table 2

Overview of Illicit Drugs Currently used in South Africa

Illicit drug	Introduced/ production	Use practices	Price *
Cannabis/ Dagga	16/17th century; Cultivation of illicit drugs appears to be confined to the widespread cultivation of cannabis (but not opium nor coca) in the eastern half of South Africa and in some northern areas. South Africa generates a surplus cannabis crop, some of which is	Smoking, eating	R1 per gram. A kilogram of cannabis can be bought on the streets of South Africa for about \$20, however in the US, the same amount is worth

Illicit drug	Introduced/ production	Use practices	Price *
	exported to Europe and other countries, but most is consumed in South Africa.		about \$2 300, and the UK, \$3,400. (Drugaware, 2006)
Mandrax	Late 1980s; During the late 1980s and early 1990s, apartheid agents reportedly produced one thousand kilograms of both Mandrax and MDMA (henceforth ecstasy). Today it is illegally produced and sold in South Africa	The most serious form of abuse occurs when Mandrax is combined with Diazepam. These pills are often crushed and smoked with a mixture of tobacco and 'magut' (a low grade cannabis, often dried with a volatile solvent), usually smoked from a broken bottleneck - this form of use is called "white pipe" (Leggett, 2002)	R25 - R65 (per tablet, Drugaware, 2006).
Cocaine/ Crack	Cocaine HCL was not commonly available in South Africa prior to 1994 with the first arrest for possession thereof only occurring in 1995 (Leggett, 2002). All cocaine is illegally imported.	Crack is cheaper than cocaine powder. (Drugaware, 2006).	R150 - R250 per gram, but is available on street level at R50 for a "Snatch" (Drugaware, 2006).
Heroin	During the 1980's, heroin was a relatively unknown drug in South Africa. All heroin is illegally imported	Heroin was first introduced in South Africa as a brown	Currently heroin sells in clubs and on the streets for

Illicit drug	Introduced/ production	Use practices	Price *
		substance. South African heroin users preferred to smoke heroin with cannabis or inhale the vapours (“ <i>chasing the dragon</i> ”) (Plüddemann & Perry, 2004)	anything between R130 and R300 per gram (Erasmus, 2006).
Meth-amphetamine (known as “ <i>tik</i> ” in South Africa.	This is a white, odourless, bitter-tasting crystalline powder that readily dissolves in water or alcohol. The drug is easily produced in clandestine laboratories (Plüddemann, Parry, Bhana, Harker, Potgieter, Gerber, et al., 2005)	Tik is typically smoked by placing the powder/crystal in a light bulb from which the metal threading has been removed. A lighter is used to heat the bulb and the fumes are smoked (Plüddemann et al., 2005).	Low cost (about R20-R30/‘ <i>straw</i> ’) (Plüddemann et al., 2005)
Ecstasy	Ecstasy use only started in 1994 following the abolishment of Apartheid	Ecstasy has made the biggest impact of all illicit drugs in South Africa since the early 1990s. It is widely associated with the rave scene (Dugaware, 2006)	R60 per tablet. Typically, one tablet is sufficient to create the desired effect in most people. (Erasmus, 2006).

3.11 Competency Skills Programme in a Group Therapy Format

The cause and maintenance of addictive behaviour is largely determined by social and biological factors. The various psychological underpinnings that impact the decision to abuse substances is the focus of an intervention programme. Various group designs for a variety of topics have been researched with regards to the effectiveness for adolescents (Corder, Haizlip, Whiteside & Vogel, 1980; Kymissis, 1993; Reeker, Ensing & Elliot, 1997; Stevenson, 1999; Nurcombe et al., 2000; MacMillan, 2000; Berliner & Kolco, 2000; Dufour & Chamberland, 2004).

Literature indicates that group therapy is a successful approach to dealing with a sensitive topic such as substance abuse in adolescence (Glodich & Allen, 1998). Authors also agree that the following explanations serve to share light upon what makes adolescent groups successful; (1) individuals are more open to suggestions from peers than adults, (2) the environment and atmosphere assist adolescents with dealing more effectively with their relationships with others, (3) adolescents witness success and learn from peers and (4) groups provides a space where adolescents can be who they are without any expectations (Gagliano, 1987; Kitchur, 1989; Rice-Smith, 1993; Reeker et al., 1997; Stevenson, 1999; Nurcombe, Wooding, Marrington, Bickman & Roberts, 2000; Dufour & Chamberland, 2004).

3.11.1 Working with Adolescents

According to Flisher et al. (2008), the question posed in the philosophical, moral and bioethical debate is whether substance abusers become socially and personally incompetent. Therefore there is a great need to mediate with an intervention that addresses and instils personal and social competence in adolescent substance abusers. A competency-skills

programme, as discussed previously, debilitates risk factors and facilitates psychological well-being on a personal and social level.

The literature reviewed indicates that the core element of practice is building a relationship with adolescents. Through a strong therapeutic alliance, the adolescent will be more open for change. The facilitator must work with empathy and honesty when dealing with adolescents. Through being congruent and showing unconditional positive regard, the facilitator creates a trusting environment for the often distrusting adolescent, (Davis, Day & Bidmead, 2002; Elliot & Williams, 2003; Maidment, 2006; Schmied & Walsh, 2007).

According to Nation et al. (2004), effective programmes; (1) are comprehensive (combine different types of interventions at various settings), (2) include varied teaching methods (interactive instruction, hands-on experience, role playing and discussion groups), (3) provide sufficient dosage (appropriate duration of intervention gauged to the problem behaviour and the recipients in question, booster sessions), (4) are scientifically justified (based on empirically tested theories and techniques), (5) foster positive relationships (promote quality relationships among peers and with at least one adult), (6) are appropriately timed (developmentally appropriate), (7) are socio-culturally relevant (tailored to the needs of the specific culture, community and target population), (8) involve well-trained staff (select appropriate staff and provide additional training and support), and (9) are evaluated (assess whether the intervention has reached its goals) (Nation et al., 2003).

Furthermore, Ellis et al. (2012) postulated that an evidence-based adolescent substance abuse treatment approaches should focus on; (1) achieving and maintaining abstinence, (2) addressing problems associated with substance use (family, psychiatric or academic

difficulties), (3) sufficient duration and intensiveness, (4) being comprehensive and providing post care and follow-up sessions, (5) be sensitive to cultural, racial and socio-economic factors, (6) include families, (7) promote pro-social activities and a drug-free lifestyle and (8) be provided in the least restrictive setting that is safe and effective.

The current study presented the competency skills programme as a group therapy process. The objective of this choice is that substance-abuse disorders are treated by the most common modality, which is group psychotherapy (Montgomery, 2002). Group therapy is the meeting of individuals with similar difficulties where a therapeutic outcome is the goal (Barlow, 2008). The lessons learned in therapy are supposed to be practised in the normal social network. Group therapy is the treatment modality of choice for substance abuse (CSAT, 1994). Principles such as the implementation of hope, the universal experience by group members as they view themselves in others, the opportunity to develop insight through relationships and various other concerns, specific to the support of substance-abusing clients and their recovery, are the curative factors associated with group psychotherapy as suggested by Yalom (1995).

3.12 Hypotheses

The following hypotheses were tested in the research study:

Hypothesis 1 - The tendencies of adolescents to abuse or not abuse substances are established through the Substance Abuse Subtle Screening Inventory (SASSI-A2). The tendencies to abuse substances are confirmed through profiling the high probability substance abusers on self-regulation and personality traits.

Hypothesis 2 - Demographic variables (specifically age, race, gender, educational status of parents, marital status of parents, parental substance use, peer substance use, family mental illness, smoking cigarettes) impact adolescents and influence their predisposition to abuse substances.

Hypothesis 3 - Adolescent personality traits (tested with the Big Five Inventory) influence the development of substance abuse. High probability adolescent substance abusers, compared to adolescents with a low probability for substance abuse, will score lower on the personality traits of conscientiousness and agreeableness and higher on neuroticism, openness and extraversion.

Hypothesis 4 - Adolescents in the high probability substance-abuse group compared to the low probability substance abuse-group will score lower on self-regulation (SRQ).

Hypothesis 5 - The psychometric profile obtained from the demographic attributes, personality traits and self-regulatory capacity of adolescents can predict the development of substance abuse in adolescence.

Hypothesis 6 - Adolescents receiving a competency skills programme in the experimental group will display greater self-regulation in comparison to the participants in the control group and will show improvement in the neuroticism and conscientiousness.

The following chapter will discuss the methodology used in this study, examine the research design, data sources, data collection techniques and sampling techniques, as well as ethical considerations implemented for phase one and two.

CHAPTER 4

METHODOLOGY

4.1 Introduction

This chapter describes the approach, steps and methods of the study, including the research design, data sources and data collection techniques in a quantitative study. It also discusses the required sampling techniques, data analysis and important ethical considerations. The methodology section will be divided into two parts: phase one and phase two. The pilot study which focused on the establishment of internal consistency of the measures and instruments has been mentioned and clarified as part of phase one. Phase one consisted of establishing baseline data for adolescent substance abusers and comparing the data with non-substance abusing adolescents on personality traits (Big Five Inventory), self-regulation (SRQ), substance abuse (SASSI-A2) and demographic variables. Lastly phase two will be discussed which used the baseline information to empirically determine a competence skills development programme for adolescent substance abusers.

4.2 Phase One

This section presents the methodology that was adopted in Phase One of the study, including the study design, participants, sampling techniques, instruments, procedures and data analysis methods.

4.2.1 Research Design

A cross-sectional survey design was used in phase one. Cross-sectional research involves the measurement of all variables for all cases within a narrow time span so that measurements may be viewed as coexistent. A cross-sectional study collects data to make

inferences about a population of interest at one occasion (Babbie & Mouton, 2001). Cross-sectional studies have been described as snapshots of the populations about which they gather data. A cross-sectional study design is used when the purpose of the study is descriptive, often in the form of questionnaires.

This quantitative research design was also descriptive in nature (Babbie & Mouton, 2001). A descriptive study establishes only associations among variables. In this phase all the variables i.e. personality (Big Five Inventory), self-regulation (Self-Regulation Questionnaire), substance abuse (Adolescent Substance Abuse Subtle Screening Inventory) and demographic attributes (Demographic Questionnaire) were measured and questionnaires were administered to all the participants in only one period of time.

In phase one of this quantitative research project the goal was to determine the relationship between the independent variable and the dependent variable in the adolescent population. The dependent variable is a phenomenon which attempts to explain or predict, whilst the independent variable is the factor used to explain or predict the dependent variable (Babbie, 2011). For this research project the dependent variable was adolescent substance abuse and the independent variables were personality traits, self-regulation and demographic attributes. Substance abuse was introduced at two levels, namely; (1) high probability for substance abuse and (2) low probability for substance abuse. Self-regulation was introduced at three levels, namely (1) high self-regulation, (2) moderate self-regulation and (3) low self-regulation. All five personality variables were introduced at two levels, (1) high neuroticism and low neuroticism, (2) high extraversion and low extraversion, (3) high openness and low openness, (4) high agreeableness and low agreeableness and lastly (5) high conscientiousness and low conscientiousness.

4.2.2 Instruments and Measures

The instruments used included the Big Five Inventory (BFI), the Self-Regulation Questionnaire (SRQ), the Substance Abuse Subtle Screening Inventory (SASSI-A2) and a self-developed demographic questionnaire. Firstly the internal reliability of the measures will be discussed as obtained in the pilot study, and thereafter the psychometric properties of each measure will be discussed in full.

A pilot study was conducted to test the research procedures prior to beginning data collection, as well as to establish the internal reliability of the measure. A pilot study is a preliminary piece of research conducted with a sample of research participants drawn from the study population (Babbie & Mouton, 2001). For the purposes of this research undertaking, the pilot study was used not only to test the internal reliability of the measures, but also to detect characteristics of the current research setting or procedures that needed amendment, as well as establish the total time needed to complete the necessary measures before the actual data collection. The pilot study was also necessary to establish if the Big Five personality inventory, self-regulation questionnaire and Adolescent Substance Abuse Subtle Screening Inventory were suitable measures to use among adolescents in the South African context.

The pilot study consisted of 50 adolescents ($n=50$). Cronbach alpha was used to test the internal reliability of the measures, namely the Big Five Inventory (BFI) which were used to assess personality traits, the Self-Regulation Questionnaire (SRQ) which measured self-regulatory capacity of adolescents and the Substance Abuse Subtle Screening Inventory (SASSI-A2) which indicated whether adolescents were in the high or low probability group to abuse substances. All the measures (BFI, SASSI-A2 and SRQ) showed a good internal

reliability with $\alpha > .60$ and were therefore found suitable for use in future data collection for this study sample.

The analysis of the SRQ indicated a score of $\alpha = .865$ and is therefore seen as a reliable measure in the South African context. The analysis of the SASSI-A2 indicated a score of $\alpha = .880$ and is therefore seen as a reliable measure in the South African context. Lastly, the analysis of the subscales of the BFI indicated a score of $\alpha = .644$ for extraversion, $\alpha = .739$ for agreeableness, $\alpha = .766$ for conscientiousness and $\alpha = .841$ for neuroticism. These subscales of the BFI are seen to be internally reliable in the South African context. The openness scale of the BFI had a score of $\alpha = .509$, which is less than the needed $\alpha > .60$. However, the overall score of the BFI was $\alpha = .700$, indicating that the test as a whole is reliable for South African usage.

The BFI results of the pilot study in South Africa (Gauteng) were in line with international studies which researched the internal reliability of the BFI on numerous occasions. The BFI scales have shown good internal consistency and test-retest reliability internationally (Benet-Martinez & John, 1998). The efficiency of the BFI and its comparatively good psychometric properties has made it internationally the instrument of choice for several studies during the last few years (Costa & McCrae, 1992).

The usage in South Africa (Gauteng) has also confirmed internal reliability statistics for the BFI. The measure is a sufficient, valid and short scale to assess the Big Five factors of personality. It also allows an acceptable, reliable and valid assessment of the Big Five personality traits in studies which do not allow for a comprehensive assessment of the Big

Five due to monetary constraints or time constraints. It is therefore also important to note that the BFI can be used in the South African context in future studies.

The SRQ results of the pilot study in South Africa (Gauteng) indicated the SRQ as a reliable measure to use in this study context. The internal reliability of the SRQ has been established internationally (Aubrey, Brown, & Miller, 1994). A high test-retest reliability for the total SRQ score was found ($r = .94, p < .0001$). The internal consistency was also good ($\alpha = .91$) and it was temporally stable over two days, $r(83) = .94$ (Aubrey, Brown & Miller, 1994).

The results obtained in the pilot study in South Africa (Gauteng) of $\alpha = .865$ confirms that the results are similar to international studies. It is therefore also important to note that the SRQ can be used in this study.

The SASSI-A2 internal reliability in the pilot study indicated that the measure can be used in the South African context. The SASSI-A2 has been empirically validated with a test-retest coefficient of $r = .89$ and a Cronbach alpha for the overall inventory was reported to be $\alpha = .75$. This is in line with the Cronbach alpha found in the current study of $\alpha = .880$, indicating that the SASSI-A2 is a reliable measure to use in this study.

The SASSI-A2, BFI and SRQ were therefore found to be reliable measures to use within the multi-cultural society of South Africa. These findings were confirmed in phase one of the study where the participant sample was much larger and similar findings were obtained.

The following section will describe the psychometric properties of the measures discussed above.

4.2.2.1 Demographic Questionnaire

The demographic attributes of the participants were assessed by using a self-developed demographic questionnaire. The participants were requested to provide information on their background and current family situation. The variables that have been identified for the purpose of this study include the following; (1) age, (2) race, (3) gender, (4) educational status of parents and adolescents, (5) marital status of parents, (6) parental substance use, (7) peer substance use, (8) family mental illness, and (9) smoking cigarettes.

4.2.2.2 Big Five Inventory (BFI)

The BFI is a self-report scale measuring the big five personality domains. The BFI consists of 44 items measuring five trait dimensions of personality: Openness to experience (9 items), Extraversion (8 items), Neuroticism (8 items), Agreeableness (9 items) and Conscientiousness (9 items). The BFI is rated on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) (John, Naumann & Soto 2008). Theorists agree that the FFM is effective in the measurement of personality traits (Costa & McCrae, 1995). The BFI is the shorter version of the original NEO. The BFI was selected owing to time constraints (John & Srivastava, 1999).

4.2.2.3 The Self-Regulation Questionnaire (SRQ)

Self-regulation was measured by using the SRQ (Brown, Miller, & Lawendowski, 1999). The 63 items are rated on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

For the purpose of this study, the following ranges for interpreting SRQ total scores were used: (1) ≥ 239 high (intact) self-regulation capacity, (2) 214-238 intermediate (moderate) self-regulation capacity, and (3) ≤ 213 low (impaired) self-regulation capacity.

4.2.2.4 Adolescent Substance Abuse Subtle Screening Inventory (SASSI-A2)

SASSI is a screening inventory used to distinguish between substance abuse and substance dependence. SASSI-2 is also used to screen adolescents and to identify if they have a high probability to abuse substances, or a low probability to abuse substances (Miller, 1997). This measure is normed for adolescents between the age of 12 and 18 years. SASSI-A2 is proven to be effective even with individuals in denial about their substance-abuse activities (Miller, 1997).

Use of SASSI-A2 proved its accuracy and indicated that results are unaffected by the adolescents demographics. Variables such as gender, age, race and highest level of education do not impact the scores. According to Miller (1997), SASSI-A2 consists of five subscales measuring the following:

- *Family & Friends Risk Scale (FRISK)* - This scale measures whether the adolescent has a family or peer system that enables substance abuse.
- *Attitudes Toward Substance Use (ATT)* - This scale indicates the adolescents' cognitions related to substance abuse. This scale specifically focuses on the beliefs about substance abuse and the attitude of the adolescent towards substance abuse.
- *Symptoms of Substance Misuse (SYM)* - This scale measures the frequency of substance abuse and investigates the perceived consequences of abuse by the adolescent.
- *Validity Check (VAL)* - This scale identifies at risk adolescents who need further evaluations and interventions.

- *Secondary Classification Scale (SCS)* - This scale differentiates between the severity of substance use; classifying the adolescent as either abusing a substance or being dependent on a substance.

4.2.3 Participants

Phase one consisted of administering a total of 3000 ($n=3000$) questionnaires to adolescents. The questionnaire usable for the study consisted of 894 participants ($n=894$) after data had been cleaned and questionnaires with omitted sections had been removed from the data set. Participants were between the ages of 14 to 19 and from selected high schools in Gauteng as indicated and authorised by the Department of Education. The group comprised of non-substance abusing individuals and substance-abusing individuals from a semi-rural high school, private high school and an urban high school. The description of participants in the sample will be discussed in this section.

The gender attribute indicated that 894 ($n=894$, 100%) participants were included in the study. In the overall population 375 ($n=375$, 41.9%) were males and 519 ($n=519$, 58.1%) were females. More than half of the sample was female.

The demographic attribute of chronological age in years indicated that the sample consisted of 888 participants ($n=888$) where the age range was 13 with the minimum age of 12, and the maximum age of 19, with the mean of $\bar{x} = 15.67$ and the standard deviation of $\sigma = 1.67$ across the population.

The demographic attribute place of birth of the adolescent participants was collected across two different settings, namely an urban and rural area. Approximately 90% (90.4%)

($n=757$) of the participants were born in an urban area and 9.6% ($n=80$) of the participants were born in a rural area. This indicates that most of the participants in this study were born in an urban area.

The demographic attribute race/ethnicity represented in this population indicated that from the 887 ($n=887$) participants that took part in the study and answered the relevant question 345 ($n=345$, 38.9%) were black, 510 ($n=510$, 57.5%) were white, 28 ($n=28$, 3.2%) were coloured and 4 ($n=4$, 0.5%) were Indian/Asian. This revealed that over half of the participants in this study were white.

The demographic attribute educational status or highest level of education of the participants in the study and that of their parents can be summarised as follows: 1.1% of the participants indicated that their fathers had no formal schooling ($n=9$, 1.1%), and 1.5% of the participants indicated that their mother had no formal schooling ($n=9$, 1.5%). Less than 1% (i.e. 0.6%) of the participants indicated that they did not attend formal schooling, but do some home schooling ($n=5$, 0.6%). Three percent of fathers indicated grade 1-6 as their highest level of education ($n=25$, 3%), 2.2% of mothers ($n=19$, 2.2%); 0.7% of the participants ($n=6$, 0.7%) indicated grade 1-6 as their highest level of education. 35.6% of fathers indicated grade 7-12 as their highest level of education ($n=293$, 35.6%) and 36.5% of mothers ($n=311$, 36.5%); 93.5% of the participants indicated being in grade 7-12 ($n=815$, 93.5%). A certificate or diploma was indicated as the highest level of education for 30.5% of fathers ($n=251$, 30.5%), 36.6% of mothers ($n=310$, 36.3%) and 5.2% of the participants ($n=46$, 5.2%). A degree was indicated as the highest level of education for 18.3% of fathers ($n=151$, 18.3%) and 15.8% of mothers ($n=135$, 15.8%). Postgraduate degrees as the highest level of education was indicated at 11.4% for the fathers ($n=94$, 11.4%) and 7.6% for the mothers ($n=65$, 7.6%). In summary,

the population that took part in phase one of the study indicated that the majority of fathers (35.6%) and mothers (36.5%) obtained at least grade 7-12 as their highest level of education; the majority of participants indicated their current and highest level of education as grade 7-12 (93.5%).

The demographic attribute marital status of the parents of adolescent participants was assessed. The participants indicated that 55.3% of their parents are married ($n=470$, 55.3%), 16% of their parents are divorced ($n=136$, 16.0%), 6% are widowed ($n=51$, 6%), 4.4% have step-parents ($n=37$, 4.4%) and 18.4% are single parents ($n=156$, 18.4%). The data indicated that most of the participants' parents are married and represent more than 50% of the overall population.

The demographic attribute participants' perception of their parents' substance abuse indicated that 7.5% of fathers were perceived by their adolescent child to abuse substances ($n=67$, 7.5%) and 92.5% of fathers were perceived as sober and not abusing substances ($n=827$, 92.5%). Participants indicated that 4% of mothers were perceived to abuse substances ($n=36$, 4%) and 96% of mothers were perceived as being sober and not abusing substances ($n=858$, 96%).

The participants that took part in the study were asked different questions that relate to their own alcohol and substance use, together with their perception of the use by people around them (family and friends). The participants indicated that 52.6% of the population have never used alcohol ($n=470$, 52.6%), and 91.1% indicated that they have never used drugs before ($n=914$, 91.1%). Of the participants involved in the study, 47.4% indicated that they

have used alcohol before ($n=424$, 47.4%) and 8.9 % of the participants indicated that they have used drugs before ($n=80$, 8.9%).

More than half of the participants do not smoke ($n=813$, 90.9%), whereas 8.9% are smokers ($n=80$, 8.9%). More than half of the population have never been in trouble at school, with their parents or with the law ($n=819$, 91.6%) for substance abuse. The participants indicating that they have been in trouble for using drugs with either the school, their parents or the law made up 8.4% of the sample ($n=75$, 8.45). Of the participants, 73.8% ($n=660$, 73.8%) indicated that there is no one in their family that has an alcohol or drug abuse problem, whereas 26.2% of the participants ($n=234$, 26.2%) indicated that they have a family member with a drug or alcohol abuse problem.

Of the participants, 89.8% indicated that they have a family member who has been diagnosed with a mental illness ($n=803$, 89.8%) and 10.2% ($n=91$, 10.2%) indicated that they do not have a family member that has been diagnosed with a mental illness.

Finally, more than half of the participants reported not having friends that use drugs ($n= 579$, 64.8%) whereas 35.2% ($n=315$) of participants indicated that they do have friends who use drugs.

4.2.4 Sampling

The sampling technique used in Phase One was a non-probability sample design that consisted of purposive sampling. According to Babbie and Mouton (2001), purposive sampling refers to selecting a sample “on the basis of your own knowledge of the population, its elements, and the nature of your research aims” (p.166). The sample initially included 3000

participants ($n=3000$). However, after data collection and data cleaning the final sample of 894 participants ($n=894$) provided beneficial data. The participants included substance abusing and individuals who did not abuse substances and were in the developmental category of adolescence and were selected by making use of maximum variation sampling which is a purposive sampling technique.

Maximum variation sampling is a purposive sampling technique used to capture a wide range of perspectives relating to the topic that you are interested in studying (Babbie, 2011). Maximum variation sampling is a search for variation in perspectives, ranging from those conditions that are typical, to those that are more extreme in nature. The basic principle behind maximum variation sampling is to gain greater insights into a phenomenon by looking at it from all angles (Babbie, 2001).

4.2.5 Procedure

Phase One established the baseline data for substance-abusing adolescents and compared them with non-substance abusing adolescents in all the variables used in this study. The administration of all the instruments to the participants was done in this phase to assess the relationship between self-regulation, personality, demographic attributes and substance abuse. The schools involved in Phase One were indicated and authorised by the Department of Education. The researcher and one trained research assistant explained to the participants the purpose of the study and instructions for completing the given instruments. Students were gathered in the school hall in their respective grades to complete the questionnaires. The researcher was available at all stages of data collection to answer any questions that were raised by participants. Participants were also informed that they were not expected to write their names on any page of the questionnaires for the sake of confidentiality. The relevant

informed consent forms and information page of the research project was explained to all participants.

4.2.6 Data Analysis Phase One

The objectives of Phase One included the following; (1) verification of the internal reliability of the measures, (2) establishing baseline data for adolescent substance abuse and comparison with non-substance abusing adolescents on personality traits (BFI), self-regulation (SRQ), substance abuse (SASSI-A2) and demographic variables, and (3) exploring the predictive power of demographic variables, personality traits and self-regulation on adolescent substance abuse. The data analysis techniques that were used to meet the objectives described will be discussed.

Cronbach alpha was used to test the internal reliability of the measures. None of the items significantly improved the reliability of the scale if removed. Therefore all items were maintained for further analyses. Cronbach alpha was used specifically in the pilot study data analysis.

Descriptive statistics were used to describe the sample of 894 participants ($n=894$). Descriptive statistics is known as the processes of summarising group scores by making them more comprehensible (Aron, Aron & Coups, 2009). Descriptive statistics deal with measures of different aspects of a population (Bickel & Lehman, 1975). Descriptive statistics can be determined by presuming and interpreting central tendencies by using modes, means and medians, by establishing and interpreting variability tendencies using quartiles, interquartile range, outliers and extreme values, drawing and interpreting box plots, and calculating and interpreting variances and standard deviations (Aron, Aron & Coups, 2009). Central tendency

can statistically be expressed by parameters referred to as the mode, median and mean. The mode is the greatest frequency of occurrence in a category of scores and its statistical symbol is M_0 (Aron, Aron & Coups, 2009). The median of an uneven number of scores is the middle score when all the scores are ranked from the lowest to the highest, whereas the median of an even number of scores is the mean value of the two middle scores when all the scores are ranked from the lowest to the highest and its statistical symbol is M_e (Aron, Aron & Coups, 2009; Rouse, 2005). The mean is the average of a set of scores (Rouse, 2005). Variability in a set of values or scores is concerned with the difference or scatter between the different values and can be statistically expressed by histograms, and interquartile ranges, outliers and extreme values.

Descriptive analysis was used to establish baseline data for the participants using the Big Five, SRQ and SASSI. All scales were reverse scored and totalled. As the dataset currently stands, the items have been reversed and are indicated in the dataset as R in the variable name in SPSS. Statistical Package for the Social Sciences (SPSS) version 22 was used.

The Big Five subscale scores were calculated into separate variables. For the SRQ a total score was calculated as an additional variable containing three categories: (1) ≥ 239 high (intact) self-regulation capacity, (2) 214-238 intermediate (moderate) self-regulation capacity and (3) ≤ 213 low (impaired) self-regulation capacity. The SASSI total scores for each subscale were calculated as a separate variable. A variable indicating high probability and low probability was calculated for the SASSI

To compare the demographic characteristics of substance-abusing adolescents and non-substance abusing adolescents, t-tests for independent samples were used for continuous variables. The categorical variables were tested with a chi-square test.

According to Blanche, Durrheim and Painter (2006), a chi-square is defined as “an estimate of the degree to which the observed frequencies in all the cells of a bivariate frequency table differ from the expected frequencies if the two variables were in fact independent” (p. 557). A chi-square has two statistical techniques. One is the chi-square test of goodness of fit. The other statistical test is the chi-square test for independence association. Both tests use the X^2 (chi-squared) as the sampling distribution for the test statistic (Aron, Aron & Coups, 2009). A contingency table test of association/independence is used when examining the relationship between categories within two nominal variables (Aron, Aron & Coups, 2009).

The chi-squared test for independence satisfies two objectives about the variables namely, (1) are the two variables related or associated and (2) are there differences among two or more populations of the variables. Formulas used for the chi-square statistic are:

1) $X^2 = \sum \frac{(O-E)^2}{E}$ where O is the observed value and E is the expected value.

2) $df = (N_{\text{rows}} - 1)(N_{\text{columns}} - 1)$

3) $E = \frac{R}{N}(C)$ where E is the expected frequency for a particular cell. R is the totals of the rows and N is the grand total of the row and column frequencies. C is the totals of the columns (Aron, Aron & Coups, 2009).

T-tests for independent samples were used to compare substance-abusing adolescents with non-substance abusing adolescents on personality traits (Big Five) and self-regulation

(SRQ). A t-test is a “hypothesis-testing procedure in which the population variance is unknown; it compares t scores from a sample to a comparison distribution called a t distribution” (Aron, Aron & Coups, 2009, p. 241). T-tests are used when there are small samples and where the centrality and variability of the larger population is not known and assesses whether the means of two groups are statistically different from each other (Trochim, 2006; Aron, Aron & Coups, 2009). Steps that need to be followed for t-test for an independent single sample are outlined as follows:

- 1) Restate the question as a research hypothesis and a null hypothesis about the populations.
- 2) Determine the characteristics of the comparison distribution.

- a. The mean is the same as the known population mean.

- b. The standard deviation is calculated as follows:

- i. Calculate the estimated population variance:

$$s^2 = ss/df = \frac{\sum(X-M)^2(squared)}{(N-1)}$$

- ii. Calculate the variance of distribution of means:

$$s_m^2 = \frac{s(squared)}{N}$$

- iii. Calculate the standard deviation of the distribution of

$$\text{means: } s_m = \sqrt{s(squared)/N}$$

- c. The shape will be a t distribution with (N-1) degrees of freedom.

- 3) Determine the cut-off sample score on the comparison distribution at which the null hypothesis should be rejected.

- a. Decide the significance level and whether to use a one-tailed or two-tailed test.

- b. Look up the appropriate cut-off in the t table.

- 4) Determine the sample's score on the comparison distribution: $t = (M - \mu) / s_m$

- 5) Decide whether to reject the H_0 (null hypothesis) by comparing the scores from step 3 and 4 (Aron, Aron & Coups, 2009).

A linear regression was used to explore the predictive power of demographic variables, personality traits and self-regulation on adolescent alcohol and other drugs abusers. A linear regression can be defined as an “attempt to model the relationship between two variables by fitting a linear equation to observed data where one variable is considered to be an explanatory variable, and the other is considered to be a dependent variable” (The World Almanac and Book of Facts, 1993).

The equation used for a linear regression line has is $Y = a + bX$, where X is the predictor variable and Y is the dependent variable referred to as the criterion. The slope of the line is b , and a is the intercept (the value of y when $x = 0$) (Aron, Aron & Coups, 2009). According to Lane (n.d) a linear regression “consists of finding the best-fitting straight line through the points and the best-fitting line is called a regression line” (para 4).

Lastly an Analysis of Covariance (ANCOVA) was used to profile the high probability substance abuse group on self-regulation and personality traits.

4.3 Phase Two

This section presents the type of methodology that was followed in Phase Two of the study, including the study design, participants, sampling techniques, instruments, procedure and data analysis methods. Phase Two used the baseline information from Phase One to empirically determine a competence skills development programme for adolescent substance abusers. Furthermore, the development of a competence skills programme derived from the

information in Phase One was discussed, as well as the implementation and evaluation of the competence skills development programme for substance-abusing adolescents.

4.3.1 Research Design

The second phase of this study utilised an experimental research design, specifically a pretest posttest control group design. The aim of the experimental research was to investigate the possible cause-and-effect relationship by manipulating one independent variable to influence the other variables in the experimental group, by controlling the other relevant variables and measuring the effect of the manipulation by some statistical means. Babbie and Mouton (2001) indicated that in such a design, the researcher considers many possible factors that might cause or influence a particular condition. The researcher then attempts to control for all influential factors, except those whose possible effects are the focus of investigation.

A pretest-posttest control group design was used to evaluate the competence skills development programme on a selected subgroup of the substance-abusing participants. In this design an experimental group and control group were carefully selected. The experimental group was assessed, subjected to the experimental treatment and assessed once again. The control group was isolated from any influences of the experimental treatment; it was simply assessed both at the beginning and at the end of the experiment (Leedy & Ormrod, 2005). In the present study the psychometric scales (SASSI-A2, BFI, SRQ and demographic questionnaire) were administered pre and post intervention. Both the experimental group and control group were tested to evaluate the effect of the competence skills development programme.

4.4.2 Instruments and Measures

The BFI, SRQ, SASSI-A2 and demographic questionnaire were used pre- and post – the administration of the competence skills development programme to observe the effect of the intervention programme on substance abusing individuals. Their psychometric properties were discussed in full in the aforementioned section detailing Phase One of the study.

4.4.3 Participants

A total of 20 ($n=20$) participants were selected in Phase Two. These 20 ($n=20$) participants were divided into two groups, ten participants in the experimental group and ten participants in the control group. Only the experimental group was exposed to the competence skills development programme. The rationale for using 20 participants, ten participants in each group of Phase Two of the study, is to create appropriate interaction among the participants during the group therapy sessions. Sadock and Sadock (2003) indicated that group therapy has been successful with as few as three members and as many as 15.

Participants for this study were chosen based on meeting a combination of inclusion criteria; (1) the participant needed a score on the SASSI-A2 that placed them in the high probability substance abuse group: the mean plus $\frac{1}{2}$ the standard deviation score was included (2) participants must self-identify as being South African, (3) participants must be sober at present to attend the intervention programme, (4) the participants should be between 12 and 19 years, and (5) the participants should be willing to fill in a pre-intervention and post intervention questionnaire.

Both groups completed the SASSI-A2, BFI, demographic questionnaire and the SRQ questionnaires pre- and post- intervention. Only the experimental group was exposed to the competence intervention programme.

In Phase Two of this study the gender demographic attribute indicated that the experimental group consisted of 50% male adolescent participants ($n=5$, 50%) and of 50% female adolescent participants ($n=5$, 50%). The control group consisted of 80% adolescent males ($n=8$, 80%) and 20% adolescent females ($n=2$, 20%), which brings the total representation of the participants in phase two of the study to 65% adolescent males ($n=13$, 65%) and 35% adolescent females ($n=7$, 35%). There was an over representation of males in the control group, with over 80% of the participants being male. The over representation of males in the control group was due to the availability of more males than females in the outpatient facility. At the time of the experiment, more males were able and willing to participate in the study at that particular time due to fitting into the inclusion criteria.

The demographic attribute chronological age in years indicated that the 10 participants ($n=10$) in the experimental group had a mean age of $\bar{x} = 16.6$ with a standard deviation of $\sigma = 0.96$. The range of the ages in the experimental group was three with a minimum age of 15 and a maximum age of 18. The 10 participants ($n=10$) in the control group had a mean age of $\bar{x} = 17.4$ with a standard deviation of $\sigma = 1.07$. The range of the ages in the control group was four with a minimum age of 15 and a maximum age of 19.

The participants that took part in phase two of the study were from three different racial groups namely, Black, White and Indian/Asian. The experimental group consisted of 30% Black participants ($n=3$, 30%) and 70% White participants ($n=7$, 70%). In the control

group the participants were 30% Black participants ($n=3$, 30%), 60% White participants ($n=6$, 60%) and 10% Indian/Asian participants ($n=1$, 10%). This shows that in both groups there was an over representation of White participants with more than half of the participants being White. The over representation of White participants is due to the availability of patients in the outpatient facility that fitted the inclusion criteria.

All the adolescent participants in this study indicated grade 7-12 as their highest and current educational status ($n=20$, 100%). The educational status of the adolescent participants' parents was determined across five (5) domains namely: no schooling, grade 7-12, certificate/diploma, degree and postgraduate degree. In the experimental group 40% of fathers ($n=4$, 40%) and 40% of mothers ($n=4$, 40%) had grade 7-12, 30% of fathers ($n=3$, 30%) and 40% of mothers ($n=4$, 40%) had a certificate/diploma, and 30% of fathers ($n=3$, 30%) and 20% of mothers ($n=2$, 20%) had a degree. No parents in the experimental group had any form of formal schooling, or obtained a post-graduate degree. In the control group 10% of fathers ($n=1$, 10%) had no formal schooling, 20% of fathers ($n=2$, 20%) and 50% of mothers ($n=5$, 50%) had grade 7-12 as their highest level of education. Furthermore, 30% of fathers ($n=3$, 30%) and 10% of mothers ($n=1$, 10%) had a certificate/diploma, 10% of fathers ($n=1$, 10%) and 20% of mothers ($n=2$, 20%) have a degree and lastly 20% of fathers ($n=3$, 20%) and 20% of mothers ($n=2$, 20%) have a postgraduate degree.

The parents' marital status of adolescent participants was determined across four domains namely, married, divorced, widowed and single parents. In the experimental group 50% of adolescents' parents ($n=5$, 50%) were married, 30% of adolescents' parents ($n=3$, 30%) were divorced, 10% of adolescents' parents ($n=1$, 10%) were widowed and 10% of adolescents' parents ($n=1$, 10%) were single parents. In the control group 40% of adolescents'

parents ($n=4$, 40%) were married, 20% of adolescents' parents ($n=2$, 20%) were divorced, 20% of adolescents' parents ($n=2$, 20%) were widowed and 20% of adolescents' parents ($n=2$, 20%) were single parents. Results indicated that more than half of the participants' parents were married in both the experimental and control group.

The adolescents' perception of parental substance abuse was analysed. In the experimental group 40% of adolescent participants ($n=4$, 40%) perceived their fathers as substance abusers and 60% of adolescent participants ($n=6$, 60%) do not perceive their fathers as substance abusers. Ten percent of adolescent participants ($n=1$, 10%) in the experimental group perceived their mothers as substance abusers, and 90% of adolescent participants ($n=9$, 90%) did not perceive their mothers to be substance abusers. In the control group 20% of adolescent participants ($n=2$, 20%) perceived their fathers as substance abusers and 80% of adolescent participants ($n=8$, 80%) do not perceive their fathers as substance abusers. Twenty percent of adolescent participants ($n=2$, 20%) in the control group perceived their mothers as substance abusers, and 80% of adolescent participants ($n=8$, 80%) did not perceive their mothers to be substance abusers.

A range of questions were asked with regards to the substance use of the adolescent participants and are as follows: The participants were asked if they abused alcohol; ($n=20$, 100%) answered yes in the experimental and control groups. Participants were asked if they used drugs and 100% of the experimental group ($n=10$, 100%) answered yes, 90% of the control group ($n=9$, 90%) answered yes and 10% of participants ($n=1$, 10%) answered no to using drugs. Participants were asked if they smoked cigarettes and 90% of participant ($n=9$, 90%) in the experimental group answered yes and 10% of participants ($n=1$, 10%) answered

no. In the control group 60% of participants ($n=6$, 60%) answered that they did smoke cigarettes and 40% of participants ($n=4$, 40%) answered no.

Participants were asked if they have ever been in trouble for using drugs and 100% of the participants ($n=10$, 100%) in the experimental group answered yes and 80% of the participants ($n=8$, 80%) in the control group answered yes to getting into trouble for drug use. Twenty percent of the participants ($n=2$, 20%) in the control group indicated that they had not been in trouble for drug use.

In the question concerning the participants' involvement with friends who used drugs, 100% of adolescent participants ($n=10$, 100%) in the experimental group were involved with friends who used drugs. In the experimental group, 90% of adolescent participants ($n=9$, 90%) indicated that they were involved with friends who used drugs and 10% of adolescent participants ($n=1$, 10%) indicated that they were not involved with friends who abused drugs.

4.3.4 Sampling

The sampling technique that was used for the Phase Two of the study was a probability sample design that consisted of random sampling (Babbie & Mouton, 2001). The 10 participants in the experimental group and the 10 participants in the control group were randomly selected to form a homogeneous sample.

4.4.5 Procedure

In Phase Two of the study, all assessments and group therapy sessions were conducted at an outpatient adolescent facility that assists adolescents who have been diagnosed with substance abuse disorders. The facility takes referrals from courts, medical professionals and

schools onto their programme. It allows adolescents to function independently in their external world and stay with their families of origin and attend school as usual. They attend the programme on a Tuesday night and all adolescents are tested for drugs on a weekly basis. The facility focuses their support from a religious point of reference by means of support groups. The administration of the measures was conducted at pretest, before the intervention and after 14 weeks, post-test.

The assessment specifically took place in the outpatient facilities learning centre classroom. Participants from both groups (experimental and control) completed the Big Five Inventory (BFI), self-regulation questionnaire (SRQ), substance abuse subtle screening inventory (SASSI-A2) and demographic questionnaire. The psychometric properties of these instruments have been discussed previously. Before the administration of the instruments proper rapport was established with all participants. Participants were also informed that they were not expected to write their names on any page of the questionnaires for the sake of confidentiality. The relevant informed consent forms and information page of the research project was explained to all participants. The participation of adolescent substance abusers for this intervention programme was based on their voluntary participation and motivation for change, as well as meeting the inclusion criteria.

4.4.6 Experimental Conditions

Two separate groups, namely the control group that had not been exposed to the intervention programme and the experimental group that participated in the intervention programme were formed between October 2013 and December 2013.

The experimental group met on Tuesday evenings on a weekly basis from 18:30-21:00. The first hour of the meeting was utilised for testing those adolescents for drugs, as agreed with the outpatient facility, and participating in their weekly prayer meeting. A total of 14 sessions were conducted. All group sessions were conducted by the researcher. A counsellor from the facility managed the drug testing. The counsellor also attended all the sessions as agreed with the facility to ensure that the programme could be run with adolescents in future. The counsellor served as a co-facilitator during the sessions as well as being trained to run the programme in future as the facility has no adolescent programme available.

The researcher is a Clinical Psychologist by profession and has adequate experience with regard to working with substance abuse. Additionally, the researcher received constant supervision from her supervisor, who has vast work experience in clinical practice and research.

4.4.7 Experimental Group

Adolescents in the experimental group were introduced to the competency skills programme. The main purpose of the intervention program in this study was to enhance adolescents' self-regulating capacity, assist with coping more effectively with neuroticism personality traits (Depression, Anxiety, Angry Hostility, Vulnerability, Impulsiveness, Self-Consciousness), manage their extraversion traits (Excitement Seeking Behaviour) and substance abusing behaviour. All sessions were conducted in a group format.

The intervention program taught a range of cognitive-behavioural techniques based on cognitive-behavioural strategies (Munoz & Miranda, 1996) and Yalom group therapy

therapeutic factors principals (Yalom & Leszcz, 2005). The experimental group attended the intervention program which consisted of 14 sessions.

Table 4

Competence Skills Intervention Programme Topic Breakdown

Week	Group Sessions	Topic
Week 1	Session 1: Control group and Experimental group	Introduction to intervention and contracting Pretest
Week 2	Session 2: Experimental group	Rapport building and introduction to ground rules for group therapy Psycho-education about drug abuse (physical – brain + body), psychological and emotional impact of drug abuse on individual and family
Week 3	Session 3: Experimental group	Psycho education about drug abuse (difficulties stopping usage despite good intentions, relapsing and triggers)
Week 4	Session 4: Experimental group	Understanding adolescence and emotional, cognitive and physical changes Understanding self –regulation
Week 5	Session 5: Experimental group	Role of self-regulation in managing a drug problem

Week	Group Sessions	Topic
		Skills to develop more effective self-regulation strategies
Week 6	Session 6: Experimental group	Understanding the role of Neuroticism as part of a drug problem (Anxiety, Depression, Angry hostility, Vulnerability, Impulsiveness, Self-Consciousness)
Week 7	Session 7: Experimental group	Understanding anger and impulsiveness Learning strategies to manage anger and impulsiveness effectively
Week 8	Session 8: Experimental group	Understanding self-esteem and self-consciousness Self-esteem enhancement
Week 9	Session 9: Experimental group	Understanding stress and anxiety Learning relaxation, stress and anxiety management techniques
Week 10	Session 10: Experimental group	Learning coping skills to deal with emotional distress (School, friends, family) Buddy system and emotional support
Week 11	Session 11: Experimental group	Conscientiousness strategies to obtain goals through self-discipline, deliberation, order and perseverance
Week 12	Session 12: Experimental group	Understanding openness to new experiences (prosocial and risk behaviour)

Week	Group Sessions	Topic
		Developing prosocial behaviour strategies
Week 13	Session 13: Experimental group	Summarising and termination of intervention Post-test
Week 14	Session 14: Control and Experimental group	Certificate award ceremony Celebration

Each of the afore-mentioned modules was covered with a specific objective and goal to be achieved weekly. The researcher facilitated the group interaction throughout the intervention programme. The intervention programme generally targeted the cognitive, affective and behavioural components of substance abusing adolescents, and enhancing adaptive coping skills. To achieve optimal results from the intervention programme, the intervention consisted of implementation of behavioural strategies and constant guidance from the researcher which included adherence to group homework and participating actively as a group in the role play and in other activities during the intervention period.

Various modes of information translation were used namely video clips, PowerPoint presentations, physical activities and role play. Furthermore, the researcher provided the participants with written material related to topics covered during the intervention programme to facilitate its goal. The programme remained consistent over the 14-week period starting with checking in with all group members, summarising the topic of the previous week, homework discussion, theoretical information on current topic, practical exercise strategies of current topic to practise skills, as well as fun activities to remember strategies learnt.

Additionally adolescent participants in the experimental group shared their frustration with themselves and the lack of support from their families. They were comforted by the realisation that they were not alone in their struggle and were able to identify with other participants who were in a similar position. Participants also came to realise the extent of substance abuse, as well as the impact it had on their families and friends when one of the group members relapsed mid intervention. Participants found the self-destructive nature of abuse on a physical and psychological level a real eye-opener. The researcher used the core conditions of Rogers throughout the intervention displaying congruence, unconditional positive regard and empathy (Rogers, 1961).

4.4.8 Control Group

The adolescents assigned to the control group completed the pretest and posttest assessment but did not receive the psychological intervention from the researcher. The counsellor attending all the lectures of the experimental group as well as conducting the intervention with the control group as was the agreement with the facility. This person will conduct the interventions with all groups entering the adolescent outpatient facility in future.

4.4.9 Therapeutic Criterion

Group therapy is an efficient treatment modality, as it is possible to teach skills, present information and engage many clients within the same time frame. Alliance is conceptualised as a collaborative experience, characterised by an agreement on treatment goals, methods used to obtain those goals, and the relational bond between client and therapist (Bordin, 1979). Within group therapy, the alliance is influenced by the multiplicity of relationships that each individual develops within the context of other group members (MacKenzie, 1998; Yalom & Leszcz, 2005).

Although therapy groups may differ in their purpose and population, common processes underlie most group therapies, such as group cohesion and conflict (Yalom & Leszcz, 2005). These group dynamics would therefore need to be captured in an ultra-brief group alliance measure to adequately gauge whether individuals are forming positive alliances with the therapist as well as other group members. In group therapy, the alliance resembles the constructs of group cohesion and group climate (Burlingame, McClendon, Theobald, & Alonso, 2011; Norcross, 2010).

Group cohesion is a constructive interpersonal exploration through bonding and working together toward common goals, mutual acceptance and identification with the group (Marziali et al., 1997). Group climate is conceptualised as the environmental force felt within a group, derived from the summation of individuals' engagement, degree of avoidance of change and conflict (MacKenzie, 1983).

Group cohesion and group climate are influential factors that can facilitate the attainment of treatment goals (Kivlighan & Tarrant, 2001; MacKenzie, 1983). Brief, reliable and valid measures of therapy processes and outcomes can be efficient ways to gain feedback from clients to guide the therapy process.

The four items of the Group Session Rating Scale (GSRS) can be thought of as a measure of global alliance within group therapy, which has adequate reliability (both alpha estimates and test-retest correlations). GSRS scores were also found to correlate with other measures that assess similar key group processes, therefore providing evidence for concurrent validity. This conceptualisation is consistent with group theory that emphasises the commonality underlying all group processes (Yalom & Leszcz, 2005).

Each of the 10 group members filled in an evaluation sheet on a weekly basis after each group activity. Group members in the experimental group scored the group sessions over the 14-week period.

Group Session Rating Scale (GSRS)
(ages 13 to adult)

Name _____	Age (Yrs): _____	Session # _____	Date: _____
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Please rate today's group by placing a mark on the line nearest to the description that best fits your experience.

I did not feel understood, respected, and/or accepted by the leader and/or the group.	Relationship _____	I felt understood, respected, and accepted by the leader and the group.
We did not work on or talk about what I wanted to work on and talk about.	Goals and Topics _____	We worked on and talked about what I wanted to work on and talk about.
The leader and/or the group's approach is a not a good fit for me.	Approach or Method _____	The leader and group's approach is a good fit for me.
There was something missing in group today—I did not feel like a part of the group.	Overall _____	Overall, today's group was right for me—I felt like a part of the group.

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Figure 9. Group Session Rating Scale retrieved from Duncan & Miller (2007).

The results of the group session rating over a 14 week period is summarized in Table 5 below.

Table 5

Group Session Rating Scale Scores over a 14 Week Period

Mean Score over 14 Weeks	Criteria	Range
95%	Relationship	Felt understood, respected and accepted by the leader and the group
87%	Goals and Topics	We worked on and talked about what I wanted to work on and talk about
80%	Approach or Method	The leader and group's approach is a good fit for me
84%	Overall	Overall, today's group was right for me; I felt like part of the group

Adolescents in the group indicated that the intervention, group dynamics and therapist/researcher managing the process was overall a very positive experience. They regarded the information learnt and conditions of the treatment intervention as successful.

4.4.10 Group Process

The group process was conducted according to Yalom's (1995) interactional approach which focuses on the "Here and Now". The focus of the group was therefore on the present and adolescents were discouraged to talk about past issues occurring outside the group. The group provided opportunities for all members to learn about themselves and their interpersonal and intra-psycho functioning by creating a safe atmosphere that encouraged interaction and invited reflection. The group furthermore focused on finding similarities between group members and individuals in their regular lives and was encouraged to deal with the issue and work it out in the group. Members of the group were instructed to view themselves and their interactions in the group and observe what they did and how they did it. Using Yalom's (1995) self-reflective loop they observed themselves in the "here and now," what they were saying, thinking, acting and feeling and then they would learn how they should really act outside the group. Based on Yalom's group therapy, the members were encouraged to try new things and experiment during therapeutic interactions. Group members could collect feedback as they tried out new behaviours.

Defence mechanisms such as rationalisation and generalisation were limited by the therapist/researcher and members in the group were encouraged to use "I" messages. Members wanted to; (1) feel accepted by the group, (2) know what was expected, (3) feel that they belong, and (4) feel safe. When these forces were absent, members tended to be negative,

hostile, withdrawn, or apathetic. The therapist/researcher attempted to ensure that members were well-informed and not left out and also focused on participation from all members.

In line with Yalom's (1995) curative factors the onus of the group therapy was to ensure that each member felt part of the group and was able to see that change in themselves and with the group's assistance was possible. The instillation of hope (Yalom, 1995) to facilitate a shift in behaviour and substance-abusing tendencies was prevalent. The fact that members were able to share their life stories and struggles in a safe environment assisted the sense of group cohesion and universality (Yalom, 1995) amongst members. The sharing of information, discussion of the topic presented and each member's struggle to maintain sobriety throughout the process was evident. Members reached out to one another displaying altruistic behaviours (Yalom, 1995) and through the process became more connected, dependent and respectful of each other.

Group members took on a supportive role for one another in the group process, known as corrective recapitulation of the primary family or group (Yalom, 1995). They were willing to engage in a "buddy" system, which meant that if one member of the group was battling with cravings, there were processes in place to contact the chosen "buddy" to assist with managing the situation more effectively. The group therapy process also provided members with the opportunity to socialise (Yalom, 1995) appropriately through engaging in the ebb and flow of communication, in other words, being able to listen to a group member speaking and valuing the member's opinion without interruption. Furthermore, also being able to respectfully disagree in a safe environment, assisted with assertiveness training.

The therapeutic group provided a space to mimic learnt behaviour (Yalom, 1995) and experiment in a safe environment. Members were able to challenge existing patterns of behaviour and thinking processes and attempt new alternative strategies. For the members in the group the sense of belonging (Yalom, 1995) allowed them to feel important and valued as individuals despite their substance abusing diagnosis and other substance-related problems (e.g., criminal record). The group process assisted the group members to learn more about themselves, their behaviours, emotions and thought processes whilst learning how other group-members deal with the world, their thoughts, emotions and how they act. The encouragement and motivation among the group members assisted them to want to take responsibility (Yalom, 1995) for their decisions and behaviour. Lastly, the group allowed members to vent and share their frustrations with one another which led to a cathartic release of emotions in a safe environment (Yalom, 1995).

Specific group norms were encouraged and established throughout the process which focused on; (1) timeous arrival for the group session, (2) continuous attendance, (3) self-reflection on information discussed, (4) confidentiality and respect for all group members, (5) willingness to share difficulties and struggles, (5) honesty, (6) willingness to change behaviour and faulty thinking, (7) focusing on the strength that lies in choices and (8) awareness of manipulation or substance-related behaviour.

4.4.11 Data Analysis Phase Two

The objectives of phase two included; (1) usage of the baseline information to empirically determine a competence skills development programme for adolescent substance abusers, (2) development of a competence skills programme derived from the information in phase one, (3) implementation and evaluation of the competence skills development

programme for substance abusing adolescents and a comparison with a control group, and (4) examining whether the competence skills development programme for substance abusing adolescents made a difference in the personality traits (Big Five), substance abuse (SASSI) and self-regulation (SRQ) in the experimental group.

Descriptive statistics were used to describe the sample of 20 ($n=20$) participants in phase two. Descriptive statistics were used to describe the sample of 10 participants ($n=10$) in the experimental group and 10 participants ($n=10$) in the control group.

An Analysis of Covariance (ANCOVA) was used for a 2X2 factorial design of the control and experimental group with pre- and post-test results. When a continuous covariate is included in an ANCOVA, one has the analysis of covariance (ANCOVA) (Babbie & Mouton, 2000). ANCOVA uses the post-test result as the dependent variable and the pretest is used as a covariate. A one-way analysis of covariance (ANCOVA) was conducted for this study.

The independent variable, group intervention, included two levels namely the experimental group and control group. The dependent variables for the analysis were the posttest scores and the covariate was the pretest scores on the following measures respectively: BFI-Extraversion; BFI-Agreeableness, BFI-Conscientiousness; BFI-Openness; BFI-Neuroticism and Self-Regulation.

The BFI subscales and SRQ were tested in this analysis. Before the ANCOVA was performed, the Levene's Test for Homogeneity of Variance was conducted. The Levene's test (Levene, 1960) is used to test if samples have equal variances, in other words this test is a

determination of the homogeneity of variance. If found to be significant, the ANCOVA is not performed as the assumption of homogeneity has not been met.

Consequently, a Mann-Whitney U test was conducted comparing the posttest scores of the experimental and control group. The Mann-Whitney U test is “a nonparametric test of the null hypothesis that two populations are the same against an alternative hypothesis; especially that a particular population tends to have larger values than the other” (Babbie & Mouton, 2000, p.393).

The experimental group ($n=10$) was compared on their pretest and posttest data for the BFI and SRQ using the non-parametric Wilcoxon test. The Wilcoxon paired samples test is the non-parametric equivalent of the t-test for paired samples test for samples less than 30 participants (Babbie & Mouton, 2000). Data collected from the same experimental units are in general dependent. For example, if data are collected on two occasions (pretest and posttest) from the same individuals (the experimental group), they are dependent (Aron, Aron & Coups, 2009). Wilcoxon matched-pairs signed-ranks test is a test for the relative size of the scores of the same or matched subjects under two experimental conditions by comparing the distributions for positive and negative differences of the ranks of their absolute values (Collins, 2000). Wilcoxon paired samples were discussed in more detail previously in phase one in the data analysis section.

4.5 Ethical Considerations

In planning and executing this study, attention was given to ethics and the importance of adherence to it. The research was conducted by a suitably qualified person and was supervised by a scientifically qualified person.

According to McIntyre (2005), ethics in a technical sense refers to the degree to which behaviour follows the rules that have been specifically oriented to the welfare of society at large and not to the self-interests of the researcher. In line with this requirement and the Nuremberg Code as cited by McIntyre (2005), the researcher took the following into consideration:

4.5.1 Confidentiality

The information gathered remained totally confidential throughout the process. Anonymity was maintained in the pilot study and phase one, but not in phase two. Phase two anonymity was not possible due to the process and the researcher collecting information from an identifiable respondent. It was made clear to the participants during the pilot study and phase one that this research was confidential and anonymous. The fact that this research was confidential but not anonymous was explained to participants in phase two. The researcher undertook to train the research assistant about ethical responsibilities.

4.5.2 Voluntary Participation

Participation in this study was voluntary and written consent was obtained (Appendix 4) in accordance with the basic ethical rules of social research (Babbie, 2007).

4.5.3 Informed Consent

The participants based their voluntary participation on a full understanding of the research aim and intervention (Babbie, 2007). The researcher provided a verbal and written explanation of the study to the adolescents prior to testing. All participants in the outpatient facility and high schools signed an informed consent form with a written explanation of the study. Parental consent was provided by the parents of adolescents involved in the study. The

consent form was signed by parents or guardians and adolescents themselves. The participants were informed that they could withdraw their informed consent at any time during or after testing.

4.5.4 No Unfair Discrimination or Bias

This research did not unfairly discriminate or show bias against any individual or group. Due to the sensitive nature of working with the often stereotyped substance-abuse community, all participants were treated equally.

4.5.5 No Harm to Participants

The research yielded results that were used for the good of society and these results were unprocurable by any other methods. The results justified the performance of this research. The degree of risk taken did not exceed the humanitarian importance of the problem solved by the research. The research was conducted in such a way as to minimise all unnecessary mental suffering in order to comply with the fundamental ethical rule that no harm should come to subjects (Babbie, 2007).

During the course of completing the questionnaire, the respondents were at liberty to stop at any point they deemed this necessary or appropriate without incurring any negative consequences. During the course of completing the questionnaires, the researcher was prepared to terminate the research at any stage if there was probable cause to believe that continuation was likely to result in mental anguish to the participants.

In accordance with the Ethical Code of Professional Conduct (The Professional Board for Psychology, Health Professionals Council of South Africa 18/5/B) 26/03/2000, no

incentives were offered for participation. The study's protocol was approved by North-West University's Research Ethics Committee prior to the collection of data. Following the approval of the proposal, the researcher requested permission from the Department of Education, school principals and relevant outpatient centres to conduct the research in their institutions.

4.5.6 Provision of Debriefing and Counselling

Debriefing entailed having the interviewer discover any problems generated by the research experience and addressing those problems that could be corrected (Babbie, 2007). Due to the potentially sensitive nature of the questions - which may have elicited memories that were distressing, the participants were given access to trauma counselling (if needed) by an available therapist who was recruited by the researcher for the purposes of debriefing.

This section examined the methodology used and gave due consideration to the ethics involved. The results of the study and the discussion of the results will follow in the next chapter.

CHAPTER 5

RESULTS AND DISCUSSION OF RESULTS

5.1 Introduction

The cross-sectional design of Phase One and the pretest posttest control group experimental design of Phase Two have resulted in providing adequate data to answer the research questions. The results of Phase One and Phase Two will be conferred by means of discussing the hypothesis created from the literature. In the present chapter, the researcher presents the results and the original objectives by dividing the results and the discussion of results under the hypotheses developed. The results for Phase One and Phase Two will be presented. The presentation of results of each hypothesis would be in sequence as stated in Chapter three.

5.2 Discussion of Hypotheses

5.2.1 Hypothesis 1

The tendencies of adolescents to abuse or not abuse substances are established through the Substance Abuse Subtle Screening Inventory (SASSI-A2). The tendencies to abuse substances are confirmed through profiling the high probability substance abusers on self-regulation and personality traits.

Adolescent Substance Abuse Subtle Screening Inventory (SASSI-A2) Results

To match for sex and age a school sample was decided on. To control for ecological factors, the same setting was used for the experimental group in Phase Two. The mean plus $\frac{1}{2}$ the standard deviation was the cut-off point to differentiate between the tendencies to abuse substances through differentiating between the high probability and low probability group.

Total scores for each subscale were calculated as a separate variable in the SASSI-A2. Clinical inferences can be drawn from elevated scores above the 85th percentile on all subscales, except for the Defensiveness Scale (DEF). The DEF scores below the 15th percentile are significant. A variable indicating high probability and low probability was also calculated for the SASSI. To determine the difference between substance abusers and non-substance abusers, the SASSI-A2 was used to profile participants into low probability and high probability substance abuser. The descriptive of the means of the subscales of the SASSI-A2 is presented first. The adolescent participant data on the SASSI-A2 subscales are summarised in Table 6 and then discussed thereafter.

Table 6
SASSI-A2 Subscale Scores of the Adolescent Participants

Measure	Subscale	N	Range	Min	Max	Mean	SD
SASSI	FVA	893	30	0	30	2.56	4.7
	FVOD	894	48	0	48	1.84	6.1
	FRISK	894	14	0	14	2.38	1.8
	ATT	893	10	0	10	3.18	1.9
	SYM	893	9	0	9	1.85	1.8
	OAT	892	18	0	18	4.23	2.5
	SAT	893	15	0	15	3.06	2.1
	DEF	893	12	0	12	6.1	2.3
	SAM	894	7	0	7	1.85	1.4
	COR	890	13	1	14	8.92	2.6
	VAL	893	9	0	9	4.48	2
	SCS	891	29	0	29	8.94	5.2

The SASSI-A2 has become one of the most important starting points in identifying high and low probability substance abusers. The Face Valid Alcohol scale (FVA) explored the acknowledgment of alcohol use in adolescent participants. The 893 participants ($n=893$) in the sample had a mean of $\bar{x} = 2.56$ with a standard deviation of $\sigma = 4.74$. The range of the FVA subscale was 30 with a minimum value of 0 and a maximum value of 30. Scores on this scale indicate adolescents' willingness to acknowledge the extent of their alcohol abuse. The total sample of 893 participants ($n=893$) overall reflected a low probability to abuse alcohol. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided.

The Face Valid Other Drug Scale (FVOD) explored the acknowledgment of the usage of other drugs. The 894 participants ($n=894$) in the sample had a mean of $\bar{x} = 1.84$ with a standard deviation of $\sigma = 6.10$. The range of the FVOD subscale was 48 with a minimum value of 0 and a maximum value of 48. Scores on this scale indicate adolescents' willingness to acknowledge the extent of their drug abuse. The total sample of 894 participants ($n=894$) overall reflected a low probability to abuse drugs. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided.

The Family and Friends Risk Scale (FRISK) measured the extent to which the adolescent is part of a family or social system that is likely to enable substance misuse. The 894 participants ($n=894$) in the sample had a mean of $\bar{x} = 2.38$ with a standard deviation of $\sigma = 1.83$. The range of the FRISK subscale was 14 with a minimum value of 0 and a maximum value of 14. The total sample of 894 participants overall reflected a low score on the FRISK indicating that for the majority of participants friends, family and their social system are not placing the adolescent at risk to abuse substances. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided. Adolescents with elevated FRISK scores

may have difficulty recognising and accepting the consequences of their substance abuse due to being part of a family, friend or support system that promotes rather than prevent substance abuse. Substance abuse may be viewed as trivial or as the norm (Miller, 2001). This was, however, not the case in the majority of this sample in phase one, but relevant for the sample of phase two.

The Attitudes towards Substance Use (ATT) measured the adolescents' attitudes and beliefs regarding substance use. The 893 participants ($n=893$) in the sample had a mean of $\bar{x} = 3.18$ with a standard deviation of $\sigma = 1.89$. The range of the ATT subscale was 10 with a minimum value of 0 and a maximum value of 10. The total sample of 893 participants overall reflected a low score on adolescents' attitudes and beliefs about substance abuse. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided. High ATT scores would have indicated that adolescents are likely to be defensive about their substance abuse and might need a great deal of structure, routine and supervision to make changes in their behaviour (Miller, 2001). That was not the case for the majority of the sample in phase one, but relevant for the sample of phase two.

The Symptoms of Substance Misuse (SYM) measured the consequences of substance misuse and loss-of-control in usage. The 893 participants ($n=893$) in the sample had a mean of $\bar{x} = 1.85$ with a standard deviation of $\sigma = 1.81$. The range of the SYM subscale was 9 with a minimum value of 0 and a maximum value of 9. The total sample of 893 participants overall reflected a low report of symptoms of substance abuse. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided. Elevated SYM scores would have indicated substance abuse as well as the willingness of adolescents to disclose relevant substance abuse behaviour (Miller, 2001). Elevated scores furthermore indicate that

adolescents will need a highly structured and supportive environment to assist them to make difficult changes to their substance abuse behaviour (Miller, 2001). That was not the case for the majority of the sample in phase one, but relevant for the sample of phase two.

The Obvious Attributes Scale (OAT) explored the characteristics that are commonly associated with substance abuse. The 892 participants ($n=892$) in the sample had a mean of $\bar{x} = 4.23$ with a standard deviation of $\sigma = 2.52$. The range of the OAT subscale was 18 with a minimum value of 0 and a maximum value of 18. The total sample of 891 participants overall reflected that the majority of the sample were not substance abusers. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided. Although adolescents with an elevated OAT score might be able to acknowledge their problems with substances, they often do not have insight into the dynamics, causes and consequences of substance abuse (Miller, 2001). These adolescents are more likely to fit into a group therapy environment where they can associate and identify with other adolescents who have substance abuse problems. Adolescents might view their substance abuse difficulties as more powerful than their own abilities to overcome problems (Miller, 2009). That was not the case for the majority of the sample in phase one, but relevant for the sample of phase two.

The Subtle Attribute Scale (SAT) explored the basic personal personalities that may be similar to people who are dependent on substances. The 893 participants ($n=893$) in the sample had a mean of $\bar{x} = 6.10$ with a standard deviation of $\sigma = 2.32$. The range of the SAT subscale was 15 with a minimum value of 0 and a maximum value of 15. The total sample of 893 participants overall reflected a low SAT score indicating that majority of the adolescent population did not display similar characteristics to those adolescents with substance abuse difficulties. The mean score for the sample was below the 50th percentile of the SASSI-A2

norms provided. An elevated SAT score might serve as an indication that the adolescent lacks insight in and awareness of their substance abuse difficulties (Miller, 2001). These adolescents might be able to acknowledge that certain of their behaviours are linked to substance abuse, but are unable to recognise that the behaviours might indicate that there is a problem with substance abuse. Adolescents with a high SAT score might often find it difficult to identify their emotions and therefore do not experience internal pressure to change behaviour. Miller (2001) also postulated that these adolescents might find it difficult to express emotions, specifically negative emotions, and often experience emotional turmoil. That was not the case for the majority of the sample in phase one, but relevant for the sample of phase two.

The Defensiveness Scale (DEF) identified defensiveness that may or may not be related to substance abuse. The 893 participants ($n=893$) in the sample had a mean of $\bar{x} = 4.48$ with a standard deviation of $\sigma = 1.99$. The range of the DEF subscale was 9 with a minimum value of 0 and a maximum value of 9. The total sample of 893 participants overall reflected a relatively high score on defensiveness. The mean score for the sample was slightly below the 85th percentile of the SASSI-A2 norms provided. High defensiveness scores can be related to a variety of situational and personality factors (Miller, 2001). An elevated DEF score indicates that the adolescent responded to the assessment in a defensive manner and avoided acknowledging and recognizing personal problems. These are not necessarily substance abuse-related problems (Miller, 2001). That was not the case for the majority of the sample in phase one, but relevant for the sample of phase two. A low score below the 15th percentile might indicate that adolescents might have a tendency to self-depreciation which can indicate remorse or low self-esteem or a depressed affect (Miller, 2001).

The Supplemental Addiction Measure (SAM) supplements other scales in decision rules, but is not used in clinical interpretation. The 894 participants ($n=894$) in the sample had a mean of $\bar{x} = 1.85$ with a standard deviation of $\sigma = 1.44$. The range of the SAM subscale was 7 with a minimum value of 0 and a maximum value of 7. The SAM scores aid in the accurate identification of substance abuse disorders. The total sample of 893 participants overall reflected a low score, indicating no presence of a substance-abuse disorder in the majority of the population. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided.

The Correctional Facility Scale (COR) differentiated between people involved in the criminal justice system and those who are not. The 890 participants ($n=890$) in the sample had a mean of $\bar{x} = 8.92$ with a standard deviation of $\sigma = 2.60$. The range of the COR subscale was 13 with a minimum value of 1 and a maximum value of 13. The total sample of 890 participants overall reflected an average score on the tendency to get involved or be part of perceived problematic behaviour. The mean score for the sample was slightly below the 85th percentile of the SASSI-A2 norms provided. The elevated COR scores above the 85th percentile might indicate a lack of adult supervision, poor anger management or conflict management strategies, difficulties adhering to rules and regulations, poor impulse control and a lack of internal control (Miller, 2001). That was not the case for the majority of the sample in phase one, but relevant for the sample of phase two. It is important to note that when adolescents have an elevated COR score it does not mean that they have broken laws of a criminal nature. There is also no correlation between high COR scores and future high risk offenses (Miller, 2001). It is difficult for adolescents to see the relationship between their behaviour and some of the consequences they might experience.

The Validity Check (VAL) identifies those individuals for whom further evaluation may be valuable because of the risk of abusing substances. The 893 participants ($n=893$) in the sample had a mean of $\bar{x} = 4.48$ with a standard deviation of $\sigma = 1.99$. The range of the VAL subscale was 9 with a minimum value of 0 and a maximum value of 9. In the total sample of 893 the majority of adolescent participants reflected a low probability to abuse substances. The mean score for the sample was below the 50th percentile of the SASSI-A2 norms provided. That was the case for the majority of the sample in phase one, but not relevant for the sample of phase two.

The Secondary Classification Scale (SCS) distinguishes between substance abuse and dependence. The 891 participants ($n=891$) in the sample had a mean of $\bar{x} = 8.94$ with a standard deviation of $\sigma = 5.21$. The range of the SCS subscale was 29 with a minimum value of 0 and a maximum value of 29. The SCS provides a distinction between three categories of adolescents; (1) adolescents who do not have a substance use disorder, (2) adolescents who have a substance abuse disorder and (3) adolescent who have a substance dependence disorder (Miller, 2001). The total sample of 891 participants overall reflected that the majority of the sample did not qualify for a substance abuse diagnosis. That was the case for the majority of the sample in phase one, but not for the sample of phase two.

Secondly, the descriptive analysis of the number of high probability and low probability participants is provided. Further results are then disaggregated by the groupings of high and low probability.

Substance Abuse Tendency Profile of Adolescent Participants according to the SASSI-A2

The results of the substance abuse profiles of adolescent participants according to the SASSI-A2 are summarised in Table 7 and Figure 10 and discussed thereafter.

Table 7

Substance Abuse Probability Scores

SASSI-A2	N	%
Low Probability	661	73.90%
High Probability	233	26.10%
Total	894	100%

The analysis of the SASSI-A2 indicated that of the 894 participants ($n=894$) in the sample, 73.9% of the participants ($n=661$, 73.9%) had a low probability to abuse substances. The remaining 26.1% of participants ($n=233$, 26.1%) had a high probability to abuse substances.

The SASSI-A2 was therefore able to distinguish between the high and low probability risk groups that abuse substances, as stated by the hypothesis. This information is crucial in order to discuss and substantiate the remainder of the hypotheses. The link between high and low probability for abuse will be discussed in the sections that follow in relation to the different variables in the study.

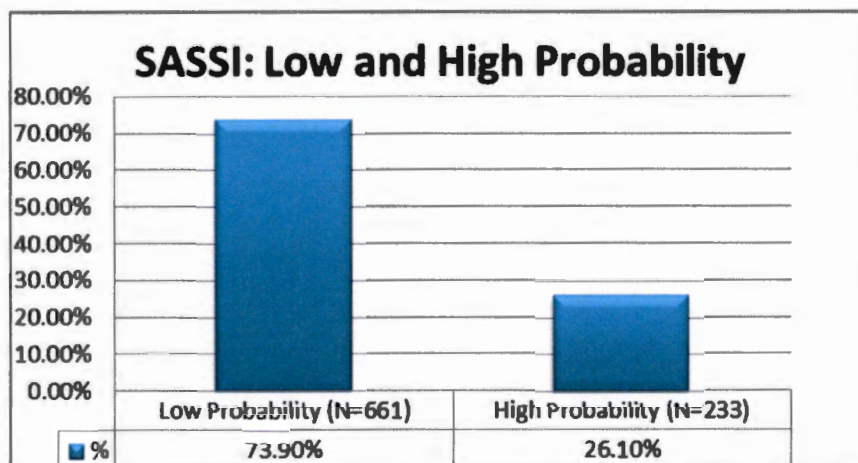


Figure 10. High or Low Probability to Abuse Substances

Profiling the High Probability Substance Abusers on Self-regulation and Personality Traits.

Interpretation of the ANCOVA assists in the establishing of the profile of adolescents who are the risk group for high probability substance abuse. The overall model will be discussed which includes the variance due to the main effects and the interaction effects between variables. In Psychology it is rare to report on the model as a whole and the reporting usually takes into account only the main effects and the interaction effects. This interpretation, due to the number of interactions and tables in the output, only summarises the significant findings in order to assist with the profiling of the high risk probability substance abuse group.

An ANCOVA of the subscales of the SASSI-A2 and the variables self-regulation and personality (neuroticism, agreeableness, openness, conscientiousness and extraversion) will be presented in the Table below and discussed thereafter.

Table 7

ANCOVA of Substance Abuse Tendencies, Self-Regulation and Personality Traits of the High Probability Substance Abuse Group

EFFECTS	Predictor Variable	FVA		FYOD		ATT		OAT		SYM		SAT		FRISK	
		F	p	F	p	F	p	F	p	F	p	F	p	F	p
MAIN EFFECTS	Extraversion													14.460	0.000
	Conscientiousness														
	Neuroticism	4.750	0.047												
	Openness														
	Agreeableness													20.890	0.000
	Self-Regulation													6.450	0.002
INTERACTION EFFECTS				9.711	0.018										
	Extraversion*Self-Regulation			4.624	0.038									15.560	0.000
	Extraversion*Openness											4.810	0.029		
	Extraversion*Agreeableness											3.070	0.087		
	Agreeableness*Self-Regulation											3.220	0.041	10.520	0.007
	Agreeableness*Neuroticism					5.950	0.046								
	Extraversion*Agreeableness*Conscientiousness									3.949	0.049				
	Extraversion*Agreeableness*Self-Regulation													5.000	0.022
	Extraversion*Conscientiousness*Self-Regulation			4.227	0.047	5.010	0.016								
	Conscientiousness*Openness*Self-Regulation									5.122	0.025				
	Conscientiousness*Neuroticism*Self-Regulation											3.455	0.065		
	Conscientiousness*														
	Neuroticism*Self-Regulation*Agreeableness							4.043	0.046						

Face Valid Alcohol

Only one main effect and no interaction effects were evident for FVA scale. The main predictor to use alcohol was neuroticism. There was a significant main effect of neuroticism of the adolescent on the FVA, $F(1,103) = 4.254, p < .05$.

Face Valid Other Drugs

One main effect and two interaction effects were evidenced for FVOD. Adolescents who were high risk for substance use showed a main predictor variable of self-regulation $F(2,38) = 4.474, p < .05$. When using the Tukey post hoc test, results revealed that there was a significant difference between the adolescents with moderate self-regulation and those with low self-regulation (mean difference = -5.842, $p < .05$). The low self-regulation group was more at risk for abusing other drugs.

Two interaction effects were evidenced, extroversion interacted with self-regulation to have a significant effect on FVOD, $F(1,38) = 4.634, p < .05$. and adding conscientiousness with extroversion and self-regulation interacted significantly on FVOD, $F(1,38) = 4.227, p < .05$.

Attitudes toward Substance Abuse

No main effects were found for ATT and 2 interaction effects were evidenced. Adolescents with high neuroticism and high agreeableness were more at risk for having positive attitudes and beliefs around substance abuse, $F(1,124) = 3.953, p < .05$. Additionally, the variables of extraversion, conscientiousness and self-regulation had an interaction effect on ATT, $F(1,124) = 6.014, p < .05$.

Obvious Attributes

No main effects and two interaction effects were found for the OAT scale which indicates the awareness of problematic behaviour. When the variables of conscientiousness, openness and self-regulation interacted it had a significant effect on OAT, $F(1,228) = 5.122$, $p < .05$. Therefore the adolescent with poor self-regulation, low conscientiousness and low openness will be more prone to abuse substances without realising the impact their abuse has; as well as feeling that their behaviour is out of their control. Furthermore, and adolescent will also not be able to recognise a pattern of problematic behaviour. When the variables of conscientiousness, neuroticism, self-regulation and agreeableness interacted it had an interaction effect on OAT, $F(1,228) = 4.403$, $p < .05$.

Symptoms

No main effects and one interaction effect significantly predicted SYM indicating the consequences of substance abuse or the loss of control in substance abuse. Adolescents from the high risk group who exhibited extraversion, conscientiousness and agreeableness showed an interaction effect on SYM, $F(1,168) = 3.949$, $p < .05$.

Subtle Attributes

There were no main effects found. However, there were four interaction effects evidenced in the SYM scale which indicates lack of insight and awareness into the substance abuse problem. The most significant interaction out of the four that were evidenced was the interaction of the predictor variables extraversion and openness on SAT, $F(1,283) = 4.874$, $p < .05$. This was followed by conscientiousness, neuroticism and self-regulation, $F(2,283) = 3.453$, $p < .05$ then agreeableness and self-regulation, $F(2,283) = 3.228$, $p < .05$ and lastly, extraversion and agreeableness, $F(1,283) = 3.967$, $p < .05$.

Family-Friends Risk

Three main effects and three interactions effects of main predictor variables were evidenced for FRISK in the high risk substance abuse group. This scale indicates the extent to which an adolescent is part of a system that enables substance abuse. Adolescents who were in the high risk group for substance abuse were more likely to be extroverted $F(1,180) = 14.461, p < .001$, agreeable $F(1,180) = 20.895, p < .001$ and have low self-regulation $F(2,180) = 6.230, p < .01$, when predicting FRISK.

When the main predictor variables interacted, the following significant interactions were found: extraversion and self-regulation when predicting an interaction effect on FRISK, $F(2,180) = 15.559, p < .001$. This was followed by self-regulation and agreeableness, $F(2,180) = 10.519, p < .001$. Lastly, extraversion, self-regulation and agreeableness, $F(1,180) = 5.324, p < .05$.

5.2.2 Hypothesis 2

Demographic variables (specifically gender, age, race, educational status of parents, marital status of parents, parental substance use, peer substance use, family mental illness, smoking cigarettes) impact adolescents and influence their predisposition to abuse substances.

The demographic attributes will be discussed by means of presentation of each attribute in a table format with a description of the data, interpretation of the data and supportive information from literature.

Gender of Adolescent Participants

The gender of adolescent participants is summarised in Table 8 and discussed thereafter.

Table 8

Gender of Phase One Participants

Gender	N	%
Male	375	41.90%
Female	519	58.10%
Total	894	100%

The demographic attribute represented in this table was the gender attribute, which shows that from the 894 ($n=894$, 100%) participants in the overall population 375 ($n=375$, 41.9%) were males and 519 ($n=519$, 58.1%) were females. The sample showed an overrepresentation of females in that more than half of the population was female.

According to Statistics South Africa (2013), approximately 51% (approximately 27,16 million) of the overall South African population is female. The results presented in the table above are therefore slightly more than the demographic male-to-female ratio in the South African. Based on the 2013 statistics of South Africa, 507184 male adolescents ($n=507184$) live in Gauteng and 513733 female adolescents ($n=513733$) live in Gauteng.

Comparison of Non-Substance Abusing Adolescents with Substance Abusing Adolescents on their Demographic Variables

The comparison of the demographic characteristics of substance abusing adolescents' and non-substance abusing adolescents' t-tests for independent samples was used for continuous variables and chi-square for the categorical variables. The chi-square test for independence was used to determine whether there is a significant association between two variables.

Gender and Adolescent Substance Abuse

A breakdown of the influence of gender and adolescent substance abuse in Table 9 will be summarised and discussed thereafter.

Table 9
Probability to Abuse Substances according to Gender

		Substance Abuse		
		Low		
		Probability	High Probability	Total
Sex	Male	262	113	375
	Female	399	120	519
Total		661	233	894

The 894 participants ($n=894$) in the sample consisted of 375 males ($n=375$) and 519 females ($n=519$). Cross tabulation of gender and the probability of substance abuse indicated that of the total male sample ($n=375$), 262 males ($n=262$) had a low probability to abuse substances and 113 males ($n=113$) had a high probability to abuse substances.

Cross tabulation of gender and the probability of substance abuse indicated that of the total female sample ($n=519$), 399 females ($n=399$) had a low probability to abuse substances and 120 females ($n=120$) had a high probability to abuse substances. According to the results, there is therefore a greater likelihood that male rather than female adolescents will abuse substances.

Relationship between Gender and Adolescent Substance Abuse

The results of the Chi-Square test to determine the relationship between gender and adolescent substance abuse is summarised in Table 10 and discussed.

Table 10

Relationship between Gender and Substance Abuse

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.555 ^a	1	0.018		
Continuity Correction ^b	5.197	1	0.023		
Likelihood Ratio	5.516	1	0.019		
Fisher's Exact Test				0.021	0.012
Linear-by-Linear Association	5.548	1	0.018		
N of Valid Cases	894				

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 97.73.

A chi-square test was performed and a significant relationship was found between gender and the probability of substance abuse, $X^2(1, n = 894) = 5.55, p = .018$.

The findings in the current study are in line with research. The majority of research done specifies that male adolescents are more prone than their female counterparts to abuse substances (Murphy, Barry, Vaughn, Guzman and Terzian, 2013). With regard to gender and alcohol use, young adolescent females are prone to drink more than males their age; overall, females are more likely to smoke cigarettes, but less likely to use marijuana in their lifetime (Cobb, 2010). According to Boys, Marsden & Strang (2000), male substance abusers are more likely to use at least one of the target substances to try and improve the effects of another substance. This indicates a habit for young males to mix drugs. Female adolescents are more likely to use other drugs such as over the counter medication (Boys et al., 2000).

As restrictions get tougher on adolescent substance use, tobacco prices rise and schools become more involved in testing adolescents for substances, there is a growing trend among adolescents to focus on their parents' medicine cabinet as another source to get high (University of Cincinnati, 2012). According to international studies drug use is not equally distributed by gender. Males are prone to use illicit drugs and they report using such drugs earlier and for a longer period than females. Males also use all illicit drugs at a higher frequency and larger quantity than females (Anderson, n.d). This finding is also in line with most substance abuse research available in South Africa (Kandel & Logan, 1984; Parry et al., 2004; Plüddemann et. al., 2008). Males are more prone to abuse substances than their female counterparts in South Africa (SACENDU, 2013). Substance abuse of adolescents mirrors that of adults.

Studies also indicated that females are more predisposed to neurotic behaviour than males (Nolen-Hoeksema & Girgus, 1994). Depression and substance abuse are strongly correlated in females (Locke & Newcomb, 2001). Furthermore, studies have indicated that females start using substances largely in an attempt to manage trauma. Females are also more prone to have a comorbid psychiatric diagnosis (Locke & Newcomb, 2001). Males are more prone to binge drink than females in South Africa (Ramsoomar & Morojele, 2012; Reddy, Panday, Swart, Jinabhai, Amosun & James, 2002; Reddy, James, Sewpaul, Koopman, Funani & Sifunda, 2010). International trends indicate that substance abuse is male dominated. This is also confirmed in the South African context. The consensus is that gender plays a role in the development of a substance abuse problem.

Age of Adolescent Participants

The basic statistics of the age of adolescent participants are summarised in Table 11 and discussed thereafter.

Table 11

Age of Adolescent Participants

Age	N	R	Min	Max	Mean	SD
In Years	888	13	12	19	15.7	2

The demographic attribute represented in this table was chronological age in years. The sample consisted of 888 participants ($n=888$) in which the age range was 13 with minimum age of 12, and maximum age of 19 with the mean of $\bar{x} = 15.67$ and the standard deviation of $\sigma = 1.67$ across the population. The overall South African adolescent population consists of 2588237 male adolescents ($n=2588237$) and 2580560 female adolescents

($n=2580560$) in this age range. There is a total of 1020917 adolescents ($n=1020917$) in Gauteng.

Table 12

Probability to Abuse Substances according to Age

Group Statistics					
	Substance Abuse	N	Mean	Std. Deviation	Std. Error Mean
Age					
	Low Probability	661	15.3918	2.09527	.08150
	High Probability	233	16.0773	1.95709	.12821

The 894 participants ($n=894$) in the sample consisted of 661 ($n=661$) adolescents with a low probability to abuse substances and 233 ($n=233$) adolescents showed a high probability to abuse substances.

Table 13

Relationship between Age and Adolescent Substance Abuse

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	T	Df
Age	Equal variances assumed	.337	.561	-4.367	892
	Equal variances not assumed			-4.512	432.523

There is a significant difference between groups, with the high probability group being older than the low probability group even though the high group mean age is 16 years and low group mean age is 15 years. The Levene's test is non-significant, yet the t-test data indicate a significant difference between groups

The symptomatic behaviours of substance abuse typically develop in adolescence and show all the hallmarks of the intrapsychic conflicts of adolescence, often reflecting disturbances and difficulties at much earlier stages of development (Gleeson, 1991). The age of first experimentation with substances plays a pivotal role in the development and management of this occurrence (Brown & Abrantes, 2006).

Age is reportedly an important risk factor. In research conducted by the National Longitudinal Survey of Youth (NLSY), it was found that chances of developing alcohol dependency decline by 9% per annum for every chronological year later the adolescent first experiments. There is consensus in literature that substance use before the age of fourteen is associated with the development of substance abuse (Mash & Wolfe, 2010).

Race or Ethnicity of Adolescent Participants

The race or ethnicity of adolescent participants is summarised in Table 14 and discussed thereafter. The demographic attribute represented in this table was that of the racial groups that were represented in this population. From the 887 ($n=887$) participants that took part in the study and answered the relevant question 345 ($n=345$, 38.9%) were black, 510 ($n=510$, 57.5%) were white, 28 ($n=28$, 3.2%) were coloured and 4 ($n=4$, 0.5%) were Indian/Asian. This revealed that over half of the participants in this study were white.

Table 14

Race or Ethnicity of Adolescent Participants

Race	N	%
Black	345	38.90%
White	510	57.50%
Coloured	28	3.20%
Indian/Asian	4	0.50%
Total	887	100%

Statistics South Africa (2013) indicated that the Black African population group are the majority racial group of 42.28 million in South Africa and constitutes almost 80% of the total South African population. The White population is estimated at 4.60 million, constituting 8.7% of the population. The Coloured population are 4.77 million, constituting 9% of the population and the Indian/Asian population at 1.33 million constituting 2.5% of the population. Furthermore, Statistics South Africa (2013) indicated that of the population statistics discussed above, the following constituted the demographic racial or ethnic make-up of adolescent South Africans. The Black African adolescent constitutes 4302977 individuals ($n=4302977$) of the total population, the White adolescent 313235 individuals ($n=313235$), the Coloured adolescent 449639 individuals ($n=449639$) and the Indian/Asian adolescent 1029246 individuals ($n=1029246$). It is imperative to note that the skewed representation of the racial demographic might be accounted for in the fact that 1500 ($n=1500$) questionnaires were distributed in a school where the student population was predominantly Black, and in another school in Gauteng where 1500 ($n=1500$) questionnaires were distributed

to the student population that was predominantly White. After data had been cleaned, the ratio of racial origin was skewed as the researcher was dependent on the usage of questionnaires that were usable.

Race or Ethnicity and Adolescent Substance Abuse

A breakdown of the influence of race or ethnicity and adolescent substance abuse is summarised in Table 15.

Table 15
Race or Ethnicity of Adolescent Substance Abusers

		Substance Abuse		Total
		Low Probability	High Probability	
What race or ethnicity do you consider yourself?	Black	223	122	345
	White	413	97	510
	Coloured/Mixed Race	17	11	28
	Indian/Asian	3	1	4
Total		656	231	887

A cross tabulation of race and the probability of substance abuse was completed. In the sample of 887 participants, 345 participants ($n=345$) indicated that they were Black, 510 participants ($n=510$) were White, 28 participants ($n=28$) were Coloured or of a mixed race and 4 participants ($n=4$) were Indian/Asian. Of these participants, 122 Black participants ($n=122$), 97 White participants ($n=97$), 11 Coloured participants ($n=11$) and 1 Asian

participant ($n=1$) showed a high probability to abuse substances. Therefore, the greatest ethnic group at risk for adolescent substance abuse is firstly Coloured or mixed race, then Black participants, Asian participants and lastly White participants.

Relationship between Race/Ethnicity and Adolescent Substance Abuse

The results of the Chi-Square test to determine the relationship between race/ethnicity and adolescent substance abuse is summarised in Table 16.

Table 16

Relationship between Race/Ethnicity and Adolescent Substance Abuse

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.170 ^a	3	0
Likelihood Ratio	30.875	3	0
Linear-by-Linear Association	15.001	1	0
N of Valid Cases	887		

Note. a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.04.

A chi-square test was performed and a significant relationship was found between race and the probability of substance abuse, $X^2(3, n = 887) = 31.170, p < .001$.

The role of race as a factor in the development of substance abuse is controversial. There are racial discrepancies in substance use (National Survey on Drug Use, 2002). The

majority of research indicates that the differences are accounted for due to varying socio-economic status (Anthony & Schuster, 1993). Another outlook is that the availability of substances is a predictor of abuse more so than the actual race variable. Racial stereotypes also play a significant role, together with cultural views about substances and traditions and rituals including substances. White South African males are known to binge drink more often in relation to other races (Engs, Diebold, & Hanson, 1996). Furthermore, Parry & Bennetts (1998) concluded that Black African men used alcohol less than White, Coloured and Indian South African men. Europeans use substances more than Africans, according to a study done by Chambwe, Slade & Dewey (1983).

Educational Status of Adolescent Participants and their Parents

The frequency counts of the educational status of adolescent participants and their parents are summarised in Table 17 and discussed thereafter.

Table 17

Educational Status of Adolescent Participants and their Parents

Educational Status	Father		Mother		Participant	
	N	%	N	%	N	%
No schooling	9	1.10%	13	1.50%	5	0.60%
Grade 1-6	25	3%	19	2.20%	6	0.70%
Grade 7-12	293	35.60%	311	36.50%	815	93.50%
Certificate/Diploma	251	30.50%	310	36.30%	46	5.20%
Degree	151	18.30%	135	15.80%	0	0.00%

Educational Status	Father		Mother		Participant	
	N	%	N	%	N	%
Postgraduate degree	94	11.40%	65	7.60%	0	0.00%
Total	823	100%	853	100%	872	100%

The demographic attribute represented in this table was the educational status or highest level of education of the participants in the study and that of their parents. The educational statuses represented in the table are as follows: 1.1% of participants indicated that their fathers had no formal schooling ($n=9$, 1.1%), and 1.5% of participants indicated that their mother had no formal schooling ($n=9$, 1.5%). 0.6% of the participants indicated that they do not attend formal schooling but rather home schooling ($n=5$, 0.6%). 3% of fathers have grade 1-6 as their highest level of education ($n=25$, 3%), 2.2% of mothers ($n=19$, 2.2%) and 0.7% of participants ($n=6$, 0.7%) indicated grade 1-6 as their highest level of education. 35.6% of fathers have a grade 7-12 as their highest level of education ($n=293$, 35.6%), 36.5% of mothers ($n=311$, 36.5%), and 93.5% of participants indicated being in grade 7-12 ($n=815$, 93.5%).

A Certificate or Diploma was indicated as the highest level of education for 30.5% of the fathers ($n=251$, 30.5%), 36.6% for mothers ($n=310$, 36.3%), and 5.2% of participants ($n=46$, 5.2%). A degree was indicated as the highest level of education for 18.3% of fathers ($n=151$, 18.3%) and 15.8% of mothers ($n=135$, 15.8%). Postgraduate degrees as highest level of education was indicated as 11.4% for fathers ($n=94$, 11.4%) and 7.6% for mothers ($n=65$, 7.6%).

In the population that took part in phase one of the study majority of fathers (35.6%) and mothers (36.5%) have at least grade 7-12 as their highest level of education and the

majority of participants indicated their current and highest level of education as grade 7-12 (93.5%).

The South African Schools Act of 1996 indicated that education is compulsory in South Africa. All children need to attend school from the age of seven. Furthermore, the law only allows adolescents leave school when they have achieved grade 9 or reached the age of fifteen. Functional illiteracy rates refer to individuals over the age of fifteen who have not completed school up to grade 9. The illiteracy percentage dropped from 31.5% in 2001 to 19.1% in 2011 in South Africa.

Parental educational background has a significant effect on how an adolescent will view education. Teale and Sulzby (1986) postulated that the home environment an adolescent finds himself in plays an important role in how they will view education and literacy. According to Neuman and Dickinson (2002), a parent with a lower level of education might not participate in his adolescent child's education.

Additional research shows that a mother's education significantly influences the children's learning process and their attitude about education. Research indicated that educated mothers are more competent to assist their children in the development of language and reasoning abilities than uneducated mothers (Ann, 1993). This notion can stereotypically be understood by a mother being more involved in her children's education and therefore influencing it much more.

Sclafani (2004) indicated that educated parents will be more involved with the education of their children than those parents who did not complete school. Socio-economic

variables play a role in the educational status of parents. In turn, parental financial status and education do have an important influence on the personality development of the child. When parents have a strong financial background, they can provide more effectively to enhance the educational capability of their children.

Above and beyond the other factors, the significance of parental involvement and financial status regarding students' success is still prevalent. Desforges (2003) reported that the higher the SES the more the involvement from parents. In turn, the higher the mother's level of education, the greater the extent of involvement. Memons, Joubish & Khurram (2010) concluded that students whose parents are well educated perform better than those students whose parents are less educated.

Baumert (2002) indicated that SES indicators as well as parental education levels correlate significantly with students' academic achievements. Hammuddin (2009) stated that socio-economic status has been identified as a sturdy predictor of academic achievements, psychological well-being and future success; a large discrepancy was found between achievements of high, low and average socio-economic status of adolescents.

Educational Level of Parents and Adolescent Substance Abuse

The influence of the educational level of fathers and adolescent substance abuse is summarised in Table 18.

Table 18

Educational Level of Fathers and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Your father's educational level	No schooling	6	3	9
	Grade 1-6	19	6	25
	Grade 7-12	214	79	293
	Certificate/Diploma	190	61	251
	Degree	112	39	151
	Post Graduate Degree	73	21	94
Total		614	209	823

A cross tabulation of a father's highest level of education and an adolescent's probability to abuse substances indicated that there was a 33.3% probability of substance abuse in adolescents if their fathers ($n=9$, 33.3%) had no formal schooling. Of the fathers with a grade 1-6 level of education, a high probability in adolescent substance abuse was seen in 24% of the sample ($n=6$, 24%). Where fathers had a grade 7-12 level of education, a 27% probability to abuse substances was seen in the adolescent participants ($n=79$, 27%). If fathers completed a certificate or diploma as their highest level of education, a probability of 24% of substance abuse was found in the participants ($n=61$, 24%).

The fathers who have a degree as their highest level of education, a high probability in adolescent substance abuse were seen in 25.8% of the participants ($n=51$, 25.8%). Where fathers held a postgraduate degree, 22.3% of the participants ($n=94$, 25.8%) were indicated as having a high probability to abuse substances.

A breakdown of the mothers' educational level and adolescent substance abuse is summarised in Table 19.

Table 19
Mothers Education and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Your mothers educational level	No schooling	6	7	13
	Grade 1-6	15	4	19
	Grade 7-12	222	89	311
	Certificate/Diploma	245	65	310
	Degree	99	36	135
	Post Graduate Degree	50	15	65
Total		637	216	853

A cross tabulation of the mothers' highest level of education and adolescents probability to abuse substances indicated that there was a 53.8% probability of substance abuse in adolescents if their mothers ($n=7$, 53.8%) had no formal schooling. Of the mothers with a grade 1-6 level of education, a high probability in adolescent substance abuse was seen in 24% of the sample ($n=6$, 24%). Where mothers had a grade 7-12 level of education, a 28.6% probability to abuse substances was seen in the adolescent participants ($n=89$, 28.6%).

If mothers completed a certificate or diploma as their highest level of education, a probability of 21% for substance abuse was found in the participants ($n=65$, 21%). Of the mothers with a degree as their highest level of education, a high probability in adolescent substance abuse were seen in 26.7% of the participants ($n=36$, 26.7%). Where mothers held a postgraduate degree, 23% of the participants ($n=15$, 23%) were indicated as having a high probability to abuse substances.

Relationship between Parental Education and Adolescent Substance Abuse

The results of the Chi-Square test to ascertain the relationship between fathers' education and adolescent substance abuse is summarised in Table 20.

Table 20

Relationship between Fathers Education and Adolescent Substance Abuse

Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	22.900 ^a	1	0		
Continuity Correction ^b	21.537	1	0		
Likelihood Ratio	20.245	1	0		
Fisher's Exact Test				0	0
Linear-by-Linear Association	22.875	1	0		
N of Valid Cases	894				

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.46.

A chi-square test was performed and a significant relationship was not found between fathers’ educational level and the probability of adolescent substance abuse, $X^2(5, n= 823) = 1.341, p =.931$.

Relationship between Mothers’ Education and Adolescent Substance Abuse

The results of the Chi-Square test to determine the relationship between mothers’ education and adolescent substance abuse is summarised in Table 21.

Table 21

Relationship between Mothers Education and Adolescent Substance Abuse

Chi-Square Tests			Asymp. Sig.
	Value	Df	(2-sided)
Pearson Chi-Square	10.973 ^a	5	0.052
Likelihood Ratio	10.261	5	0.068
Linear-by-Linear Association	2.606	1	0.106
N of Valid Cases	853		

Note. a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.29.

A chi-square test was performed and a significant relationship was not found between mothers educational level and the probability of adolescent substance abuse, $X^2 (5, n = 853) = 10.973, p = .052$.

A significant relationship was neither found between the father's highest level of education and adolescent substance abuse, nor in the relationship between a mother's highest level of education and adolescent substance abuse. The results concerning a mother's level of education is contradictory to available research. Literature suggests that mother's educational status is linked to possible substance abuse. The higher a mother's level of education, the smaller the chances for substance abuse to develop (Parry et al., 2004; Hoque & Ghuman, 2012). Maternal education studies have revealed that mothers with higher education statuses have children who experiment with substances at later ages in their adolescent lives, in relation to mothers with low educational statuses.

Additionally, studies postulated that mothers who have post-school education are significantly less likely to have children who drink alcohol in early adolescence, in comparison to the children whose mothers have grade 5 or no education. Maternal education is also predictive of adolescent alcohol use during late adolescence. Research furthermore indicates that children with mothers who have secondary and post-school education are significantly less likely than children with mothers who have no schooling or less than grade 5 to ever drink alcohol. Hanson & Chen (2007) found that nine of the thirteen studies they reviewed found no association between alcohol use and SES, therefore suggesting that alcohol consumption during adolescence is not significantly due to SES, whether high or low.

Huerta & Borgonovi (2010) reported contradictory findings that drinking levels are consistently higher amongst those with higher educational attainment, especially amongst women. As such, we might expect that the children of parents with higher educational levels are more likely to drink alcohol, and perhaps do so sooner as a result of witnessing their parents drinking.

Hill & Duncan (1987) indicated that parents' education, especially the father's education, as a measure of socio-economic status, plays an important part in children's educational attainment. However, it was also noted that a mother's education is a more important factor than the father's education in predicting children's educational attainment.

The theory states that the higher educational attainment in adolescence, the less the likelihood of abusing substances. Jessor, et al. (1991) reported that socio-economic variables relating to a respondent's family of origin shows virtually no relationship to adolescent problem behaviours.

Marital Status of the Parents of Adolescent Participants

The marital status of the parents of adolescent participants is summarised in Table 22 and discussed thereafter.

Table 22

Parental Marital Status of Adolescent Participants

Parents Marital Status	N	%
Married	470	55.3%
Divorced	136	16.0%
Widowed	51	6%
Stepparents	37	4.4%
Single	156	18.4%
Total	850	100%

The demographic attribute represented in this table was the marital status of the parents of adolescent participants. The participants indicated that 55.3% of their parents are married ($n=470$, 55.3%), 16% of parents are divorced ($n=136$, 16.0%), 6% are widowed ($n=51$, 6%), 4.4% have stepparents ($n=37$, 4.4%), and 18.4% are single parents ($n=156$, 18.4%). The data indicate that most of the participant’s parents are married and are represented by more than 50% of the overall population.

Marital status acts as an indicator of the potential number of caretakers and may imply certain characteristics or qualities of the child’s family life. The debate about the impact of

marital status on the physical and psychological development of a child is constant. Various research studies have focused on the negative impact of divorce or single parenting on the educational, social and psychological functioning of an adolescent (Demo & Acock, 1991). Research views family structure as indirectly influencing children's psychological well-being, as well as family relationships and conflict management. Lastly, according to Acock and Demo (1994), family processes have the greatest influence on the ultimate well-being of a child.

Some theorists hold that the family composition viewpoint is the ultimate goal for families and that a two-parent intact families is the best family structure. Coleman (1988) postulate that children who are raised by single or divorced parents will have low levels of well-being. According to Coleman (1988), and McLanahan and Sandefur (1994), the well-being of children is impacted by the socio-economic status of single parents as they are often not able to provide for their children the way intact family units do. Theorists agree that the well-being of a child is highly dependent on what happens in the family unit; therefore the structure of the family is important as those individuals monitor the family (Acock & Demo, 1994; Demo & Acock, 1988). The impact of the relationship between parent and child, together with the quality of the attachment, is of utmost importance as this plays a role in the development of a psychologically healthy adolescent. Researchers and theorists agree that families where the mother and father are available results in the highest levels of well-being in a child (Acock & Demo, 1994; Amato & Keith, 1991). Children of unmarried mothers are seen as psychologically healthier than children in divorced or single-parent homes. Children in divorced families display the poorest psychological well-being (Acock & Demo, 1994). South African divorce statistics indicate that 11 475 ($n=11\,475$, 54.7%) of the 20980 ($n=20\,980$) divorces included children below eighteen (Statistics South Africa, 2011).

Marital Status of Parents and Substance Abuse of Adolescents

The influence of the marital status of parents and substance abuse of adolescents is summarised in Table 23 and then discussed.

Table 23

Marital Status and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
What is the marital status of your parents?	Married	373	97	470
	Divorced	96	40	136
	Widowed	37	14	51
	Stepparents	27	10	37
	Single	99	57	156
Total		632	218	850

A cross tabulation of parental marital status and participant substance abuse was completed. In the sample of 887 participants ($n=887$) 470 of the participants ($n=470$) indicated that their parents are married. There were 137 participants ($n=137$) who indicated that their parents were divorced. There were 51 participants ($n=51$) who indicated that their parent was widowed and 37 participants ($n=37$) indicated having a stepparent. There were 156 participants ($n=156$) who indicated their parent as being a single parent. The analysis of the data indicated that 20.6% of participants ($n=97$, 20.6%) in this sample who had a high probability to abuse substances, have parents that are married. In the category of participants

who had divorced parents, 29.4% of participants ($n=40$, 29.4%) had a high probability to abuse substances. The participants who indicated a widowed parent and who scored high on the probability to abuse substances, were made up of 27.5% of the sample ($n=14$, 27.5). The 10% of participants ($n=27$, 10%) who had a high probability to abuse substances indicated having a stepparent. Participants indicating that their parent was a single-parent constituted the majority of high probability substance abusers with 36.5% ($n=57$, 36.5%) in this sample. In summary, the probability for adolescents to use substances is the highest in single-parent families, followed by divorced families, widowed and stepparent families and lastly married families.

Relationship between Marital Status of Parents and Adolescent Substance Abuse

The results of the Chi-Square test to determine the relationship between the marital status of parents and adolescent substance abuse is summarised in Table 24.

Table 24

Relationship between Parental Marital Status and Adolescent Substance Abuse

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.022 ^a	4	0.002
Likelihood Ratio	16.572	4	0.002
Linear-by-Linear Association	14.897	1	0
N of Valid Cases	850		

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.49.

A chi-square test was performed and a significant relationship was found between parents marital status and the probability of substance abuse, $X^2(4, n = 850) = 17.022, p = .002$.

Hemovich and Crano (2011) indicated that adolescents are more prone to abuse substances in households where only the father is present. This exceeded all other family units. Intact families where both the mother and father are present are the least prone to have children who develop a substance abuse problem (Hemovich & Crano, 2011).

Research furthermore indicated that adolescents learn substance behaviours through what their parents' model. The relationship between the parent and adolescent also plays a role whether the modelled behaviour will be executed. If the adolescents perceive their parents as supportive and nurturing, the likelihood of the development of a substance abuse problem is lower than in families stricken with conflict and strain in the parent-child relationship (Kaplow, Curran & Dodge, 2002). Studies have concluded that adolescents from single-parent households are at risk to engage in problem behaviour. This behaviour can take the form of substance abuse or other delinquent-type behaviour (Amato & Keith, 1991; Amey & Albrecht, 1998; Barrett and Turner, 2006; Bjarnason et al., 2003a; Eitle, 2006; Hoffman, 2002; Selnow, 1987). Ford-Gilboe (2000) concluded that adolescents staying with one parent are prone to display negative behaviour, substance abuse and neurotic behaviour (Booth & Amato, 2001; Cairney, Boyle, Offord & Racine, 2003; Chilcoat & Anthony, 1996; Cummings, Keller & Davies, 2005; Demo & Acock, 1988; Griffin, Botvin, Scheier, Diaz & Miller, 2000; Murray, Kiryluk & Swan, 1985).

Research by Amato and Keith (1991) indicated that single-parent families are often not able to provide effectively for their children. Families in which the mother only is

responsible for parenting, is linked with poor boundaries and poor monitoring of adolescent behaviour (McLanahan & Sandefur, 1994). This allows the adolescents to experience the world on their own and increases their risk to abuse substances. Research often focuses on risk behaviours of adolescents of single-parent households. However, there are my positive factors attributable to single-parent households as well. Adolescents often are more willing to adapt to positive behaviour after the divorce; especially if the marriage was high in conflict and aggression (Amato, 1987; Jekielek, 1998; Kelley, 2003). Kelley stated that “post-divorce circumstances, the resulting single-parent dynamic may be a preferable environment for children’s well-being and may place them at a lower risk for substance abuse development” (p.124).

Adolescent Participants’ Perception of Parental Substance Abuse

The adolescent participants’ perception of parental substance abuse is summarised in Table 25 and discussed thereafter.

Table 25

Perception of Parental Substance Abuse

Parent Substance Abuse	N (%)		
	Yes	No	Total
Father	67 (7.5%)	827 (92.5%)	894 (100%)
Mother	36 (4%)	858 (96%)	894 (100%)

The demographic attribute represented in this table is the participants' perception of their parents' substance abuse. The results indicated that 7.5% of fathers were perceived by their adolescent child to abuse substances ($n=67$, 7.5%) and 92.5% of fathers were perceived as sober and not abusing substances ($n=827$, 92.5%). Participants indicated that 4% of mothers were perceived to abuse substances ($n=36$, 4%) and 96% of mothers were perceived as being sober and not abusing substances ($n=858$, 96%).

The table indicated that most of the participants did not perceive their parents as having a substance-abuse problem and this can be observed in the fact that more than 90% of the parents did not abuse substances. For the purpose of the study, the literature that follows will focus specifically on the impact of those parents who do abuse substances.

Research suggests that parental substance abuse increases the risk of children not reaching the developmental outcomes needed to smoothly transition through adolescence (McMahon & Luthar, 1998). Some research that used a large sample of children whose mothers were abusing substances found that compared to children in the sample who were not abusing substances they experienced a disproportionately high number of risk factors (Conners, Bradley, Whiteside Mansell, Liu, Roberts, & Burgdorf, 2004).

Furthermore, a longitudinal study on coping problems among adolescents of alcoholics found that 18.30% of the sample had criminal records, and 25% had serious mental health problems (Werner, 1986). Merikangas, Stolar, Stevens, Goulet, Preisig & Fenton (1998) provided evidence that suggested that children with a family history of substance abuse have a significantly increased risk for substance abuse themselves as they enter adolescence.

Problems in family functioning have also been associated with parental substance abuse. There is evidence to suggest that maternal substance abuse is associated with maladaptive parenting styles where mother proneness to punitive disciplining strategies toward children drastically increases (Hien & Honeyman, 2000). Miller, Smith & Goldman (1990) indicated that an increased rigidity in parenting and an overly controlling style in parenting become evident in mothers who abuse substances (Burns, Chethik, Burns, & Clark, 1991). Research therefore indicates that an authoritarian attitude toward parenting of children or adolescents has a negative impact (Bauman & Levine, 1986).

Research by Kelley (1998) furthermore suggested that parental substance abuse is associated with increased parenting stress. Studies related to abuse also indicated links to parental substance abuse and neglectful of and abusive behaviour towards children. Most research suggests that parental substance abuse is associated with problems in parenting and family functioning.

However, Baker & Carson's (1999) research with substance abusing mothers indicated that most mothers involved in the study were strongly committed to their children despite their struggle with substance abuse. These mothers perceived themselves as good mothers who met their children's practical needs, protected their children from harm and coped with stress. In another study by Kearney, Murphy & Rosenbaum (1994), substance abusing mothers reported high levels of responsibility towards their children and a sense of pride.

Parental substance abuse is only one of the various variables that can play a role in the increased risk factors in adolescent substance abuse. Substances impact and change to different degrees an individual's state of consciousness, memory, affect regulation and

impulse control. The consequences of this may be reflected in more extreme styles of parenting, either authoritarian, over-controlling, or under-involved (Mayes & Truman, 2002).

Barnard & McKeganey (2004) and Mayes & Truman (2002) indicated that adolescents' needs might be put on the backburner due to substance abuse of parents. Furthermore, the friends of adolescents associate with, the urgency in academic responsibilities and the assistance with the transition adolescents' experience (physically and psychologically) are often overlooked due to parents' unavailability. Shulman, Shapira, & Hirshfield (2000) reported that adolescents can also suffer educational neglect if parents do not ensure that they attend school. One of the most common effects of parental substance abuse is that parents are less involved with their children. Kroll & Taylor (2003) indicated that parents' substance abuse compromises their ability to be consistent, warm and emotionally responsive towards their children.

Research primarily focuses on the impact of maternal substance abuse on children and little is understood about the possible impact of fathers substance abuse, whether it impacts directly or indirectly on the parenting of children. Lastly it was found that parents who use illegal drugs or are heavy users of alcohol, or are tolerant of children's substance use have children who are more likely to use drugs themselves.

Perception of Parental and Familial Substance Abuse and the Impact on Adolescent Substance Abuse

The perception of fathers' substance abuse and adolescent substance abuse is summarised in Table 26

Table 26

Perception of Fathers' Substance Abuse and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Do you think your father abuses alcohol or any other drugs?	No	628	199	827
	Yes	33	34	67
Total		661	233	894

The 894 participants ($n=894$) in the sample consisted of 73.9% of the participants ($n=661$, 73.9%) with a low probability to abuse substances and 26.1% of participants ($n=233$, 26.1%) with a high probability to abuse substances. It was established in the sample analysis that 24.1% participants ($n=199$, 24.1%) who were prone to abuse substances did not perceive their fathers as substance abusers. However, 50.7% of the high probability substance abuser participants ($n=34$, 50.7%) did perceive their fathers as substance abusers. The breakdown of the perception of mothers' substance abuse and adolescent substance abuse is summarised in Table 27. The 894 participants ($n=894$) in the sample consisted of 73.9% of the participants ($n=661$, 73.9%) with a low probability to abuse substances and 26.1% of participants ($n=233$, 26.1%) with a high probability to abuse substances. It was established in the sample analysis that 25.1% participants ($n=215$, 25.1%) who were prone to abuse substances did not perceive their mothers as substance abusers. However, 50% of the high probability substance abuser participants ($n=18$, 50%) did perceive their mothers as substance abusers.

Table 27

Perception of Mothers' Substance Abuse and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Do you think your mother abuses alcohol or any other drug?	No	643	215	858
	Yes	18	18	36
Total		661	233	894

The frequency counts of the perception of substance abuse in the family and adolescent substance abuse are summarised in Table 28.

Table 28

Perception of Substance Abuse in a Family Member and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Is there anyone in your family that has a drug or alcohol problem that you know of?	No	520	140	660
	Yes	141	93	234
Total		661	233	894

The 894 participants ($n=894$) in the sample consisted of 73.9% of the participants ($n=661$, 73.9%) with a low probability to abuse substances and 26.1% of participants ($n=233$, 26.1%) with a high probability to abuse substances. It was established in the sample analysis that 21.2% participants ($n=140$, 21.2%) who were prone to abuse substances did not perceive

any family relative as substance abusers. However, 39.7% of the high probability substance abuser participants ($n=93$, 39.7%) did perceive a family relative as a substance abuser.

Relationship between the Perception of the Parental and Familial Substance Abuse and Adolescent Substance Abuse

The results of the Chi-Square test to determine the relationship between the perception of the fathers' substance abuse and adolescent substance abuse is summarised in Table 29.

Table 29

Relationship between the Perception of Fathers' Substance Abuse and Adolescent Substance Abuse

Chi-Square Tests				
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided) Exact Sig. (1-sided)
Pearson Chi-Square	22.900 ^a	1	0	
Continuity Correction ^b	21.537	1	0	
Likelihood Ratio	20.245	1	0	
Fisher's Exact Test				00
Linear-by-Linear Association	22.875	1	0	
N of Valid Cases	894			

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.46.
b. Computed only for a 2x2 table

A chi-square test was performed and a significant relationship was found between the perception of fathers’ substance abuse and the probability of adolescent substance abuse, $X^2(1, n= 894) = 22.90, p <.001$.

The Chi-Square test to determine the relationship between the perception of the mothers’ substance abuse and adolescent substance abuse is summarised in Table 30.

Table 30
Relationship between Perception of Mothers’ Substance Abuse and Adolescent Substance Abuse

Chi-Square Tests				
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided) Exact Sig. (1-sided)
Pearson Chi-Square	11.154 ^a	1	0.001	
Continuity Correction ^b	9.897	1	0.002	
Likelihood Ratio	9.825	1	0.002	
Fisher's Exact Test				0.002 0.001
Linear-by-Linear Association	11.141	1	0.001	
N of Valid Cases	894			

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.38.

A chi-square test was performed and a significant relationship was found between the perception of mothers` substance abuse and the probability of adolescent substance abuse. $X^2(1, n = 894) = 11.154, p < .001$.

The results of the Chi-Square test to determine the relationship between the perception of a family relative abusing substances and adolescent substance abuse is summarised in Table 31.

Table 31
Relationship between the Perception of Substance Abuse in a Family Member and Adolescent Substance Abuse

	Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided) Exact Sig. (1-sided)
Pearson Chi-Square	30.786 ^a	1	0	
Continuity Correction ^b	29.832	1	0	
Likelihood Ratio	29.204	1	0	
Fisher's Exact Test				0 0
Linear-by-Linear Association	30.752	1	0	
N of Valid Cases	894			

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 60.99.
b. Computed only for a 2x2 table

A chi-square test was performed and a significant relationship was found between perception of family relative with alcohol or drug problem and the probability of adolescent substance abuse, $X^2 (1, n = 894) = 30.786, p < .001$.

A significant relationship was found between high probability substance abuse and substance abuse of the father, mother or another family member in the family unit. Mothers who are physically and psychologically dependent on substances are prone to display parental deficits from their child's birth until they enter the adolescent phase of development. Studies indicated the quality of mother-child relationship as an important predictor of a child's psychological development through school age right up to adolescence (Suchman, Mayes, Conti, Slade & Rounsaville, 2004). Holder (1998) stated that parental substance abuse and parents approving substance use are also viewed as a contributing factor to experimentation with substances in adolescence. Parents who do not use substances rear adolescents who choose not to be involved in peer groups who use or abuse alcohol. These adolescents are not likely to be influenced by peers to use alcohol and they tend to have higher levels of self-efficiency which enables them to avoid temptations to use alcohol (Nash, McQueen & Bray, 2005). Parental substance use or abuse impacts family interactions, family dynamics and parenting styles. These factors have a pivotal influence on adolescent development, behaviour and substance use.

The development of adolescent substance abuse is influenced by both genetic and environmental risk factors. Familial environmental risk factors include behavioural modelling of substance use, parental attitudes toward substance use and parental monitoring. Female adolescents exposed to maternal substance abuse are at increased risk of developing substance abuse. Exposure to parental substance abuse, specifically during adolescence which is a

critical and sensitive period of development, increases children's risk of developing substance abuse disorders themselves (Chassin, Curran, Hussong & Colder 1996; Yey, Chiang, Huang, 1993).

Parental alcoholism is a risk factor for adult substance abuse, and recent data suggest that parent substance abuse also raises the risk of substance abuse during adolescence (Chassin, Rogosch & Barrera, 1991; Hawkins, Catalano & Miller, 1992),

Studies confirm that various families that include adolescents who abuse substances, more often than not have one parent who engages in substance use or abuse (Alexander & Gwyther, 1995). To ensure a positive learning experience, it is important for a responsible and trusting adult to approach an adolescent substance user in a calm, rational and consistent manner. Responses coming from a substance using parent will be interpreted in a hypocritical manner by an adolescent and the results may most likely be negative. In various cases the substance abusing parent colludes with the substance abusing adolescent and hide their usage from the sober parent (Chassin et al., 1993). Blackson, & Tarter (2003) linked parental substance use to adolescent initiation of substance use. Furthermore, disruption in the family structure, social support and network of adolescents who use substances are identified risk factors for commencement of alcohol use and abuse (Wallace, Forman, Guthrie, 1999; Williams & Smith, 1993),

Reilly (1992) described some characteristic patterns of interaction which are likely to be present in a family where alcohol abuse is present. These characteristics include negativism, parental inconsistency, parental denial, inappropriate expression of anger, self-medication and unrealistic parental expectations. Adolescents growing up in a family

environment where parents abuse alcohol are more likely to be at risk for negative consequences. However, positive outcomes have also been described. Studies indicated that adolescents who are exposed to parental substance abuse in some families have developed stronger resiliency (Werner, 1986).

Exposure to a parent who abuses alcohol or any other substance cause children to develop protective factors that assist them in responding to extreme stressful situations. Family disruption, change, mature judgement, capacity to tolerate ambiguity, autonomy, willingness to accept responsibility and moral belief (Wolin & Wolin, 1993) are some of the survival skills children adopt.

Furthermore, substance abuse by parents can lead to dysfunctional family subsystems and role confusion. Children and adolescents can take on responsibility of their parents and become parentified children. Substance abusing parents further increase their risk of developing other mental health problems such as mood disorders, depression, anxiety, personality and other emotional difficulties which may impact their ability to provide in the needs of their children (Harbin & Murphy, 2000).

Adolescent Participants' Perceptions of their Own Alcohol and Drug Usage and those of Others

The frequency counts of the adolescent participants' perceptions of their own substance usage and those of others are summarised in Table 32 and discussed thereafter.

Table 32

Substance Usage of Participants and Important Others

Alcohol/Drugs	N (%)		Total
	Yes	No	
Ever used alcohol?	424 (47.4%)	470 (52.6%)	894 (100%)
Ever used drugs?	80 (8.9%)	814 (91.1%)	894 (100%)
Do you smoke?	80 (8.9%)	813 (90.9%)	893 (100%)
Ever been in trouble for using drugs?	75 (8.4%)	819 (91.6%)	894 (100%)
Is there anyone in your family that has an alcohol or drug problem?	234 (26.2%)	660 (73.8%)	894 (100%)
Is there anyone in your family that has been diagnosed with a mental illness?	91 (10.2%)	803 (89.8%)	894 (100%)
Friends that use drugs?	315 (35.2%)	579 (64.8%)	894 (100%)

The participants that took part in the study were asked different questions that relate to their own alcohol and drug usage, together with their perception of usage of people around them (family and friends). The participants indicated that 52.6% of the population have never used alcohol ($n=470$, 52.6%), and 91.1% indicated that they have never used drugs before ($n=914$, 91.1%). Of the participants involved in the study 47.4% indicated that they have used

alcohol before ($n=424$, 47.4%) and 8.9 % of the participants indicated that they have used drugs before ($n=80$, 8.9%).

More than half of the participant population do not smoke ($n=813$, 90.9%), whereas 8.9% are smokers ($n=80$, 8.9%). More than half of the population have never been in trouble for substance abuse at school, with their parents or with the law ($n=819$, 91.6%). The participants indicating that they have been in trouble for using drugs with either the school, their parents or the law made up 8.4% of the population ($n=75$, 8.45). Of the participants, 73.8% ($n=660$, 73.8%) indicated that there is no one in their family that has an alcohol or drug abuse problem, whereas 26.2% participants ($n=234$, 26.2%) indicated that they have a family member with a drug or alcohol abuse problem. Of the participants 89.8% indicated that they do not have a family member that has been diagnosed with a mental illness ($n=803$, 89.8%) and 10.2% ($n=91$, 10.2%) indicated that they have a family member that has been diagnosed with a mental illness. Finally, more than half of the participants reported not having friends that use drugs ($n= 579$, 64.8%), whereas 35.2% ($n=315$) of participants indicated that they do have friends who use drugs.

Perception of a Family Mental Illness Diagnosis and Adolescent Substance Abuse

The perception of a family mental illness diagnosis and adolescent substance abuse is summarised in Table 33.

Table 33

Perception of Family Mental Illness and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Is there anyone in your family that has been diagnosed with any mental illness?	No	598	205	803
	Yes	63	28	91
Total		661	233	894

The 894 participants ($n=894$) in the sample consisted of 73.9% of the participants ($n=661$, 73.9%) with a low probability to abuse substances and 26.1% of participants ($n=233$, 26.1%) with a high probability to abuse substances. It was established in the sample analysis that 25.5% participants ($n=205$, 25.5%) who were prone to abuse substances did not perceive any mental illness diagnosis in their families. The 30.8% of the high probability substance abuser participants ($n=28$, 39.7%) did perceive a mental illness diagnosis in their families.

Relationship between the Perception of a Mental Illness Diagnosis in the Family and Adolescent Substance Abuse

The results of the Chi-Square test for the relationship between the perception of a mental illness diagnosis in the family and adolescent substance abuse is summarised in Table 34.

Table 34

Relationship between the Perception of a Mental Illness Diagnosis in the Family and Adolescent Substance Abuse

	Chi-Square Tests				
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.165 ^a	1	0.281		
Continuity Correction ^b	0.909	1	0.34		
Likelihood Ratio	1.128	1	0.288		
Fisher's Exact Test				0.313	0.17
Linear-by-Linear Association	1.163	1	0.281		
N of Valid Cases	894				

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 23.72.

A chi-square test was performed and a significant relationship was not found between a family relative with mental illness and the probability of adolescent substance abuse, $X^2(1, n = 894) = 1.165, p = .281$.

Research maintains the strong biological link between substance abuse development and mental illness in the family tree. Mental illness in the family unit can result in a lack of boundaries, poor parenting skills or even neglect of the adolescent. Substance abuse in adolescence can also be a comorbid condition of a psychiatric disorder (Sadock & Sadock, 2003). Mental health concerns can impact the functioning of an adolescent on various levels.

The risky social environment impacts the development and the functioning of an adolescent. Adolescents are also known to escape from their homes if there is a member in the household with a diagnosed disorder (Harbin & Murphey, 2000).

Friends Abusing Substances and Adolescent Substance Abuse

The attribute friends abusing substances and adolescent substance abuse is summarised in Table 35.

Table 35

Friends Abusing Substances and Adolescent Substance Abuse

		Substance Abuse		Total
		Low Probability	High Probability	
Do you have friends that you know uses drugs?	No	498	81	579
	Yes	163	152	315
Total		661	233	894

The 894 participants ($n=894$) in the sample consisted of 73.9% of the participants ($n=661$, 73.9%) with a low probability to abuse substances and 26.1% of participants ($n=233$, 26.1%) with a high probability to abuse substances. It was established in the sample analysis that 14% of participants ($n=81$, 14%) who were prone to abuse substances did not have friends who abused substances. The 48.2% of the high probability substance abuse participants ($n=152$, 48.2%) indicated that they do have friends who abuse substances.

Relationship between Friends Abusing Substances and Adolescent Substance Abuse

The results of the Chi-square test for the relationship between friends abusing substances and adolescent substance abuse are summarised in Table 36.

Table 36

Relationship between Friends Abusing Substances and Adolescent Substance Abuse

<i>Chi-Square Tests</i>						
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	
Pearson Chi-Square	124.295 ^a	1	0			
Continuity Correction ^b	122.523	1	0			
Likelihood Ratio	120.767	1	0			
Fisher's Exact Test				0	0	
Linear-by-Linear Association	124.156	1	0			
N of Valid Cases	894					

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 82.10.

A chi-square test was performed and a significant relationship was found between friends that use drugs and the probability of adolescent substance abuse, $X^2 (1, n = 894) = 124.295, p < .001$.

Peer influence is highlighted in the literature as an important factor in substance use and abuse (Gana, 2004). Research has established that adolescents who have drug-using

friends are more likely to use drugs themselves (Ary, Tildesley, Hops, & Andrews, 1993; Windle, 2000).

Farrell & White (1998) indicated that friends model substance using behaviour and help shape the positive attitude and beliefs of substance use. Adolescents are significantly more likely to use substances if they believe close friends are using and that substance use is common among their larger group of peers (Bauman, Botvin, & Botvin, 1992; Epstein, Botvin, Baker, Diaz, 1999).

During adolescence, most adolescents choose to be less reliable on parents and choose to spend more time with their peers. There is a significant decrease in engaging in family activities and communication with their parents also becomes less (Hill, Bromell, Tyson, & Flint, 2007). In addition, adolescence, according to Spear (2000), is a developmental period where social rewards and being accepted by peers are highly valued by adolescents. At this stage peers often become more influential than the parents of adolescents (Kandel, 1986).

Kelly et al., (2012), found that children are particularly vulnerable to peer-pressure related to substance use in early adolescence. Future problematic behaviour can be predicted by adolescents associating with a deviant peer group (Dishion, Capaldi, Spracklen, & Li, 1995). Friendship relations with deviant peer groups or groups that engage in substance abuse can have a direct influence on an adolescent's behaviour in various ways; this may include social learning, facilitation, peer group pressure and deviancy training during which peer groups reinforce one another by encouraging deviant behaviours and activities (Dishion & Owen, 2002). Another potentially important dimension of peer group influence on substance use or abuse is the quality of the adolescents' relationships with their friends.

Therefore, in line with findings of the study and literature, peer influence plays a major role in the initiation, maintenance and escalation of adolescent substance abuse.

Smoking Cigarettes and Adolescent Substance Abuse

The attribute smoking cigarettes and adolescent substance abuse is summarised in Table 37.

Table 37

Smoking Cigarettes and Adolescent Substance Abuse

	Substance Abuse		Total
	Low Probability	High Probability	
Do you smoke cigarettes?	No	642	171
	Yes	18	62
Total	660	233	893

The 894 participants ($n=894$) in the sample consisted of 73.9% of the participants ($n=661$, 73.9%) with a low probability to abuse substances and 26.1% of participants ($n=233$, 26.1%) with a high probability to abuse substances. It was established in the sample analysis that 21% of participants ($n=171$, 21%) who were prone to abuse substances did not smoke cigarettes. The 77.5% of the high probability substance abuser participants ($n=62$, 77.5%) indicated that they do smoke cigarettes.

Relationship of Smoking Cigarettes and Adolescent Substance Abuse

The results of the Chi-Square test for the relationship of smoking cigarettes and adolescent substance abuse are summarised in Table 38.

Table 38

Relationship of Smoking Cigarettes and Adolescent Substance Abuse

<i>Chi-Square Tests</i>					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	120.425 ^a	1	0		
Continuity Correction ^b	117.515	1	0		
Likelihood Ratio	103.476	1	0		
Fisher's Exact Test				0	0
Linear-by-Linear Association	120.291	1	0		
N of Valid Cases	893				

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.87.

A chi-square test was performed and a significant relationship was found between being a smoker and the probability of adolescent substance abuse, $X^2(1, n= 893) = 120.425$, $p < .001$.

On average it is has been confirmed in research that adolescents who are strongly connected to their parents and other family members are less likely to smoke cigarettes. Smoking and tobacco usage studies indicated that adolescents are less likely to smoke cigarettes if they experience high levels of connectedness to parents and other family

members. Adolescents were found to be prone to smoking if a parent smokes or if cigarettes are easily accessible (Resnick et al., 1997).

There is an escalation during adolescence of adolescents who typically start smoking cigarettes, which is seen as a “gateway” drug as research has proved that adolescents will first smoke, then use alcohol and then progress to other substances (Ellickson, Hays & Bell, 1992).

Research has consistently shown that adolescent smoking is related to friends' smoking. Previous studies which focused on social factors which played a role in individuals' decision to start smoking, mainly focused on the family environment and characteristics of an individual during childhood or adolescence as determinants for their decision. Some of the factors which play a role in a person's decision to start smoking include low academic performance, poor economic status, growing up with parents with lower levels of education and being younger than one's peers. Smoking behaviours of role-models in the social media and pro-tobacco media have shown to be other predictors of a person's decision to start smoking. Farrel & White (1998) found in their study that risky sexual behaviours, smoking and other socially unacceptable behaviour are closely related to substance abuse (Guo et al., 2002). Previous researchers reflected on the significance of parenting as the mediator between the personality of an individual and risk behaviours such as alcohol intake and smoking (Terracciano & Costa, 2003).

Smoking typically precedes other drug use (HSS, 1994), as the earlier a person starts smoking the more likely he is to engage in other illicit substances such as cocaine or heroin. Research indicated that individuals who start smoking as a child are more likely to engage in the use of marijuana and cocaine, compared to those who only engage in smoking when they

are older (CASA, 1994). Smokeless tobacco users have been found to be more likely to use or abuse other illegal substances such as marijuana, heroin or cocaine (Everett et al., 1998). Smokers are also found to be more likely to abuse alcohol compared to non-smoking individuals (NIAAA, 1998). The study (NIAAA, 1998) concluded that adolescent smokers are three times more likely to also abuse alcohol and other substances compared to non-smoking adolescents. Research on patterns of substance abuse among adolescents generally agrees that adolescents start using tobacco or alcohol or both and then progress to Dagga or other drugs and other drug use. Research concludes that cigarette smoking is a significant predictor of both the possibility and the frequency of other substance abuse (HSS, 2000). This was confirmed in the present study as well that smoking is a predictor of possible substance abuse.

5.2.3 Hypothesis 3

Adolescent personality traits influence the development of substance abuse. High probability adolescent substance abusers compared to adolescents with a low probability for substance abuse will score lower on the personality traits of conscientiousness and agreeableness and higher on neuroticism, openness and extraversion.

Big Five Inventory (BFI)

The BFI subscales scores were calculated into separate variables namely extraversion, neuroticism, conscientiousness, agreeableness and openness. These subscales form the basis of the five factor model of personality. The subscales were furthermore analysed to obtain a high score for the scale or a low score for the scale (e.g., low extraversion or high extraversion).

Big Five Inventory Results of Adolescent Participants

The basic statistics of the BFI results of adolescent participants is summarised in Table 39 and discussed thereafter.

Table 39

Big Five Inventory Results of Adolescent Participants

Measure	Subscale	N	Range	Min	Max	Mean	SD
Big 5 Personality	Extraversion	894	31	9	40	26.87	4.8
	Agreeableness	894	35	10	45	33.84	5.3
	Conscientiousness	894	33	12	45	31.55	5.9
	Neuroticism	894	32	8	40	22.56	6.1
	Openness	894	31	19	50	35.26	5

The analysis of the BFI of the 894 participants ($n=894$) indicated that the mean of extraversion was $\bar{x} = 26.87$ with a standard deviation of $\sigma = 4.84$. The range of the subscale extraversion was 31 with a minimum value of 9 and a maximum value of 40. The mean of agreeableness was $\bar{x} = 33.84$ with a standard deviation of $\sigma = 5.31$. The range of the subscale agreeableness was 35 with a minimum value of 10 and a maximum value of 45. The mean of the conscientiousness subscale was $\bar{x} = 31.55$ with a standard deviation of $\sigma = 5.93$. The range of the subscale conscientiousness was 33 with a minimum value of 12 and a maximum value of 45. The mean of neuroticism was $\bar{x} = 22.56$ with a standard deviation of $\sigma = 6.08$. The range of the subscale neuroticism was 32 with a minimum value of 8 and a maximum value

of 40. The mean of openness was $\bar{x} = 35.26$ with a standard deviation of $\sigma = 5.00$. The range of the subscale openness was 31 with a minimum value of 19 and a maximum value of 50.

The lowest score evidenced for the sample ($n=894$) was for Neuroticism ($\bar{x} = 22.56$, $\sigma = 6.08$), followed by Extraversion which had a mean of $\bar{x} = 26.87$ ($\sigma = 4.84$), then Conscientiousness ($\bar{x} = 31.55$, $\sigma = 5.93$), Agreeableness ($\bar{x} = 33.84$, $\sigma = 5.31$) and Openness ($\bar{x} = 35.26$, $\sigma = 5.00$). This can be seen in the graph below.

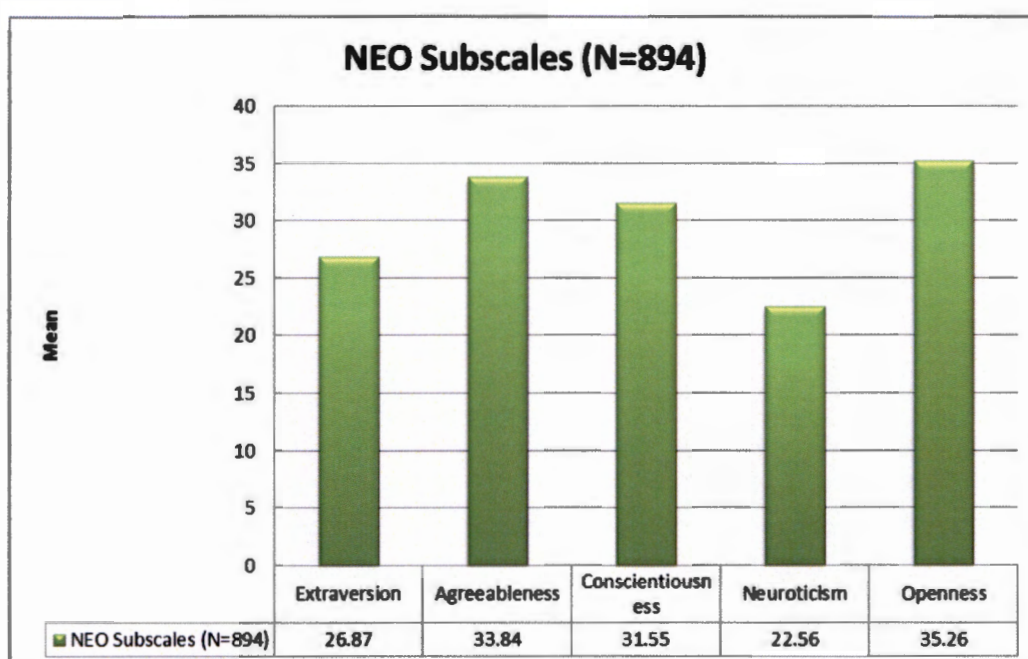


Figure 11. BFI Subscales on Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness of Adolescent Participants

BFI Profiles of Adolescent Participants in Phase One

A breakdown of the BFI profiles of adolescents in Table 40 is presented and is discussed thereafter.

Table 40

BFI Profiles of Adolescents

	Value	Label	N
Extroversion	1.00	Low extroversion	395
	2.00	High extroversion	499
Agreeableness	1.00	Low agreeableness	894
	2.00	High agreeableness	0
Conscientious	1.00	Low conscientiousness	362
	2.00	High conscientiousness	532
Neuroticism	1.00	Low neuroticism	349
	2.00	High neuroticism	545
Openness	1.00	Low openness	393
	2.00	High openness	501

The participants in phase one totalled 894 ($n=894$) adolescents. Analysis of the BFI indicated that 55.8% of participants ($n=499$, 55.8%) in the sample scored high on the extroversion subscale and 44.2% ($n=395$, 44.2%) scored low on extroversion. This indicated that the majority of participants can be viewed as extroverts. All the participants scored high on the agreeableness subscale ($n=894$, 100%). On the conscientiousness subscale, 40.5% of participants ($n=362$, 40.5%) scored low on conscientiousness and 59.5% of participants ($n=532$, 59.5%) scored high on conscientiousness.

Neuroticism analysis indicated that 39% of participants ($n=349$, 39%) scored low on the neuroticism subscale and 60.1% of participants ($n=545$, 60.9%) scored high on neuroticism. On the openness subscale 44% of participants ($n=393$, 44%) scored low on openness and 56% of participants ($n=501$, 56%) scored high on openness.

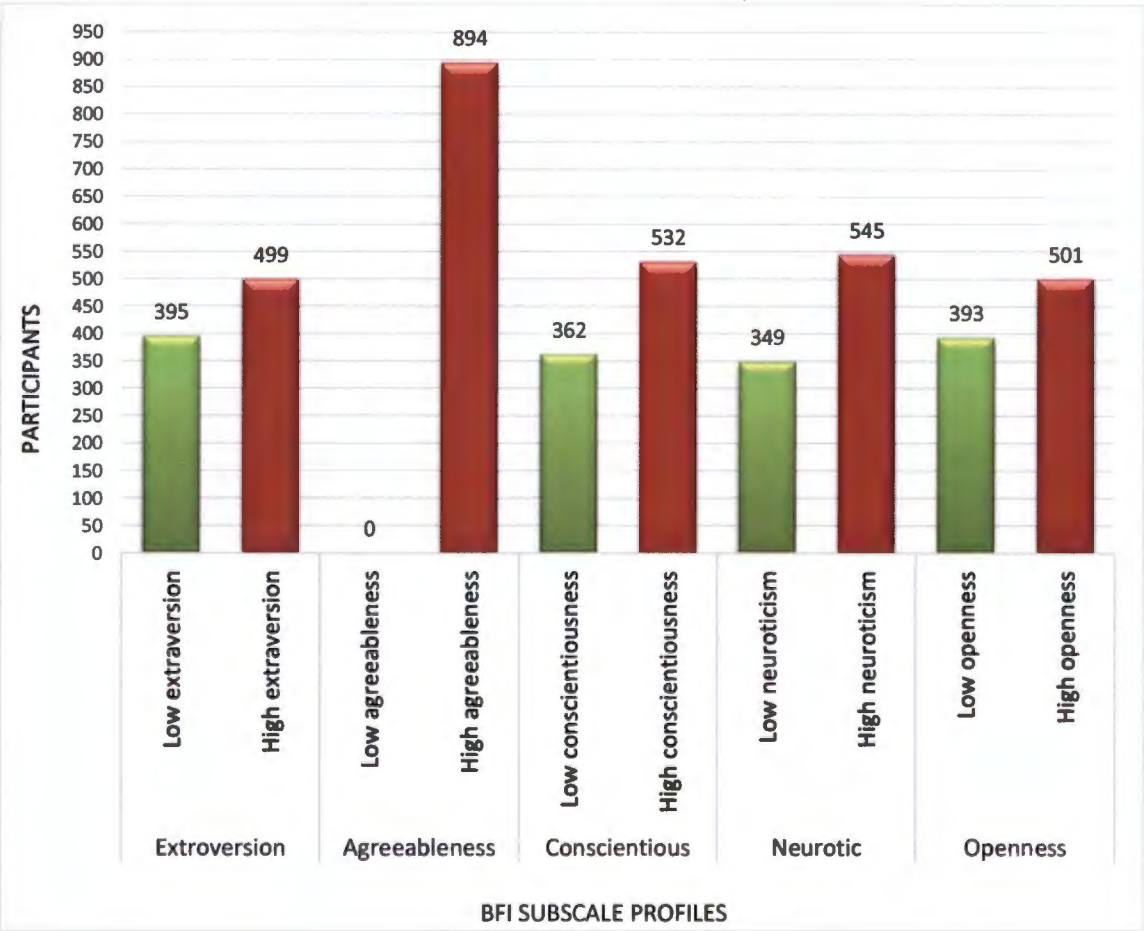


Figure 12. BFI Subscale Profiles

Traits in the Neuroticism domain reflect different ways of reacting emotionally to distressing circumstances and the latent effect of these emotions on behaviour. Low scorers on Neuroticism are resilient, rarely experiencing negative emotions and having the ability to function normally and think clearly under stressful conditions. However, a certain amount of

neuroticism is needed for normal functioning and an extremely low score could be associated with abnormal behaviour. The majority of the phase one participants fell within the high category for Neuroticism. High scorers in Neuroticism often have strong emotional reactions to stressful conditions and this causes them not to be able to think clearly and rationally. These individuals are prone to anxiety, guilt, anger, low mood and fear. Very high neuroticism scores could be an indication of pathology (Costa & McCrae, 1994).

Traits in the Extraversion domain reflect energy and enthusiasm, especially when dealing with people. Low scorers on the Extraversion scale are serious and introverted and tend to be formal and reserved. Low scorers are not necessarily hostile or lacking in compassion, but they have a tendency to prefer a slow and steady pace and do not seek out excitement and stimulation. The majority of the adolescent participants fell within the category of high levels of Extraversion. High scorers on Extraversion tend to be warm and affectionate with people and easily form close attachments with others. They tend to enjoy a fast pace and have a need for excitement and thrills (Costa & McCrae, 1994).

Traits in the Openness domain reflect the response to various kinds of experiences and differences in energy and enthusiasm, especially when dealing with people. Low scorers on the Openness to new experiences scale tend to be down-to-earth and conventional and have a preference for the familiar and the tried-and-true. The majority of the participants in the study scored in the high category for Openness. High scorers on the Openness to new experiences scale tend to be imaginative and open-minded, and enjoy rich, varied and novel experiences in life (Costa & McCrae, 1994).

Traits in the Agreeableness domain reflect interpersonal interaction style and whether or not a person is pleasant and accommodating in social situations. Low scorers on agreeableness tend to be hard-headed and competitive. The majority of the adolescent participants scored high on Agreeableness. High scorers on agreeableness tend to be compassionate and cooperative (Costa & McCrae, 1994).

Traits in the Conscientiousness domain reflect differences in motivation and persistence. Low scorers on Conscientiousness tend to be easy-going and not inclined to make plans or schedules. High scorers tend to be conscientious and well organized. The majority of the adolescent participants scored in the high category of Conscientiousness (Costa & McCrae, 1994).

Comparison of Non-Substance Abusing Adolescent with Substance Abusing Adolescents on the BFI

In this section the relationship between personality traits (neuroticism, extraversion, openness, agreeableness and conscientiousness) and substance abuse will be discussed. T-tests for independent samples were used to compare substance abusing adolescents with non-substance abusing adolescents on personality traits (BFI).

The Levene's test of homogeneity was performed and was shown to be not significant. Therefore, t-tests for equal variances assumed are interpreted from the table below. The basic statistics for the comparison of non-substance abusing adolescent with substance abusing adolescents on the BFI is summarised in Table 41.

Table 41

Comparison of Non-Substance Abusing Adolescent with Substance Abusing Adolescents on the BFI

	Substance Abuse	N	Mean	Std. Deviation	Std. Error Mean	Levene's Test for Equality of Variances		t-test for Equality of Means		t-test for Equality of Means		
						F	Sig.	t		df	Sig. (2-tailed)	Mean Difference
EXTRAVERSION	Low Probability	661	27.1286	5.06025	0.19682	0.53	0.47	2.027	Equal variances assumed	892	0.043	0.77666
	High Probability	233	26.3519	4.94327	0.32384			2.049	Equal variances not assumed	415	0.041	0.77666
AGREEABLENESS	Low Probability	661	34.7716	5.13787	0.19984	1.7	0.19	7.874	Equal variances assumed	892	0	3.14924
	High Probability	233	31.6223	5.55488	0.36391			7.585	Equal variances not assumed	380	0	3.14924
CONSCIENTIOUSNESS	Low Probability	661	32.3238	5.95166	0.23149	0.01	0.91	5.968	Equal variances assumed	892	0	2.70143
	High Probability	233	29.6223	5.91053	0.38721			5.988	Equal variances not assumed	409	0	2.70143
NEUROTICISM	Low Probability	661	21.9592	6.24644	0.24296	0.53	0.47	-5.371	Equal variances assumed	892	0	-2.51724
	High Probability	233	24.4764	5.87298	0.38475			-5.532	Equal variances not assumed	429	0	-2.51724
OPENNESS	Low Probability	661	35.3828	4.85738	0.18893	6.03	0.01	0.549	Equal variances assumed	892	0.583	0.21966
	High Probability	233	35.1631	6.2401	0.4088			0.488	Equal variances not assumed	336	0.626	0.21966

Big Five Inventory (BFI) in Relation to SASSI-A2

BFI-Extraversion

An independent-samples t-test was conducted to compare the Extraversion for participants classified as low probability and high probability on the substance abuse SASSI-A2 inventory. There was significant difference in the scores of the low probability group ($\bar{x}=27.05$, $\sigma=4.79$, $n=661$) and the high probability group ($\bar{x}=26.35$, $\sigma=4.94$, $n=233$); $t(892) = 19.91$, $p=.056$. The high probability and low probability groups were similar in terms of Extraversion.

The finding in this study was not in line with current literature which predominantly links Extraversion with substance abuse probability. In their study Ruiz et al., (2003), found a positive correlation between the FFM domain of Extraversion and substance use and abuse related problems. Furthermore, Leigh and Stall (1993) hypothesised that some novelty seeking adolescents who scored high on Extraversion may possibly also be involved in risky sexual behaviours as well as high levels of substance intake which can lead to substance abuse. Jessor (1991) also confirmed a relationship between risky sexual behaviours, substance abuse and high levels of Extraversion. Miller et al., (2004), found that high gregariousness and high excitement-seeking traits are also closely related to high levels of Extraversion which in turn lead to risk taking behaviour. According to Cloninger, (1994), Zuckerman, (1993), Zuckerman, Ball and Black, (1990), adolescents who score high in sensation-seeking also known as excitement-seeking behaviours, appear to have a biologically based need for stimulation.

Furthermore, it appears that these adolescents are prone to be attracted to risk-taking behaviours, have a greater predisposition to the reinforcing effects of pleasurable stimuli and have a higher tendency toward substance use or abuse. Excitement-seeking adolescents may

further be attracted towards a social environment where various substances and a variety of sex partners are available to them. High levels of Extraversion have also been linked to alcohol use and abuse amongst students. The above statement is supported by previous studies (Wills, Sand, & Yeager, 2000; Youniss & Yates, 1997).

Miller et al., (2004), further demonstrated a positive relation between Extraversion and the number of sexual partners by the age of 20, the number of times marijuana or other substances were used or abused before or during sexual activities and the early onset of engaging in sexual activities. As the engagement in sexual activities requires a partner, it is understandable why sex is deemed a social activity. In addition it has been found that adolescents or individuals who score high on Extraversion have a tendency to be socially dominant and assertive in their behaviour, which in turn may attract potential sexual partners. Individuals who appear socially dominant and assertive may further find it easier to pursue opportunities for sexual activities.

Holder (1998) stated that not all people who engage in sociable activities have the need to consume alcohol and if the social engagement does not involve alcohol intake, they are less likely to consume alcohol to be sociable. Jessor (1991) stated that there is a strong relationship between Extraversion, risky sexual behaviours and substance use and abuse.

BFI-Agreeableness

An independent-samples t-test was conducted to compare the Agreeableness for participants classified as low probability and high probability on the substance abuse SASSI-A2 inventory. There was a significant difference in the scores of the low probability group ($\bar{x}=34.63$, $\sigma=5.00$, $n=661$) and the high probability group ($\bar{x}=31.62$, $\sigma=5.55$, $n=233$); $t(892)$

= 7.87, $p < .00$. The low probability substance abuse group scored higher on agreeableness than the high substance abuse probability group.

The finding in the study is in line with literature as there is a predominant focus in research on the idea that substance abusers are generally less agreeable than non-substance abusers. Agreeableness has been negatively associated with drinking quantity and alcohol problems, a finding consistent with the heavy consumption drinking patterns seen in enhancement drinkers (Cooper, 1994). In essence, further research portrays the abuser of drugs and alcohol scoring lower on agreeableness or as more disagreeable (e.g. Ruiz et al., 2003; Walton & Roberts, 2004).

An antagonistic interpersonal style, characterised by deceit, distrust, and a general lack of concern for others has been found to be related to having more sexual partners when using alcohol and drugs. No positive correlation was found between agreeableness and the amount of alcohol use and abuse, a finding which is consistent with the problematic drinking patterns evident in enhancement drinkers (Cooper, 1994).

Further research conducted (Ruiz et al., 2003; Walton & Roberts, 2004) indicated that substance users and abusers scored lower on agreeableness or were more disagreeable. A strong relationship was found between having more sexual partners when using substances and an antagonistic interpersonal style which is characterised by deceit, distrust and a lack of concern for other individuals. Theakston et al., (2004), found that individuals who score low on the Agreeableness FFM domain of personality use more substances compared to those who score high on this domain. Kuppens (2005) stated that there is a negative relation in the Agreeableness FFM domain and perceived social esteem to trait anger. Samuels et al., (2004), found a correlation between substance abuse and angry hostility.

BFI-Conscientiousness

An independent-samples t-test was conducted to compare the Conscientiousness for participants classified as low probability and high probability on the substance abuse SASSI-A2 inventory. There was a significant difference in the scores of the low probability group ($\bar{x}=32.23$, $\sigma=5.79$, $n=661$) and the high probability group ($\bar{x}=29.62$, $\sigma=5.91$, $n=233$); $t(892) = 5.97$, $p<.00$. The low probability group was more conscientious than the high probability group.

Findings in the current study reinforce the trend and evidence in research that low probability substance abusers are more conscientious. Miller et al., (2004), found a negative correlation between an individual's substance use and Conscientiousness which includes a person's ability to think before acting, considering potential consequences for actions, the ability to follow through on moral obligations and duties and the ability to persist in the face of boredom and fatigue. Considering the element of deliberation, it is not unusual for individuals scoring low in Conscientiousness to use substances.

Furthermore, it is not surprising that those individuals who lack self-discipline to engage in potentially more dangerous activities such as driving under the influence, rather than delaying gratification. In a study conducted by Kashdan, Velter & Collins (2005) it was discovered that Conscientiousness mostly buffers against substance abuse. Individuals who score high in conscientious and low in impulsivity report using fewer substances and also smoke less. Scoring high on Conscientiousness also decreases the possibility of individuals engaging in the use of illegal substances. Conscientious individuals further report greater feelings of personal control and the ability to chase and reach meaningful life goals.

Friedman, Tucker, Schawartz, Martin, Tomlinson-Keasy, Wingard, & Criqui, (1995) found that highly conscientious individuals have greater self-regulatory strength which protects them against engagement in risky health behaviours. Individuals with high Conscientiousness also have the ability to exercise self-control when exposed to substances and are less likely to engage in the use of substances. According to Parry & Bennets (1998), adolescents who do not engage in substance use tend to be more capable of achieving long-term goals and objectives compared to those who use substances. Many of these non-substance using adolescents expressed a negative attitude towards any form of substances.

Theakston et al., (2004), stated that adolescents who score low on Conscientiousness engage in the use of substances to enhance positive experiences. These individuals may particularly be at risk for substance abuse as a result of low self-discipline and the inability to make responsible decisions (Theakston et al., 2004). In contrast with the above findings, Walton and Roberts (2004) stated that those adolescents who refrain from engaging in substance use are found to be highly conscientious. When comparing substances abusers with abstainers, it has been found that abstainers are highly conscientious and outscore substance abusers on measures of the ability to act responsibly, rationally and fastidiously. Furthermore, conscientious individuals tend to be more conservative and moralistic (Hogan et al., 1970; Shedler & Block, 1990).

BFI-Neuroticism

An independent-samples t-test was conducted to compare Neuroticism for participants classified as low probability and high probability on the substance abuse SASSI inventory. There was a significant difference in the scores of the low probability group ($\bar{x}=21.88$, $\sigma=6.01$, $n=661$) and the high probability group ($\bar{x}=24.47$, $\sigma=5.87$, $n=233$); $t(892) = -5.37$, $p<.00$. The high probability group was more neurotic than the low probability group.

In studies conducted (Cooper & Chassin, 1997; Holder, 1998) it was concluded that individuals who score high on Neuroticism engage in substance abuse as an attempt to increase positive feelings and decrease feelings of negativity. In other studies (Colder & Chassin, 1997; Holder 1998) it was found that impulsivity increased individuals' substance intake. Bewely (1986) in turn found that vulnerability increases substance abuse (Aneshensel & Huba, 1983; Dorus & Senay, 1980). Samuels et al., (2004), found that high levels of depression increase the levels of substance intake by individuals.

In a sample of individuals who entered the early adolescent phase, Colder & Chassin (1992) found that neuroticism can be associated with large amounts of alcohol consumption and the frequency of alcohol consumption. In a follow-up assessment with these adolescents, the amount of alcohol intake was predicted by negative affect and impulsivity (Colder & Chassin, 1992). Elkins et al., (2004), found that adolescents who grew up with parents with a history of alcohol abuse, scored high on Neuroticism and stated to be non-alcoholic.

Some research with adolescents indicated that high scores on Neuroticism have been seen as a result rather than a cause of substance abuse (Sutherland, 1997). Costa & McCrae (1992) stated that emotional stability and adjustment ability is evaluated by Neuroticism. Adolescents who score high on Neuroticism appear to have a tendency toward experiencing feelings of negative affect which includes fear, sadness, embarrassment, anger, guilt and disgust (Parry & Bennets, 1998). Howard and Howard (1995) found a positive relation between high scores on the Neuroticism domain and alcohol use. Those who score high on Neuroticism express using substances to reduce feelings of negativity and increase positive feelings (Cooper, Frone, Russel, & Mudar, 1995). In his study Donovan (2004) found that the consumption of alcohol is used as an attempt to reduce stress, anxiety or depression. Substance abuse behaviour in itself may be viewed as maladaptive coping skills, as it is used by

substance abusers to reduce high levels of anxiety and feelings of distress (Blane & Leonard, 1987; Wills & Shiffman, 1985).

Colder and Chassin (1997) and Holder (1998) found a strong relationship between alcohol abuse and impulsivity in adolescents with novelty seeking traits. Adolescents who score high on Neuroticism will also have impulsivity traits which mean that it will be difficult for them to resist temptations as they are controlled by their impulses. Many of these individuals express regret about acting upon their impulses (Costa & McCrae, 1992). Compared to nonsubstance users, those individuals who use alcohol are more likely to partake in risky or socially unacceptable behaviour (Holder, 1998). Substance abusers experience difficulties in controlling temptations as they tend to be more focused on short-term gratification than nonsubstance users with higher levels of self-control (Parry & Bennetts, 1998). Low levels of impulsivity further suggest less substance use and less smoking; it also reduces the possibility of an individual engaging in the use of illegal substances (Parry & Bennetts, 1998).

According to Bewley (1986) vulnerability is another facet of Neuroticism used by individuals to cope with life challenges. Stewart, Zvolensky, and Eifert, (2001) concluded that university students with vulnerable personalities and who display high levels of anxiety engage in more frequent alcohol intake compared to students with lower levels of anxiety. Aneshensel and Huba (1983) furthermore stated that a depressed affect is another psychological factor which is strongly related to the amount of alcohol intake and substance abuse. According to these authors, depression is viewed as the result or consequence of alcohol abuse in individuals.

Costa and McCrae (1992) found that most substance abusers express using alcohol as a means of reducing feelings of anxiety, sadness and improving their self-esteem (Aneshensel & Huba, 1983; Donovan, 2004; Dorus & Senay, 1980). Adolescents with vulnerable personalities increase their substance intake in an attempt to reduce feelings of sadness and anxiety, being unaware of the fact that substance abuse increases the experience of these particular feelings.

BFI-Openness

An independent-samples t-test was conducted to compare the Openness for participants classified as low probability and high probability on the substance abuse SASSI-A2 inventory. There was no significant difference in the scores of the low probability group ($\bar{x}=35.36$, $\sigma=4.86$, $n=661$) and the high probability group ($\bar{x}=34.98$, $\sigma=5.38$, $n=233$); $t(892) = .983$, $p=.326$. The low probability group was similarly open as the high probability group.

The findings of the current study indicate that the Openness scores of high probability and low probability substance abusers are similar. In a study conducted by Ruiz, Pincus and Dickinson, (2003) they found a link between Openness to Experience and substance use and abuse. According to Stewart and Devine's (2000) theory on high Openness scores, high scores on Openness are predictors of enhanced-motivated substance intake. Brooner et al., (1993), found similar results where no clear discrepancy could be seen on the Openness scale which is based on the assumption that individuals who engage in substance intake choose to engage in such activities as a result of seeking pleasure, or an attempt to deal with a specific life situation or problem. Previous studies (Flory et al., 2002; Sher et al., 2000) found that individuals who engage in substance abuse score higher on the Openness scale compared to nonsubstance abusers.

5.2.4 Hypothesis 4

Adolescents in the high probability substance abuse group compared to non-substance abuser will score lower on self-regulation (SRQ).

Self-Regulation (SRQ)

The SRQ scores were calculated together with adding another descriptive variable containing three categories: (1) ≥ 239 high (intact) self-regulation capacity, (2) 214-238 intermediate (moderate) self-regulation capacity and (3) ≤ 213 low (impaired) self-regulation capacity.

Total Self-Regulation Scores of Adolescent Participants

The basic statistics associated with the total self-regulation scores of adolescent participants is summarised in Table 42 followed by a detailed discussion.

Table 42

Self-Regulation Totals for Adolescent Participants

Self-Regulation	N	Range	Min	Max	Mean	SD
Total Score	894	190	118	308	219.2	22.6

The 894 participants ($n=894$) in the sample had a mean of $\bar{x} = 219.17$ with a standard deviation of $\sigma = 22.59$. The range of the SRQ was 190 with a minimum value of 118 and a maximum value of 308.

Self-Regulation Categories of Adolescent Participants

The frequency counts of self-regulation categories of adolescent participants are summarised in Table 43 and Figure 13, and discussed thereafter.

Table 43

Self-Regulation Ranges

Self-Regulation	N	%
High	346	38.70%
Intermediate	373	41.70%
Low	175	19.60%
Total	894	100%

On the SRQ, 38.7% of the participants ($n=346$, 38.7%) scored in the high range of self-regulation, indicating that their self-regulatory capacity is intact. The intermediate range of self-regulation was indicated by 41.7% participants ($n=373$, 41.7%) who displayed a moderate self-regulating capacity. The low range of self-regulation was displayed by 19.6% of participants ($n=175$, 19.6%) indicating an impaired self-regulatory capacity.

The majority of the adolescent participants in the study had an intermediate self-regulatory capacity. The remainder of the participants either fell in the high range or low range of self-regulatory capacity. Research indicated that self-regulatory abilities are relatively stable from early childhood through early adulthood (Lengua, 2006). Although important throughout the lifespan, the ability to self-regulate behaviours and emotions is particularly vital in the prevention of psychopathology and the promotion of optimal psychological adjustment during the period of adolescence (Gestsdottir & Lerner 2008).

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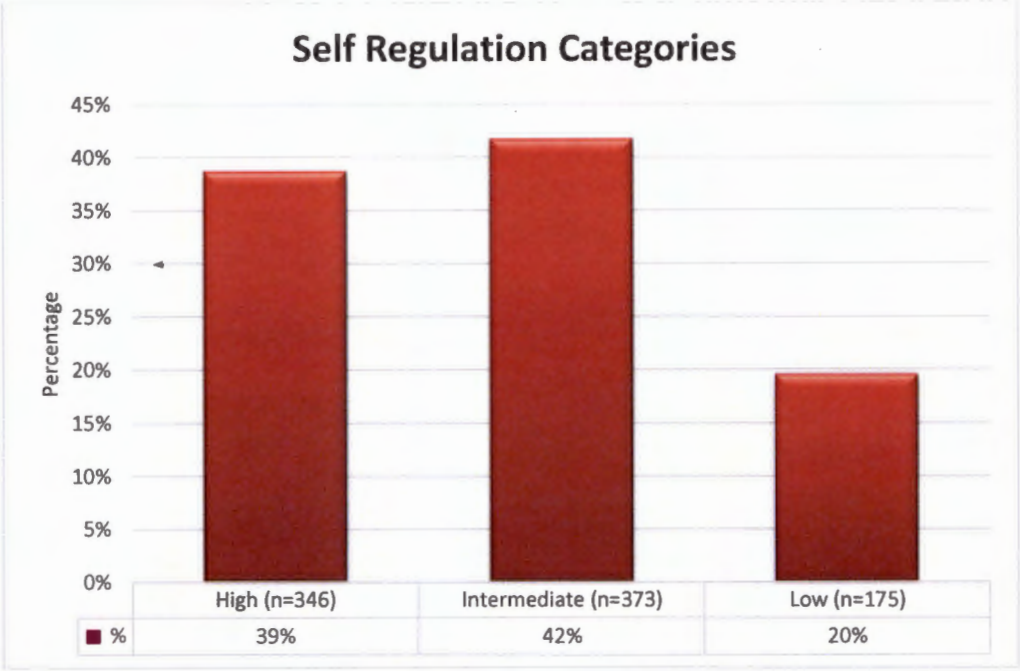


Figure 13. Self-Regulation Categories of Adolescent Participants

Table 44
Self-Regulation and Substance Abuse

		Substance Abuse		
		Low	High	Total
		Probability	Probability	
SRQ	Count	207	139	346
Low Self- Regulation				
	% within Substance Abuse	31.30%	59.70%	38.70%
	% of Total	23.20%	15.50%	38.70%
Intermediate Self- Regulation	Count	300	73	373
	% within SRQ	80.40%	19.60%	100.00%
	% within Substance Abuse	45.40%	31.30%	41.70%
	% of Total	33.60%	8.20%	41.70%
High Self- Regulation	Count	154	21	175
	% within SRQ	88.00%	12.00%	100.00%
	% within Substance Abuse	23.30%	9.00%	19.60%
	% of Total	17.20%	2.30%	19.60%
Total	Count	661	233	894
	% within SRQ	73.90%	26.10%	100.00%
	% within Substance Abuse	100.00%	100.00%	100.00%
	% of Total	73.90%	26.10%	100.00%

The SRQ was discussed previously and the ranges were indicated as (1) Self-regulation ≥ 239 high (intact) self-regulation capacity, (2) self-regulation of 214-238 intermediate (moderate) self-regulation capacity and (3) self-regulations of ≤ 213 low (impaired) self-regulation capacity. The cross tabulation of self-regulation and substance abuse indicated that of the 38.7% of participants ($n=346$, 38.7%) with a low self-regulation capacity, 40.2% of the low self-regulatory participants ($n=139$, 40.2%) had a high probability to abuse substances and 59.8% of the low self-regulatory participants ($n=207$, 59.8%) had a low probability to abuse substances.

The cross tabulation of self-regulation and substance abuse indicated that of the 41.7% of participants ($n=373$, 41.7%) with an intermediate self-regulation capacity, 19.6% of the intermediate self-regulatory participants ($n=73$, 19.6%) had a high probability to abuse substances and 80.4% of the intermediate self-regulatory participants ($n=300$, 80.4%) had a low probability to abuse substances.

The cross tabulation of self-regulation and substance abuse indicated that of the 19.6% of participants ($n=175$, 19.6%) with a high self-regulation capacity, 12% of the high self-regulatory participants ($n=21$, 12%) had a high probability to abuse substances and 88% of the high self-regulatory participants ($n=154$, 88%) had a low probability to abuse substances.

Comparison of Non-Substance Abusing Adolescent with Substance Abusing Adolescents on the SRQ

In this section the relationship between substance abuse and self-regulation of adolescent substance abusers and non-substance abusers is examined. T-tests for independent samples were used to compare substance abusing adolescents with non-substance abusing adolescents on self-regulation and is displayed in Table 45.

Table 45

Comparison of NonSubstance Abusing Adolescents with Substance Abusing Adolescents on the SRQ

	Substance Abuse	N	Mean	Std. Deviation	Std. Error Mean	Levene's Test for Equality of Variances		t-test for Equality of Means
						F	Sig.	T
SRQ	Low Probability	661	222.787	21.52542	0.83724	0.35	0.55	8.361
	High Probability	233	208.923	22.42868	1.46935			8.198

An independent-samples t-test was conducted to compare the self-regulation for participants classified as low probability and high probability on the substance abuse SASSI-A2 inventory. There was a significant difference in the scores of the low probability group ($\bar{x}=222.78$, $\sigma=21.52$, $n=661$) and the high probability group ($\bar{x}=208.92$, $\sigma=22.42$, $n=233$); $t(892) = 8.36$, $p < .05$. The low probability group evidenced better self-regulation capacities than the high probability group. The Levene's test of homogeneity was performed and was shown to be not significant. Therefore, t-tests for equal variances assumed are interpreted. Next, a Chi-square analysis was performed to test the levels of self-regulation and the probability of substance abuse risk.

Relationship between Adolescent Substance Abuse and Self-Regulation

The results of the Chi-Square test for the relationship between adolescent substance abuse and self-regulation is summarised in Table 46.

Table 46

Relationship between Adolescent Substance Abuse and Self-Regulation

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	61.868 ^a	2	0
Likelihood Ratio	62.344	2	0
Linear-by-Linear Association	57.244	1	0
N of Valid Cases	894		

A chi-square test was performed and a significant relationship was found between self-regulatory capacity and the probability of adolescent substance abuse, $\chi^2 (1, n=894) = 61.868$, $p < .001$. Therefore, the higher an adolescent’s self-regulatory capacity, the lower the probability will be to abuse substances. In turn, the lower the self-regulatory capacity of an adolescent is, the higher is the probability to abuse substances.

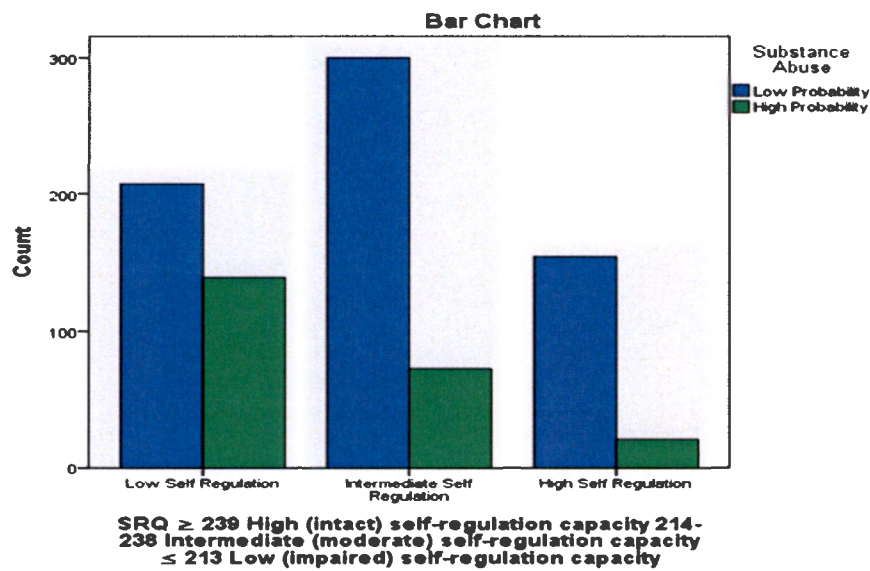


Figure 14. Relationship between Self-Regulation and the Probability to Abuse Substances

The results indicate that the lower self-regulation is, the greater the probability is to abuse substances. The results in this study are in line with research internationally. The self-regulation theory allows for the possibility that there are stable individual differences in propensity to exercise self-control that may preexist and contribute to the development of addiction (Schmeichel & Baumeister, 1994).

According to Baumeister & Vohs (2007), self-regulation plays a role in substance abuse based on the importance of response inhibition and conscious restraint. Schmeichel & Baumeister (1994) also emphasized the commonalities between addiction, poor self-management and other behavioural problems. Previous studies showed a correlation between high self-regulation and low self-regulation skills as good indicators of substance intake. Conner, Stein, & Longshore (2009) and Kirby, Petry, & Bickel (1999) found in their study that participants with low self-regulatory abilities and high impulsivity are more likely to use and abuse substances compared to those with higher self-regulatory abilities.

Research did not only focus on adults when studying the correlation between self-regulation abilities and substance use and abuse. Wills, Sandy & Yaeger (2002) found that adolescents with lower self-regulatory abilities are more likely to be substance abusers than those with higher self-regulatory abilities. Those with low self-regulatory abilities show poor academic performance and are more likely to suffer from peer group bullying and rejection. There is considerable literature substantiating correlations between self-regulatory deficits and substance abuse research.

Most of this literature has demonstrated cognitive deficits in substance abusing populations, making it impossible to determine whether self-regulatory deficits are risk factors for substance abuse or consequences of chronic substance use.

The cognitive deficits seen in adolescents who abuse substances are likely to be consequences of prolonged substance use. However, research assessing the profiles of high risk adolescents who have not yet initiated substance use, is beginning to provide evidence that self-regulation deficits may also be important risk factors for substance abuse vulnerability in adolescents (Nigg, Glass, Wong, Poon, Jester, Fitzgerald, Puttler, Adams & Zucker, 2004).

Previous research examined how self-regulation has a behavioural and emotional component and that both are related to adolescent substance abuse. Instances of good or intact self-regulation are found to have a decreased frequency impact on tobacco and alcohol use in clinical and general-population samples (Aytaclar, Tarter, Korisci, & Lu, 1999; Zimbardo & Boyd, 1999). Low or poor self-regulation (e.g., impulsiveness, affective lability) is positively related to substance use among both adolescents and adults (Bickel, Odum, & Madden, 1999; Petry, Bickel, & Arnett, 1998; Simons, Oliver, Gaher, Ebel, & Brummels, 2005). Intact self-regulation in the behavioural sphere involves attributes such as the tendency to plan ahead, consider alternatives before acting, and link behaviours and consequences over time (Carver & Scheier, 2000; Miller & Brown, 1991). Intact self-regulation in the emotional sphere involves the ability to reduce excessive arousal and deal with negative emotions such as sadness or anger (Cole, Michel, & Teti, 1994). In a study conducted by Soloff et al., 2000, they found that alcohol abuse, impulsive and aggressive behaviour were more prevalent in adolescents with substance abuse disorders and low self-regulation skills compared to the control group who displayed higher self-regulatory ability skills. According to Gabel et al., 1999, explorative and risk taking behaviour were found to be signs related to substance dependence behaviour amongst male adolescents and the control group they were compared to, also consisting of male adolescents of the same age. Further studies on adolescent substance abuse tendencies found poor self-regulation skills, stubbornness, poor control and

disinhibited traits in adolescents (King & Chassin, 2000; Brooke et al., 1995; Jones & Heaven, 1998; Colder & O'Connor 2002; Moss and Kirisci 1995; Colder & Chassin 1997).

5.2.5 Hypothesis 5

The psychometric profile obtained from the demographic attributes, personality traits and self-regulatory capacity of adolescents can be used to predict the risk factors in the development of substance abuse in adolescence.

Predicting the Use of Substance Abuse in Adolescents

The predictive effect of demographic variables, personality traits and self-regulation on adolescent alcohol abuse was measured by a multiple regression analysis using the Enter method. The results of the multivariate regression models examining demographic variables, personality traits and self-regulation on Risk for Alcohol Abuse (FVA) are summarised in Table 47 and discussed afterwards.

Table 47

Multivariate Regression Models Examining Demographic Variables, Personality Traits and Self-regulation on Risk for Alcohol Abuse (FVA)

FVA	Model I		Model II		Model III	
Model fit:	F (6,766) = 6.94,		F (12,760) = 21.45,		F (18,754) = 17.04,	
	R ² =.044, p = .000**		R ² =.241, p = .000***		R ² =.272, p = .000*	
Variable	Coefficient	p	Coefficient	p	Coefficient	p
Constant	-2.312	.177	-1.248	.417	5.089	.043
Ethnicity	-.439	.191	-.254	.400	-.194	.537
Age	.378	.000	.212	.004	.248	.001
Sex	-.547	.084	-.639	.025	-.819	.004
Parents` Marital Status	.257	.028	.097	.355	.070	.499
Fathers` Education	-.308	.089	-.204	.209	-.142	.377
Mothers` Education	.314	.108	.299	.087	.328	.058
Father Alcohol Abuse			1.445	.015	1.215	.038
Mother Alcohol Abuse			1.775	.027	1.451	.066
Family Alcohol Abuse			.105	.781	-.026	.944
Family Diagnosed Mental Illness			-.371	.459	-.573	.249
Friends that Use Drugs			2.009	.000	1.749	.000
Smoker			5.177	.000	4.659	.000
Extraversion					-.004	.910
Agreeableness					-.039	.238
Conscientiousness					-.047	.173
Neuroticism					.024	.413
Openness					.036	.263
Self-Regulation					-.026	.004

FVA: Model I

Age ($t = 4.713, p = .000$) and parents marital status ($t = 2.203, p = 0.28$) emerged as the only significant predictors on the FVA as risk factors for alcohol abuse. Model I accounted 4.4% of the variance in FVO. The Multiple R for regression was statistically significant, $F(6,766) = 6.94, p < .01$, adjusted $R^2 = 0.44$. Discussing model I, the age of adolescents and the parents' marital status emerged as the only significant predictors of the abuse of alcohol in adolescents. The variables included in Model I: Ethnicity, sex, fathers' education, and mothers' education have not emerged as significant predictors of the abuse of alcohol in adolescents. The model explained 4.4% of the variance for the use of alcohol by adolescents.

FVA: Model II

Friends that abuse drugs ($t = 5.953, p = .000$), smoking cigarettes ($t = 9.651, p = .000$), age ($t = 2.881, p = .004$), fathers' substance abuse ($t = 2.429, p = 0.15$), sex ($t = -.842, p = .025$) and mothers' substance abuse ($t = 2.215, p = .027$) emerged as the only significant predictors of the abuse of alcohol by adolescents on the FVA. Model II accounted 27% of the variance in FVO. The Multiple R for regression was statistically significant, $F(12,760) = 21.45, p < .01$, adjusted $R^2 = .241$. According to Model II, the variables: friends that use drugs, smoking cigarettes, age, fathers' substance abuse, sex and mothers' substance abuse has emerged as significant predictors of the use of alcohol in adolescents. However, according to Model I, parents' marital status has emerged as a predictor of the abuse of alcohol in adolescents, but has not emerged as a significant predictor in Model II. Variables included in Model II: ethnicity; fathers' education, mothers' education, family alcohol abuse and family member diagnosed with mental illness have not emerged as significant predictors of the abuse of alcohol in adolescents. Concluding, the model explained 24% of the variance for the abuse of alcohol in adolescents.

FVA: Model III

Friends that use drugs ($t = 5.179, p = .000$), smoker ($t = 8.674, p = .000$), age ($t = 3.396, p = .001$), self-regulation ($t = -2.883, p = .004$) and sex ($t = -.618, p = .004$) emerged as the only significant predictors of the risk of adolescent alcohol abuse on the FVO. Model III accounted for 27% of the variance in FVA. The Multiple R for regression was significant, $F(18,754) = 17.04, p < .01$, adjusted $R^2 = .272$. The regression model presented significant predictors for friends that use drugs, smoking cigarettes, age, sex and fathers' substance abuse and the model accounted for 27% of the variance. Variables that were consistently significant in model II and model III were father' substance abuse, friends that use drugs, and smoking cigarettes. The only variable that was a significant predictor across all three models was the age variable. It should be noted that the correlation that occurred during these significant predictors, as with the variable: friends that use drugs and age, are positive correlations as the variables indicate interaction with one another. This can be explained by the means of, as the variable: friends that use drugs increases, so does the age variable increase. It therefore has an impact on the variable self-regulation, as this decreases when the variable age increases, thus indicating a negative correlation.

Secondly, the predictive effect of demographic variables, personality traits and self-regulation on adolescent drug abuse was measured by a multiple regression analysis using the Enter method. The results of the multivariate regression models examining demographic variables, personality traits and self-regulation on the risk to abuse drugs scale (FVOD) are summarised in Table 48.

Table 48

Multivariate Regression Models Examining Demographic Variables, Personality Traits and Self-Regulation on Risk for Other Drug Use (FVOD)

FVOD	Model I		Model II		Model III	
Model fit:	F (6,767) = 6.01,		F (12,761) = 18.24,		F (18,755) = 14.31,	
	R ² =.037, p = .000**		R ² =.211, p = .000***		R ² =.237, p = .000*	
Variable	Coefficient	p	Coefficient	p	Coefficient	p
Constant	-2.313	.291	-.784	.695	9.017	.006
Ethnicity	-1.368	.002	-1.160	.003	-.760	.065
Age	.341	.001	.131	.174	.177	.064
Sex	-.091	.823	-.162	.662	-.356	.337
Parents' Marital Status	.411	.006	.228	.096	.177	.190
Fathers' Education	-.415	.074	-.275	.193	-.301	.152
Mothers	.501	.046	.459	.044	.533	.019
Father Alcohol Abuse			.594	.442	.520	.495
Mother Alcohol Abuse			.495	.631	.358	.725
Family Alcohol Abuse			.584	.235	.512	.293
Family Diagnosed						
Mental Illness			-.389	.551	-.380	.559
Friends that Use Drugs			1.954	.000	1.696	.000
Smoker			7.159	.000	6.358	.000
Extraversion					.032	.458
Agreeableness					-.159	.000
Conscientiousness					.005	.906
Neuroticism					-.054	.161
Openness					.049	.243
Self-Regulation					-.031	.008

Note. ***. Significant at the 0.001 level (2-tailed); **. Significant at the 0.01 level (2-tailed); *. Significant at the 0.05 level (2-tailed).

FVOD: Model I

Age ($t = 3.318, p = .001$), ethnicity ($t = -.224, p = .002$), parents marital status ($t = 2.754, p = .006$) and mothers' education ($t = 2.001, p = .046$) emerged as the only significant predictors of adolescent drug abuse on the FVOD. Model I accounted 3.7% of the variance in FVOD. The Multiple R for regression was statistically significant, $F(6.767) = 6.01, p < .01$, adjusted $R^2 = 0.37$. According to the regression model, it presented significant predictors for the following variables: age, ethnicity, parents' marital status and mothers' education and the model accounted 3.7 % of the variance. The variables conscientiousness and fathers' education did not present a significant predictor for the abuse of other drugs in adolescents.

FVOD: Model II

Friends that use drugs ($t = 4.449, p = .000$), smoking cigarettes ($t = 10.257, p = .000$), ethnicity ($t = -.437, p = .003$), and mothers' education ($t = 2.017, p = .044$) emerged as the only significant predictors of adolescent drug abuse on the FVOD. Model II accounted 21% of the variance in FVOD. The Multiple R for regression was statistically significant, $F(12.761) = 18.24, p < .01$, adjusted $R^2 = .211$. In accordance with Model II, the variables that presented a significant predictor are: friends that use drugs, smoking cigarettes, ethnicity and mothers' education. The variable mothers' education has shown to be a consistent significant predictor in model I and model II. The model presented 21% of the variance.

FVOD Model III

Friends that use drugs ($t = 3.841, p = .000$), smoking cigarettes ($t = 9.056, p = .000$), agreeableness ($t = -3.736, p = .000$), self-regulation ($t = -2.667, p = .008$), and mothers' education ($t = 2.359, p = .019$) emerged as the only significant predictors of adolescent substance abuse on the FVOD. Model II accounted 21% of the variance in FVOD. The Multiple R for regression was statistically significant, $F(12.761) = 18.24, p < .01$, adjusted

$R^2 = .211$. The regression model presented significant predictors of friends that use drugs, smoking cigarettes, agreeableness, self-regulation and mothers' education for predicting the abuse of drugs in adolescents. The regression model presented 24% of the variance. For model II and model III, the variables friends that use drugs and smoking cigarettes, indicated to be consistent significant predictors of the use of other drugs in adolescents. The variable mothers' education, was presented as a consistent significant predictor in all three models (model I, model II, model III) respectively.

It should also be noted that the correlation that occurred during these significant predictors, as with the variable: friends that use drugs and smoking cigarettes, are positive correlations as the variables indicate interaction with one another. This can be explained by means of the following explanation: as friends that use drugs increase, so does the smoking cigarettes variable increase and vice versa. This therefore has an impact on the variable of self-regulation as this decreases when the variable smoking cigarettes increases, thus indicating a negative correlation.

5.2.6 Hypothesis 6

Adolescents receiving a competency skills programme in the experimental group would display greater self-regulation and improvement in their personality profile which will assist them with better adjustment without the use of substances, in comparison to the participants in the control group.

An ANCOVA was used for 2X2 factorial design of the control and experimental group with pre- and posttest results. The ANCOVA uses the posttest result as the dependent variable and the pretest is used as a covariate. The 5 BFI subscales and SRQ were tested in this analysis

Before the ANCOVA was performed, the Levene's Test for Homogeneity of Variance was done. If found to be significant, the ANCOVA was not performed because the assumption of homogeneity had not been met. Consequently, a Mann-Whitney U test was conducted comparing the posttest scores of the experimental and control group. The experimental group (n=10) was compared on their pre- and postdata for the BFI and SRQ using the non-parametric Wilcoxon test for samples less than 30.

ANCOVA: Pretest and Posttest Comparison for Experimental and Control Group

A one-way analysis of covariance (ANCOVA) was conducted for this study. The independent variable, group intervention (competence skills programme), included two levels: an experimental group and a control group. The dependent variables for the analysis were the posttest scores and the covariate was the pretest scores on the following measures respectively: BFI-Extraversion; BFI-Agreeableness, BFI-Conscientiousness; BFI-Openness; BFI-Neuroticism; and Self-Regulation.

Before the ANCOVA was performed, the Levene's Test for Homogeneity of Variance was done. If found to be significant, the ANCOVA was not performed as the assumption of homogeneity had not been met. Consequently, a Mann-Whitney U test was conducted comparing the posttest scores of the experimental and control groups.

ANCOVA: BFI-Extraversion

The results of the BFI-Extraversion is summarised in Table 49

Table 49

BFI-Extraversion of the Control and Experimental Groups

Group	Mean	Std. Deviation	N
Experimental	28.2	2.4404	10
Control	27.9	3.60401	10
Total	28.05	2.99956	20

The 20 participants ($n=20$) in the sample had a mean score for Extraversion of $\bar{x}= 28.0500$ with a standard deviation of $\sigma = 2.99956$. The 10 participants ($n=10$) in the control group in the sample had a mean score for Extraversion of $\bar{x}= 27.9000$ with a standard deviation of $\sigma = 3.60401$. The 10 participants ($n=10$) in the experimental group in the sample had a mean score for Extraversion of $\bar{x}= 28.2000$ with a standard deviation of $\sigma = 2.44040$. The results of the Levene's test of equality of error variances for Extraversion is summarised in Table 50.

Table 50

Levene's Test of Equality of Error Variances for Extraversion

Dependent Variable: Big5 Extraversion Post			
F	df1	df2	Sig.
18.57	1	18	0

Note. Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + Group + Big5_ Extraversion + Group * Big5_ Extraversion

Levene’s test of equality of error variances was used. The evidence in the underlying assumption of homogeneity of variance for the one-way ANCOVA has not been met, as evidenced by, $F(1, 18) = 18.572, p = .00$. The Levene’s test is positive ($P<0.01$), therefore the variances in the groups are different (the groups are not homogeneous), and the assumptions for ANCOVA are thus not met. A Mann-Whitney U Test was performed comparing the posttest scores of the experimental ($Mdn = 28$) and control group ($Mdn = 29$). No significant difference between groups was found $U = 49, p = .971, r = .01$

ANCOVA: BFI-Agreeableness

The results of the BFI-Agreeableness is summarised in Table 51.

Table 51

BFI-Agreeableness of the Control and Experimental Groups

Dependent Variable: Big5 Agreeableness post			
Group	Mean	Std. Deviation	N
Experimental	26.9	2.5144	10
Control	26.1	9.24302	10
Total	26.5	6.60542	20

The 20 participants ($n=20$) in the sample had a mean score for agreeableness of $\bar{x} = 26.500$ with a standard deviation of $\sigma = 6.60542$. The 10 participants ($n=10$) in the control group in the sample had a mean score for agreeableness of $\bar{x} = 26.1000$ with a standard deviation of $\sigma = 9.24302$. The 10 participants ($n=10$) in the experimental group in the sample had a mean score for agreeableness of $\bar{x} = 26.9000$ with a standard deviation of $\sigma = 2.51440$

The results of the Levene's test of equality of error variances for Agreeableness is summarised in Table 52.

Table 52

Levene's Test of Equality of Error Variances for Agreeableness

Dependent Variable: Big5 Agreeableness Post			
F	df1	df2	Sig.
27.139	1	18	0

Note. Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + Group + Big5_Agreeableness + Group * Big5_Agreeableness

The Levene’s test of equality of error variances was implemented. From the evidence the underlying assumption of homogeneity of variance for the one-way ANCOVA has not been met as evidenced by $F(1, 18) = 27.139, p = .00$. The Levene’s test is positive ($P<0.01$), therefore the variances in the groups are different (the groups are not homogeneous), and the assumptions for ANCOVA are thus not met.

A Mann-Whitney U Test was performed comparing the posttest scores of the experimental ($Mdn = 26.5$) and control group ($Mdn = 30$). No significant difference between groups was found $U = 43, p = .595, r = .12$

ANCOVA: BFI-Conscientiousness

The results for BFI-Conscientiousness is summarised in Table 53.

Table 53

BFI-Conscientiousness of the Control and Experimental Groups

Dependent Variable: Big5 Conscientiousness Post			
Group	Mean	Std. Deviation	N
Experimental	27.1	3.755	10
Control	27.3	6.32543	10
Total	27.2	5.0638	20

The 20 participants ($n=20$) in the sample had a mean score for conscientiousness of $\bar{x} = 27.2000$ with a standard deviation of $\sigma = 5.06380$. The 10 participants ($n=10$) in the control group in the sample had a mean score for conscientiousness of $\bar{x} = 27.3000$ with a standard deviation of $\sigma = 6.32543$. The 10 participants ($n=10$) in the experimental group in the sample had a mean score for conscientiousness of $\bar{x} = 27.1000$ with a standard deviation of $\sigma = 3.75500$. The results of the Levene's test of equality of error variances for conscientiousness is summarised in Table 54.

Table 54

Levene's Test of Equality of Error Variances for Conscientiousness

Dependent Variable: Big5 Conscientiousness Post			
F	df1	df2	Sig.
28.659	1	18	0

Note. Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + Group + Big5_Conscientiousness + Group*Big5_Conscientiousness

The Levene's test of Equality of Error Variances was implemented.

From the evidence the underlying assumption of homogeneity of variance for the one-way ANCOVA has not been met, as evidenced by $F(1, 18) = 28.659, p = .00$. The Levene's test is positive ($P < 0.01$) therefore the variances in the groups are different (the groups are not homogeneous), and the assumptions for ANCOVA are thus not met.

A Mann-Whitney U Test was performed comparing the posttest scores of the experimental ($Mdn = 27.5$) and control group ($Mdn = 25$). No significant difference between groups was found $U = 48, p = .879, r = .03$.

ANCOVA: BFI-Neuroticism

The results of the BFI-Neuroticism is summarised in Table 55.

Table 55
BFI-Neuroticism of the Control and Experimental Groups

Dependent Variable: Big5 Neuroticism Post			
Group	Mean	Std. Deviation	N
Experimental	25.3	1.49443	10
Control	21.5	7.21495	10
Total	23.4	5.43284	20

The 20 participants ($n=20$) in the sample had a mean score for neuroticism of $\bar{x} = 23.4000$ with a standard deviation of $\sigma = 5.43284$. The 10 participants ($n=10$) in the control group in the sample had a mean score for neuroticism of $\bar{x} = 21.5000$ with a standard deviation of $\sigma = 7.21495$. The 10 participants ($n=10$) in the experimental group in the sample had a mean score for neuroticism of $\bar{x} = 25.3000$ with a standard deviation of $\sigma = 1.49443$

The results of the Levene's test of equality of error variances for Neuroticism are summarised in Table 56.

Table 56

Levene's Test of Equality of Error Variances for Neuroticism

Dependent Variable: Big5 Neuroticism Post			
F	df1	df2	Sig.
12.713	1	18	0
Tests the null hypothesis that the error variance of the dependent variable is equal across groups. ^a			

The Levene’s test of Equality of Error Variances was utilised. From evidences, the underlying assumption of homogeneity of variance for the one-way ANCOVA has not been met as evidenced by $F(1, 18) = 12.713, p = .00$. The Levene’s test is positive ($P<0.01$), therefore the variances in the groups are different (the groups are not homogeneous), and the assumptions for ANCOVA are thus not met.

A Mann-Whitney U Test was performed comparing the posttest scores of the experimental ($Mdn = 25$) and control groups ($Mdn = 20.5$). A significant difference between groups was found: $U = 19.5, p = .021, r = .52$.

ANCOVA: BFI-Openness

BFI-Openness is summarised in Table 57 and discussed thereafter.

Table 57

BFI-Openness of the Control and Experimental Groups

Dependent Variable: Big5 Openness Post			
Group	Mean	Std. Deviation	N
Experimental	34.1	4.09471	10
Control	34.5	4.97214	10
Total	34.3	4.43788	20

The 20 participants ($n=20$) in the sample had a mean score for openness of $\bar{x} = 34.3000$ with a standard deviation of $\sigma = 4.43788$. The 10 participants ($n=10$) in the control group in the sample had a mean score for openness of $\bar{x} = 34.5000$ with a standard deviation of $\sigma = 4.97214$. The 10 participants ($n=10$) in the experimental group in the sample had a mean score for openness of $\bar{x} = 34.1000$ with a standard deviation of $\sigma = 4.0947$

The results for the Levene's test of equality of error variances for Openness are summarised in Table 58

Table 58

Levene's Test of Equality of Error Variances for Openness

Dependent Variable: Big5 Openness Post			
F	df1	df2	Sig.
34.127	1	18	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + Group + Big5_Openness + Group * Big5_Openness

The Levene’s test of equality of error variances was utilised. From evidence of the test, the underlying assumption of homogeneity of variance for the one-way ANCOVA has not been met as evidenced by $F(1, 18) = 34.127, p = .00$. The Levene’s test is positive ($P<0.01$), therefore the variances in the groups are different (the groups are not homogeneous), and the assumptions for ANCOVA are thus not met.

A Mann-Whitney U Test was performed comparing the posttest scores of the experimental ($Mdn = 35$) and control group ($Mdn = 35$). No significant difference between groups was found $U = 47.5, p = .850, r = .04$.

ANCOVA: Self-Regulation

The results of the self-regulation of the control and experimental group are summarised in Table 59.

Table 59

SRQ of the Control and Experimental Groups

Dependent Variable: SRQ Total Post			
Group	Mean	Std. Deviation	N
Experimental	217	8.06915	10
Control	203.6	27.67349	10
Total	210.3	20.99649	20

The 20 participants ($n=20$) in the sample had a mean score for self-regulation of $\bar{x} = 210.3000$ with a standard deviation of $\sigma = 20.99649$. The 10 participants ($n=10$) in the control group in the sample had a mean score for self-regulation of $\bar{x} = 203.6000$ with a standard deviation of $\sigma = 27.67349$. The 10 participants ($n=10$) in the experimental group in the sample

had a mean score for self-regulation of $\bar{x} = 217.0000$ with a standard deviation of $\sigma = 8.06915$.

The results for the Levene's test of equality of error variances for self-regulation are summarised in Table 60.

Table 60

Levene's Test of Equality of Error Variances for Self-Regulation

Dependent Variable: SRQ Total Post			
F	df1	df2	Sig.
28.303	1	18	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + Group + SRQ_TOTAL + Group * SRQ_TOTAL

The Levene's test of equality of error variances was utilised. The evidence from the underlying assumption of homogeneity of variance for the one-way ANCOVA has not been met as evidenced by $F(1, 18) = 28.303, p = .00$. The Levene's test is positive ($P < 0.01$), therefore the variances in the groups are different (the groups are not homogeneous), and the assumptions for ANCOVA are thus not met.

A Mann-Whitney U Test was performed comparing the posttest scores of the experimental ($Mdn = 217.5$) and control group ($Mdn = 203.6$). No significant difference was found between groups $U = 37, p = .325, r = .22$.

Discussion of the findings of the comparison of the experimental group posttest data and the control group posttest data indicated that no statistically significant differences between the control group and experimental group were found. The two group pretest/posttest experimental design model includes the basic elements of the experimental design model: an

experimental group, a treatment and a posttest. In addition this study used both a pretest and a control group. These two features enabled the researcher to measure the actual effect of the treatment on the dependent variable and to determine whether or not other factors might have caused a change in the dependent variable.

In this particular study selection bias was inevitable due to high risk participant involvement in the study and the availability of participants who met the inclusion criteria and the fact that it was patients from an outpatient facility. The availability of participants in an outpatient facility proved exceptionally difficult and the researcher tried to lessen the impact on the study and attempted to take it into account in the statistics and analysis. Selection bias affected the assigning of members to the experimental and control groups which resulted in groups that were not homogenous or equivalent. However, the participants involved in the study joined the outpatient facility in different stages of their recovery which might have affected the results.

Wilcoxon: Pretest and Posttest Comparison for Experimental Group on the BFI and SRQ

BFI Pre- and Post-test Comparison for the Experimental Group

The results of the paired samples statistics of the BFI and the SRQ Pre- and Posttest intervention in the experimental group will be discussed in the following section. The BFI pre- and posttest intervention in the experimental group is summarised in Table 61 and discussed thereafter.

Table 61

Paired Samples Statistics of the BFI Pre- and Posttest Intervention in the Experimental Group

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Big5 Extraversion	25.3	10	1.82878	0.57831
	Big5 Extraversion Post	28.2	10	2.4404	0.77172
Pair 2	Big5 Agreeableness	26.8	10	3.15524	0.99778
	Big5 Agreeableness Post	26.9	10	2.5144	0.79512
Pair 3	Big5 Conscientiousness	26.4	10	3.02581	0.95685
	Big5 Conscientiousness Post	27.1	10	3.755	1.18743
Pair 4	Big5 Neuroticism	32.6	10	13.30163	4.20634
	Big5 Neuroticism Post	25.3	10	1.49443	0.47258
Pair 5	Big5 Openness	32.4	10	4.55095	1.43914
	Big5 Openness Post	34.1	10	4.09471	1.29486

The 10 participants ($n=10$) in the experimental group sample had a mean score for extraversion preintervention of $\bar{x} = 25.3000$ with a standard deviation of $\sigma = 1.82878$. The postintervention mean scores for extraversion was $\bar{x} = 28.2000$ with a standard deviation of $\sigma = 2.44040$

The experimental group sample had a mean score for agreeableness preintervention of $\bar{x} = 26.8000$ with a standard deviation of $\sigma = 3.15524$. The postintervention mean scores for agreeableness was $\bar{x} = 26.9000$ with a standard deviation of $\sigma = 2.51440$

The experimental group sample had a mean score for conscientiousness preintervention of $\bar{x} = 26.4000$ with a standard deviation of $\sigma = 3.02581$. The postintervention mean scores for conscientiousness were $\bar{x} = 27.1000$ with a standard deviation of $\sigma = 3.75500$.

The experimental group sample had a mean score for neuroticism preintervention of $x = 32.6000$ with a standard deviation of $\sigma = 13.30163$. The postintervention mean scores for neuroticism were $x = 25.3000$ with a standard deviation of $\sigma = 1.49443$

The experimental group sample had a mean score for openness preintervention of $\bar{x} = 32.4000$ with a standard deviation of $\sigma = 4.55095$. The postintervention mean scores for openness were $\bar{x} = 34.1000$ with a standard deviation of $\sigma = 4.09471$

Wilcoxon: Extraversion

A Wilcoxon signed-ranks test indicated that adolescents scored higher on Extraversion posttest, after the intervention ($\mu = 28.20$), than in the pretest ($\mu = 25.30$), $p = .05$

HYPOTHESIS TEST SUMMARY			
Null Hypothesis	Test	Sig	Decision
The median of differences between Big_5_ Extraversion and Big_5_ Extraversion post equals 0	Related Samples Wilcoxon Signed Rank Test	0.005	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05

Figure 15. Extraversion Hypothesis Testing

Wilcoxon: Agreeableness

A Wilcoxon signed-ranks test indicated that adolescents had similar scores for Agreeableness posttest, after the intervention ($\mu = 26.90$), than in the pretest ($\mu = 26.80$), $p > .05$

HYPOTHESIS TEST SUMMARY			
Null Hypothesis	Test	Sig	Decision
The median of differences between Big_5_Agreeableness and Big_5_Agreeableness_post equals 0	Related Samples Wilcoxon Signed Rank Test	0.439	Retain the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05

Figure 16. Agreeableness Hypothesis Testing

Wilcoxon - Conscientiousness

A Wilcoxon signed-ranks test indicated that adolescents scored higher on Conscientiousness posttest, after the intervention ($\mu= 27.10$), than in the pretest ($\mu = 26.40$), $p > .05$

HYPOTHESIS TEST SUMMARY			
Null Hypothesis	Test	Sig	Decision
The median of differences between Big_5_conscientiousness and Big5_Conscientiousness_post equals 0	Related Samples Wilcoxon Signed Rank Test	0.287	Retain the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05

Figure 17. Conscientiousness Hypothesis Testing

Wilcoxon: Neuroticism

A Wilcoxon Signed-ranks test indicated that adolescents scored significantly lower on Neuroticism posttest, after the intervention ($\mu=25.30$), than in the pretest ($\mu = 32.60$), $p < .01$.

HYPOTHESIS TEST SUMMARY			
Null Hypothesis	Test	Sig	Decision
The median of differences between Big_5_Neuroticism and Big5_Neuroticism_post equals 0	Related Samples Wilcoxon Signed Rank Test	0.007	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05

Figure 18. Neuroticism Hypothesis Testing

Wilcoxon: Openness

A Wilcoxon Signed-ranks test indicated that adolescents scored higher on Openness posttest, after the intervention ($\mu= 34.10$), than in the pretest ($\mu = 32.40$), $p < .05$

HYPOTHESIS TEST SUMMARY			
Null Hypothesis	Test	Sig	Decision
The median of differences between Big_5_Openness and Big5_Openness_post equals 0	Related Samples Wilcoxon Signed Rank Test	0.011	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05

Figure 19. Openness Hypothesis Testing

SRQ Pre- and Post- Test Comparison for the Experimental Group

The results of the SRQ pre- and posttest will be summarised in Table 62 and discussed thereafter.

Table 62

Paired Samples Statistics of the SRQ Pre- and Posttest Intervention in the Experimental Group

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	SRQ Total Pre	209.7	10	7.52846	2.38071
	SRQ Total Post	217	10	8.06915	2.55169

The 10 participants ($n=10$) in the experimental sample had a mean score for self-regulation of $\bar{x} = 209.7000$ preintervention with a standard deviation of $\sigma = 7.52846$. The 10 participants ($n=10$) had a mean score for self-regulation of $\bar{x} = 217.0000$ postintervention with a standard deviation of $\sigma = 8.06915$.

Wilcoxon: Self-Regulation

A Wilcoxon Signed-ranks test indicated that adolescents scored higher on Self-Regulation posttest, after the intervention ($\mu= 217$), than in the pretest ($\mu = 209.70$), $p < .05$.

HYPOTHESIS TEST SUMMARY			
Null Hypothesis	Test	Sig	Decision
The median of differences between SRQ_Total and SRQ_Total_post equals 0	Related Samples Wilcoxon Signed Rank Test	0.041	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05

Figure 20. Self-Regulation Hypothesis Testing

The discussion of the experimental pre- and posttest results indicated that adolescents scored higher on personality traits of Extraversion, Openness, Conscientiousness and higher on self-regulation capacity. Adolescent participants had similar scores on the personality trait agreeableness pre- and posttest and a lower score on the personality Neuroticism.

The areas included in the competence skills programme that was identified for adolescents therefore had a positive impact on the results of the experimental group and can therefore be seen as beneficial for individuals in a group environment. A definite improvement in self-regulation indicated that adolescents managed to develop a better self-regulatory capacity through the intervention. Increased self-regulation capacity enhances adolescent empowerment, expands the adolescents’ inventory of coping strategies and enables adolescents to utilise the cyclical feedback of self-regulation. This in turn assists adolescents to develop, implement, and flexibly maintain planned behaviour in order to achieve their goals.

Lower scores on Neuroticism indicated that adolescents managed to score lower on angry hostility (irritability), anxiety (tenseness), vulnerability (poor self-confidence), impulsiveness and depression through being able to regulate their emotions and behaviour more successfully. Therefore the intervention assisted with achieving a better sense of emotional stability.

The increased score on Conscientiousness indicated that adolescents managed to use the strategies in the intervention to increase their level in goal setting competency (efficiency), self-discipline, order (organisation skills), deliberation (planning and not impulsive decisions) and dutifulness (not careless decisions). In other words, adolescents were able to move away from the lack of direction in their lives through the skills learnt and become more pro-active.

Similar scores on agreeableness were expected as adolescents are prone to be more agreeable than antagonistic despite their substance abuse. Adolescents in the group were more trusting, and straightforward and more compliant as the sessions continued. Scores on the Openness to new experiences was increased. The activities involved in the intervention focused on finding alternative ways to experience the world without substances. Adolescents' curiosity, wide interests, excitability and unconventional views of the world were given an audience in the group environment. The Openness to new experiences was linked to prosocial and risk behaviour. Extraversion increased due the focus on assertiveness and positive emotions as part of the intervention topics. Excitement seeking behaviour is a normal aspect of Extraversion and adolescence and therefore adolescents were motivated and encouraged to find alternative strategies to be adventurous without the activities being linked to risk. The gregarious nature of adolescence was addressed through educational information on the impact of peer pressure and through role plays how these situations can be addressed. The topics included in the intervention can be revisited in chapter 4.

CHAPTER 6

CONCLUSION; STRENGTHS, LIMITATIONS AND RECOMMENDATIONS

6.1 Introduction

The concluding section of this research undertaking will focus on highlighting the most important aspects of the enquiry and recap the hypothesis tested in this report. The strengths and limitations of the study will be discussed and in closing the recommendations for future research will be conferred.

6.2 Conclusion

The major task of the adolescent period, as well as of the transition to adulthood, is to weave together disparate psychological forces and construct a personal identity (Kroger, 2004). The usage of substances and the motivation to use remains a mystery to theorists; therefore there is a constant quest to find answers through research. The reasoning for adolescent usage and relapse despite negative consequences remains unanswered. Genetic and other biological factors have been suggested by some theorists, while others emphasise personality factors or social-environmental factors (Lettieri et al., 1980).

The biopsychosocial model emphasises that substance abuse can be curtailed by making the actual experience less rewarding. In contrast, abstinence or reduced usage should be perceived as a rewarding experience. This change in perception of the reward qualities of substance abuse can be achieved via interventions in more than one domain of an adolescent's life. Therefore programmes that include biological, social, environmental and psychological components might have better success in reducing the prevalence of adolescent substance abuse.

The current study confirmed the findings of Bond et al. (2004) that risk factors for substance abuse can be categorised as follows; (1) individual (developmental delays, personality variables), (2) family (family conflict, coercive parenting, mental illness, low socio-economic status), (3) peer relations (deviant peer-group membership, peer rejection), (4) school (low commitment to school, academic failure), and (5) community (poverty, neighbourhood).

Whereas the psychosocial work of childhood rotates primarily around internalising parental and societal standards, adolescence involves rethinking these positions, developing new personal roles, testing new emotional and psychological boundaries, starting to formulate a life plan and individual goals setting (Meeus, van de Schoot, Keijsers, & Branje, 2012). Some adolescents attempt to delay entrance to adulthood and withdraw from responsibilities (Papalia et al., 2009). Those unsuccessful with this stage (identity vs role confusion) tend to experience role confusion and disruption. Substance abuse, joining of cults and hate groups can possibly be a result of role confusion (Papalia et al., 2009).

Adolescents begin to develop a strong affiliation and devotion to ideals, causes, and friends during adolescence. Family conflict, depression and risky behaviours are more common during adolescence than during any other parts of the life span (Arnett, 1999). It can be concluded that disruptions in an individual's development could cause that individual to turn to substances. Furthermore, the current study confirmed the problem behaviour theory (Jessor & Jessor, 1977), that involvement in any one problem behaviour increases the likelihood of involvement in other problem behaviours.

The problem-behaviour theory distinguishes between protective factors and risk factors (Jessor, 1991). The variables in problem-behaviour theory are protective in nature

which serve as a control against participation in problem behaviour. The purpose and role of the protective factors in adolescence is to assist the adolescent against engaging in problem behaviour. Protective factors impact pro-social behaviour and assist an adolescent in becoming more resilient and optimistic. The current study indicated the factors that played a role in assisting adolescents not to engage in substance abuse activities. The role of risk factors is that they increase the probability of adolescent substance abuse. In the current study, various risk factors was confirmed and discussed that impacts the development of problem behaviours. The major contributions will be discussed and linked with theory and research available as part of the concluding remarks.

The problem-behaviour theory discusses the proneness of adolescents to engage in problem behaviour. The three variables underlying this theory include personality factors, behaviour factors and lastly the perceived environment (Jessor, 1991). Each set of factors serves as either protective factors against problem behaviour, or as encouragements to engage in problem behaviour. The interplay between the encouragers of substance abuse and the protectors against substance abuse impacts on the proneness of the adolescent to engage in problem behaviour.

Individual traits or characteristics of personality are considered as possible factors for the increase of drug use and abuse and in turn the abused substances then have a direct influence on these personality or character traits. Personality traits are expected to relate to specific substance-related motivations, especially motives that are directly related to internal self-regulation, since personality traits are thought to influence the motivation of behaviour in general.

The relationship between personality and problem behaviour has received a lot of attention in research studies. Personality traits are expected to relate to specific substance-related motivations, especially motives that are directly related to internal self-regulation, since personality traits are thought to influence the motivation of behaviour in general. Personality factors consist of different components in the problem-behaviour theory. These components include the adolescent belief and motivational systems and the ability to control impulses (Jessor, 1989).

According to Baumeister and Vohs (2007), self-regulation skills improve an adolescent's ability to be adaptable and flexible in their behaviour. Flexibility is required for a person to be able to adjust to demands of society, as well as specific situations. Acting impulsively may have short-term benefits; however, in the long run it could be costly to adolescents as they act selfishly and display socially unacceptable behaviour. Self-regulation skills thus allow adolescents to display more socially acceptable behaviour, placing their social conscience over selfish impulses (Baumeister & Vohs, 2007; Baumeister & Bushman, 2008). Individual characteristics, family, peers, school and community are possible risk factors that could have a direct impact on adolescents to perform novelty seeking behaviour. The current study highlighted the impact of self-regulation on the development and maintenance of substance abuse as well as the rewards of including self-regulation into a prevention and treatment programme.

Self-regulation furthermore aids adolescents to avoid violation of their internalised morals and values through activating or disengaging internal control. The voluntary action of using self-regulatory principles through positive decision making is influenced by the self-regulatory capacity of the adolescent (Bandura 1991).

The definitive goal of self-regulation is to assist and empower adolescents to manage impulses effectively and develop into psychologically healthy adolescents. Furthermore, self-regulation assists the adolescent to change his weaknesses into strengths. To aid in this process, Miller and Brown (1991) suggested three steps; (1) empowering adolescents, (2) adding to the adolescent's internal coping resources, and (3) encourage adolescents to use feedback to re-establish goals and outcomes. The current study made use of these strategies and a definite positive result was seen in the self-regulatory capacity of the participants.

Therefore, in summary, the self-regulation theory postulates that an adolescent's self-regulatory capacity is directly linked to maintaining planned behaviour. In essence, adolescents with poor self-regulatory capacity are at greater risk to submit to impulses and immediate gratification. Adolescents with intact self-regulatory capacities are able to monitor their emotions and behaviour and use self-reflection and self-observation to assist them to reach their planned outcomes. Therefore, when applying the theory to the current study; substance abuse was associated with low levels of self-regulation and therefore there was greater likelihood of involvement and maintenance of substance usage.

Individual characteristics of the adolescent, the family of origin and the associated peer group can serve as risks or protective factors in the development of a substance abuse problem. Research indicates the following; (1) family factors such as poor family functioning are strongly related to depressive symptoms in adolescents (Bond, Toumbourou, Thomas, Catalano & Patton, 2005), (2) family discord including substance abuse, abuse and neglect, family stress, poor communication styles and parental mental health problems predict self-harming behaviours in adolescents (Miller & Glinski, 2000), and (3) negativistic behaviour is linked to poor parenting, involvement with anti-social peers, early substance use and peer rejection (Bassarath, 2001). These findings were also highlighted in the current study. The

awareness of the demographic attributes and the link to socio-economic status confirms the impact of the environment on the development of substance abuse.

Research has maintained that adolescents are impacted by the education status of their parents as well as other social and economic factors. Studies also concluded that socio-economic status also plays a role. The above-mentioned literature impacts the development and maintenance of either risk or protective factors in adolescence.

The stresses related to low socio-economic environments bring another set of variables that impact adolescent development. The population of adolescents displaying substance abuse behaviour or other forms of delinquency is rife due to a lack of economic and social resources. Resources do not only include monetary resources, but also a lack of parental involvement. Additional pressures are experienced by adolescents who are victims of abuse. Wekerle et al. (2007) indicated that adolescents with a history of maltreatment in the form of abuse or neglect face challenges. These difficulties relate to poor self-regulation of emotions, problems in forming an attachment to others, hyper vigilance, psychiatric concerns, risk-seeking behaviour and a negativistic self-image linked with self-sabotaging behaviours.

Research furthermore indicates that poor family functioning, as a family risk factor, is a leading cause of depression in adolescents (Bond, Toumbourou, Thomas, Catalano & Patton, 2005). Family dissonance which includes all forms of abuse, lack of communication, presence of parental mental disorders, life stressors and neglect are all leading factors in self-destructive behaviours in adolescents (Miller & Glinski, 2000). Anti-social behaviours in adolescents can be related to previous display of anti-social behaviour, socialising with peers with anti-social behavioural characteristics, bullying, peer group rejection, early onset of substance abuse and parents with anti-social behavioural problems (Bassarath, 2001).

The current study once again highlighted the susceptibility of adolescents to abuse substances if there is poor familial relationships, family mental illness, peer pressure as well as parental abuse. Novelty seeking behaviours such as smoking, substance use and abuse and risky sexual activities, are more likely demonstrated by adolescents who grow up in an unstable family environment (Repetti, Taylor & Seeman, 2002; Wills, McNamara, & Vaccaro, 1995). It is thus not unlikely for adolescents who grow up in an at-risk family environment to become involved in the use of various substances, but they are also more likely than adolescents who grow up in high socio-economic environment to abuse various substances.

Family does not only represent the first context in which individual development occurs, but it strongly influences how individuals will experience other important contexts (peers, adult authority, and school), as well as the process and content of identity development (Scabini & Manzi, 2011). Parental socialisation strongly impacts identity formation. Schachter & Ventura (2008) found that parents shape their children's identities by (1) conveying what they believe to be good and proper expressions of self, (2) actively engaging themselves with their children and adjusting their own personal goals to best fit the needs of the child, (3) remaining informed about their child's development within the larger social context, and (4) adopting their own goals and parenting strategies rather than simply rehashing memories of their own parent-child relations. These concepts are crucial in the development of well-adjusted adolescent.

The current study agrees that adolescents learn about the world through experiencing and observing other individuals in the world. Adolescent behaviour can therefore become reinforced through experience or observation. Maladaptive behaviours are also learnt through observation or through experience and can also be reinforced by consistent exposure to maladaptive patterns of behaviour, for example through substance abusing parents. The

opposite is also true for adaptive behaviours. If adaptive behaviour is not reinforced, experienced or observed, it might be rejected by the adolescent due to the lack of reinforcement or available rewards.

Social learning theories assume that adolescents acquire their beliefs about substance use and other delinquent behaviours from their role models, friends, and parents. From this perspective, it is important to provide adolescents with positive role models and teach them refusal skills and the belief that they can resist drugs. The perceived expectations of the impact and effect of abusing a substance are thought processes and therefore seen as cognitions about substance use. Therefore, these cognitions are influenced and susceptible to operant and classical conditioning to abused substances. Due to conditioning, cognitions and expectations of adolescents, substance abuse does not only feature due to the reward of usage, but also through the reaction to stimuli and the consequences of substance abusing behaviours.

The principle of social learning theory (Bandura, 1977) emphasises that an adolescent is self-aware, and is an active participant in the learning process and is not a victim of his own situation. This confirms the importance of the role parents do play in the development of an adolescent. According to Bandura's theory (1977), substance abuse can be understood as an activity that is observed and socially learned. In contrast, adaptive behaviour is seen and defined as a learned functional behaviour. Modelling, imitation, and reinforcement are the processes through which substance abuse behaviour is learned and is impacted by the adolescent's pro-substance beliefs, values, cognitions and attitudes. These concepts, together with a lack of social and life skills, can lead to an adolescent being more open to the abuse of substances.

Imitation and modelling is confirmed in the current study where adolescents report parental substance abuse. This can also be seen as to confirm the biological link of parental abuse and mental disorders and later development of adolescent substance abuse. Imitation and modelling within the group therapy situation furthermore confirmed the positive role that a group activity has on the treatment of adolescent substance abuse.

Group therapy provides a space for members to deal with their emotional difficulties and to promote personal development of the group (Weinberg, 2000). Group therapy allows for both change and growth. Adolescents may receive understanding, support and encouragement from others who are dealing with similar issues (Georgetown University, 2013). Group therapy essentially has a number of rewarding traits that include limiting opportunities for group members to isolate themselves and increasing opportunities for group members to experience other members' journey towards recovery. Witnessing the recovery of others can in turn lead to a desire for self-recovery. The group is presented with the opportunity to change these weaknesses within the four major areas of the individual, namely self-esteem deficits, emotional regulations, self-care and relational problems (Barry, 1999). The current study confirmed the value adolescents receive in being part of a group therapy programme.

The major task of the adolescent period, as well as of the transition to adulthood, is to weave together these contrasting psychological forces and construct a personal identity (Kroger, 2004). Therefore a programme that includes biological, social, environmental and psychological components will have better success in reducing the prevalence of adolescent substance abuse.

The focus of a social competency programme is to diminish problematic behaviour through preventative psycho-education. The goal of social competence is to bring about the reduction of risky behaviours and in turn enhance the development of well-adjusted and healthy behaviour. Ways to reduce an increase in adolescent substance abuse and to prevent new cases being reported in future can be done through primary prevention and early intervention programmes with adolescents. Primary prevention and early intervention with adolescents are also aimed at enhancing positive functioning, promoting protective and resilient factors in the adolescents' social environment as well as within themselves, encouraging more healthy lifestyle behaviours which are inconsistent with substance use and abuse, and minimizing risky behaviour and susceptibility factors. The current study confirmed the need and value of incorporating competency skills as part of preventing and treatment of substance abuse.

The major purpose of psycho-educational groups is multi-faceted. The creation of awareness in adolescents includes the physical, psychological and legal consequences of use. In conjunction with the aforementioned factors, adolescents become aware of the impact of substance abuse on their academic achievement and their relational functioning at school and at home (Rockville, 2005). The incorporation of information is crucial and assists the adolescents to make better decisions and acts as a motivation to seek assistance for their problems (Rockville, 2005).

Corey (2009) stated that groups can neutralise the adolescents' denial about their usage. This can improve commitment to the rehabilitative process and effect change in maladaptive behaviours of the adolescent (Rockville, 2005). Corey (2009) concluded that psycho-educational groups teach adolescents to identify triggers, learn how to avoid triggers and provide assistance in overcoming them. Psycho-educational groups attempt to harbour

participation from adolescents and serve as a learning platform in a way to manage their own substance abuse in a less threatening manner (Hampton et al., 1998). The current study confirmed the importance and necessity of educating adolescents around the impact of substance abuse with regards to the physical, social and psychological impact of substances. As one participant rightfully stated “drugs don’t come with a packages insert that makes you aware of the possible dangers and side effects”.

Programmes that assist, inform and guide adolescents during this developmental stage is therefore pivotal. Psycho-educational groups inform adolescents about the reality of substance abuse, as well as how they can avoid the pitfalls of abuse. The group processes can actively change current behaviour and thought processes by having goal-orientated activities and allow group dynamics to bring about change. These groups can be successful when using the principles of CBT and the factors of the interactional group process as indicated by the current study.

The current study conforms to most of the findings of Ellis et al. (2012) which postulated that an evidence-based adolescent substance abuse treatment approaches should focus on; (1) achieving and maintaining abstinence, (2) addressing problems associated with substance use (family, peers, psychiatric or academic difficulties), (3) sufficient duration and intensiveness, (4) being comprehensive and providing post care and follow-up sessions, (5) be sensitive to cultural, racial and socio-economic factors, (6) include families, (7) promote pro-social activities and a drug-free lifestyle and (8) be provided in the least restrictive setting that is safe and effective. These factors contributed to the effectiveness and success of the programme in the current study. The only limitation of the current study and these objectives was that parents and guardians of adolescents were not included in the programme.

The therapeutic group in the study provided a space for adolescents to mimic learnt behaviour (Yalom, 1995) and experiment with new behaviours in a safe environment. Group participants were able to challenge existing patterns of behaviour and thinking processes and attempt new alternative strategies. For the participants in the group the sense of belonging (Yalom, 1995) allowed them to feel important and valued as individuals despite their substance abusing diagnosis and other substance-related problems (e.g., criminal record). The group process assisted the group members to learn more about themselves, their behaviours, emotions and thought processes whilst learning how other group-members deal with the world, their thoughts, emotions and how they act. The encouragement and motivation among the group members assisted them to want to take responsibility (Yalom, 1995) for their decisions and behaviour. Lastly, the group allowed members to vent and share their frustrations with one another which led to a cathartic release of emotions in a safe environment (Yalom, 1995).

Adolescents will be able to escape the trap of substance abuse if they are adequately informed about the potential hazards and substance-related consequences. Furthermore a programme that assists adolescents with developing internal resources that aid them with resisting group pressures and making effective choices with positive consequences is beneficial for change (Abadinsky, 2001). Lastly, the space available to the adolescent in the group environment is important and this can strengthen confidence and competency in a peer group.

The term hypothesis is derived from the ancient Greek term “hypotithenai” which means to put under or to suppose. Furthermore it is required by the scientific method that a scientific hypothesis can be tested by further investigation (Hillborn & Mangel, 1993).

The hypothesis of the research study was tested and confirmed in the results section and discussed in full in chapter 5. The majority of the findings in the current study were in line with previous literature. The confirmation of the hypothesis changed the hypothesis to a statistic indicator post research. Therefore, the following inferences can be made from the research results in relation to the hypotheses. Adolescents who are abusing substances or who are prone to abuse substances are differentiated from low probability users by means of the Substance Abuse Subtle Screening Inventory (SASSI-A2). Therefore, the SASSI-A2 can successfully be used in screening adolescents who might need assistance with a pre-intervention strategy.

Demographic variables (specifically age, race, gender, educational status of parents, marital status of parents, parental substance use, peer substance use, family mental illness, smoking cigarettes) impact adolescents and influence their predisposition to abuse substances. Adolescent personality traits influence the development of substance abuse. High probability adolescent substance abusers compared to adolescents with a low probability for substance abuse will score lower on the personality traits of conscientiousness, but not low on agreeableness as literature suggests, and higher on neuroticism, openness and extraversion.

Adolescents in the high probability substance-abuse group compared to non-substance abusers scored lower on self-regulation (SRQ). The psychometric profile obtained from demographic attributes, personality traits and self-regulatory capacity of adolescents can to a degree predict the development of substance abuse in adolescence.

The study indicated that the main predictor to use alcohol during adolescence was the personality trait neuroticism. Adolescents who were at high risk for using other substances than alcohol showed a main predictor variable of self-regulation. The lower self-regulation

the greater the risk for abusing other drugs. Furthermore self-regulation of an adolescent was influenced by the personality variables namely extraversion and conscientiousness.

Adolescents with high neuroticism and high agreeableness personality scores were more at risk for having positive attitudes and beliefs around substance abuse. The variables that also influenced the positive attitudes towards abuse of the adolescent was the personality variables namely extraversion and conscientiousness and their self-regulatory capacity.

The awareness of problematic behaviour was influenced by the self-regulation capacity of the adolescent as well as by personality variables namely conscientiousness, neuroticism, agreeableness and openness. Therefore the adolescent with poor self-regulation, low conscientiousness and low openness will be more prone to abuse substances without realising the impact their abuse has; as well as feeling that their behaviour is out of their control. Furthermore, and adolescent will also not be able to recognise their pattern of problematic behaviour.

Adolescents from the high risk group who exhibited extraversion, conscientiousness and agreeableness showed that these personality variables impacts the consequences of substance abuse. The lack of insight and awareness into the substance abuse problem were evidenced if predictor personality variables extraversion and openness were present as well as poor conscientiousness, neuroticism and low self-regulation. Lastly, the extent to which an adolescent is part of a system that enables substance abuse for adolescents who were in the high risk group for substance abuse were more likely to be extroverted and have low self-regulation.

Adolescents receiving a competency skills programme in group format focusing on improving self-regulation will assist them with better adjustment without the use of substances.

The current study furthermore confirms the various risk factors that Guo et al. (2002) established which increase the likelihood of drug abuse during adolescence. These risk factors include; (1) difficult temperament, (2) poor impulse control and tendency to seek out sensation, (3) peer rejection, (4) early initiation to drug use, (5) favourable attitudes towards substance abuse, (6) association with drug abusers, (7) academic failure, (9) early and persistent behavioural problems, particularly aggression, and (10) family influences (genetic predisposition to substances, parental use and abuse of substances, inconsistent parenting practices, family conflict, distant family relationships).

6.3 Limitations of the Study

The fact that participation was voluntary may have had an impact on the generalisability of this study. The self-report methodologies that were typically used in the questionnaires did not include collaborative information with other members of the family. Further research can address this limitation. The researcher has also placed confidence in the adolescents' cognitive understanding of the questions asked and relied on the trustworthiness of participants, despite the concerns of working with the substance abuse community.

The length of the assessment proved to be problematic despite the positive outcome of the pilot studies. Replication of data using other methods of data collection other than self-report measures may be beneficial in spite of fairly consistent and robust findings regarding adolescent substance abuse.

The greatest limitation of this study can be found in Phase Two. The maintenance of sobriety and attendance consistency of the individuals who formed part of the experimental group that were exposed to the competence skill training programme proved to be overwhelming. Motivation and encouragement of participants to attend the intervention because it was done in an outpatient facility, was strenuous.

The establishment of a homogenous group was challenging, as the control group and experimental group profiles of inclusion were difficult to manage. The individuals who were not sober at the initiation of the intervention were therefore clustered in the control group to allow individuals the opportunity to achieve sobriety and be included in the next intervention after the experimental group had completed their intervention.

Furthermore, another limitation of phase one of the present study was its cross-sectional nature, with no opportunity to follow up on the adolescents' patterns of behaviour after the study was concluded. There was also no access to previous behaviour or other health and mental health measures about the adolescents surveyed, which would have provided a better longer-term risk behaviour profile of the adolescents. Some specific limitations associated with using quantitative methods included that quantitative data were more efficient and able to test hypotheses, however lacked contextual detail.

Lastly, the lack of involvement of parents and caregivers in the actual treatment programme was a major limitation in the study as these individuals' impact and contribute in the development of pro-social behaviour in adolescents through the modelling of behaviour on a daily basis. Making necessary changes in the external environment of an adolescent will assist in the confirmation of learnt behaviour as well as the maintenance of skills learnt.

6.4 Strengths of the Study

A possible strength of this study was the rigorous empirical methods that were used, which may have added to the greater pool of international literature and offered insight into adolescent substance abuse in the South African context.

This study was useful in that its findings may be used to inform psychological therapeutic practices in that it may make it possible to obtain some understanding of the relationship between personality traits, demographic attributes and self-regulation as factors impacting and affecting the development of substance abuse in adolescence.

Furthermore, the establishment of the internal reliability of the BFI, SASSI-A2 and the SRQ for use in the South African context was a definite strength, as South Africa has various cultural contexts that need to be taken into account when research is conducted.

Adolescent substance abuse programmes are lacking in South Africa and this study can assist in closing the gap in literature and in providing important information that can be included in programme development that can assist in changing the prevalence of adolescent substance abuse.

6.5 Recommendations for Future Research

More research on the associations between self-regulation and adolescent substance abuse in the South African context is needed, as well as more research on the impact of self-regulation as a concept in its own and its relationship with resilience. Interventions in the educational sector specifically that focus on the importance of self-regulation development are crucial. The younger children are when interventions and strategies are implemented, the more beneficial and lasting for those individuals. Strategies and skills need to be implemented

and taught to children to intervene and address the areas that might have been neglected through parental input.

Self-regulation interventions will assist with emotional and behavioural control, planning and proactive coping and lastly self-control. Mastery of self-regulation from a young age can propel individuals into long-term success and in turn decrease risk behaviours. The more researchers contribute to the education of parents on their practices of teaching children self-regulatory skills and the more interventions from teachers attempting to improve self-regulation strategies, the better the potential for prevention physical and psychological harm to children and thus limiting the chances of developing substance abuse and other forms of psychopathology.

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APPENDIX 1

BIG FIVE INVENTORY (BFI)

Self-Description Inventory Code Name _____ ___ Female ___ Male (check one)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please choose a number for each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly (1) Disagree a little (2) Neither agree nor disagree (3) Agree a little (4)

Agree strongly (5)

I see myself *as someone who ...*

- | | |
|--|--|
| ___ 1. is talkative | ___ 23. tends to be lazy |
| ___ 2. tends to find fault with others | ___ 24. is emotionally stable, not easily upset |
| ___ 3. does a thorough job | ___ 25. is inventive |
| ___ 4. is depressed, blue | ___ 26. has an assertive personality |
| ___ 5. is original, comes up with new ideas | ___ 27. can be cold and aloof |
| ___ 6. is reserved | ___ 28. perseveres until the task is finished |
| ___ 7. is helpful and unselfish with others | ___ 29. can be moody |
| ___ 8. can be somewhat careless | ___ 30. values artistic, aesthetic experiences |
| ___ 9. is relaxed, handles stress well | ___ 31. is sometimes shy, inhibited |
| ___ 10. is curious about many different things | ___ 32. is considerate and kind to almost everyone |
| ___ 11. is full of energy | ___ 33. does things efficiently |
| ___ 12. starts quarrels with others | ___ 34. remains calm in tense situations |
| ___ 13. is a reliable worker | ___ 35. prefers work that is routine |
| ___ 14. can be tense | ___ 36. is outgoing, sociable |

___ 15. is ingenious, a deep thinker

___ 16. generates a lot of enthusiasm

___ 17. has a forgiving nature

___ 18. tends to be disorganized

___ 19. worries a lot

___ 20. has an active imagination

___ 21. tends to be quiet

___ 22. is generally trusting

___ 37. is sometimes rude to others

___ 38. makes plans and follows through with
them

___ 39. gets nervous easily

___ 40. likes to reflect, play with ideas

___ 41. has few artistic interests

___ 42. likes to cooperate with others

___ 43. is easily distracted

___ 44. is sophisticated in art, music, or literature

Please check: Did you write a number in front of each statement

APPENDIX 2

SELF-REGULATION QUESTIONNAIRE (SRQ)

SRQ

Please answer the following questions by circling the response that best describes how you are. If you STRONGLY DISAGREE with a statement, circle ①. If you DISAGREE circle ②. If you are UNCERTAIN or UNSURE circle ③. If you AGREE circle ④, and if you STRONGLY AGREE circle ⑤. There are no right or wrong answers. Work quickly and don't think too long about your answers.

	Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree
1. I usually keep track of my progress toward my goals.	1	2	3	4	5
2. My behavior is not that different from other people's.	1	2	3	4	5
3. Others tell me that I keep on with things too long.	1	2	3	4	5
4. I doubt I could change even if I wanted to.	1	2	3	4	5
5. I have trouble making up my mind about things.	1	2	3	4	5
6. I get easily distracted from my plans.	1	2	3	4	5
7. I reward myself for progress toward my goals.	1	2	3	4	5
8. I don't notice the effects of my actions until it's too late.	1	2	3	4	5
9. My behavior is similar to that of my friends.	1	2	3	4	5
10. It's hard for me to see anything helpful about changing my ways.	1	2	3	4	5
11. I am able to accomplish goals I set for myself.	1	2	3	4	5
12. I put off making decisions.	1	2	3	4	5
13. I have so many plans that it's hard for me to focus on any one of them.	1	2	3	4	5
14. I change the way I do things when I see a problem with how things are going.	1	2	3	4	5
15. It's hard for me to notice when I've "had enough" (alcohol, food, sweets).	1	2	3	4	5
16. I think a lot about what other people think of me.	1	2	3	4	5
17. I am willing to consider other ways of doing things.	1	2	3	4	5
18. If I wanted to change, I am confident that I could do it.	1	2	3	4	5
19. When it comes to deciding about a change, I feel overwhelmed by the choices.	1	2	3	4	5
20. I have trouble following through with things once I've made up my mind to do something.	1	2	3	4	5
	Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree

	Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree
21. I don't seem to learn from my mistakes.	1	2	3	4	5
22. I'm usually careful not to overdo it when working, eating, drinking.	1	2	3	4	5
23. I tend to compare myself with other people.	1	2	3	4	5
24. I enjoy a routine, and like things to stay the same.	1	2	3	4	5
25. I have sought out advice or information about changing.	1	2	3	4	5
26. I can come up with lots of ways to change, but it's hard for me to decide which one to use.	1	2	3	4	5
27. I can stick to a plan that's working well.	1	2	3	4	5
28. I usually only have to make a mistake one time in order to learn from it.	1	2	3	4	5
29. I don't learn well from punishment.	1	2	3	4	5
30. I have personal standards, and try to live up to them.	1	2	3	4	5
31. I am set in my ways.	1	2	3	4	5
32. As soon as I see a problem or challenge, I start looking for possible solutions.	1	2	3	4	5
33. I have a hard time setting goals for myself.	1	2	3	4	5
34. I have a lot of willpower.	1	2	3	4	5
35. When I'm trying to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
36. I usually judge what I'm doing by the consequences of my actions.	1	2	3	4	5
37. I don't care if I'm different from most people.	1	2	3	4	5
38. As soon as I see things aren't going right I want to do something about it.	1	2	3	4	5
39. There is usually more than one way to accomplish something.	1	2	3	4	5
40. I have trouble making plans to help me reach my goals.	1	2	3	4	5
41. I am able to resist temptation.	1	2	3	4	5
42. I set goals for myself and keep track of my progress.	1	2	3	4	5
43. Most of the time I don't pay attention to what I'm doing.	1	2	3	4	5
44. I try to be like people around me.	1	2	3	4	5
	Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree

	Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree
45. I tend to keep doing the same thing, even when it doesn't work.	1	2	3	4	5
46. I can usually find several different possibilities when I want to change something.	1	2	3	4	5
47. Once I have a goal, I can usually plan how to reach it.	1	2	3	4	5
48. I have rules that I stick by no matter what.	1	2	3	4	5
49. If I make a resolution to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
50. Often I don't notice what I'm doing until someone calls it to my attention.	1	2	3	4	5
51. I think a lot about how I'm doing.	1	2	3	4	5
52. Usually I see the need to change before others do.	1	2	3	4	5
53. I'm good at finding different ways to get what I want.	1	2	3	4	5
54. I usually think before I act.	1	2	3	4	5
55. Little problems or distractions throw me off course.	1	2	3	4	5
56. I feel bad when I don't meet my goals.	1	2	3	4	5
57. I learn from my mistakes.	1	2	3	4	5
58. I know how I want to be.	1	2	3	4	5
59. It bothers me when things aren't the way I want them.	1	2	3	4	5
60. I call in others for help when I need it.	1	2	3	4	5
61. Before making a decision, I consider what is likely to happen if I do one thing or another.	1	2	3	4	5
62. I give up quickly.	1	2	3	4	5
63. I usually decide to change and hope for the best.	1	2	3	4	5
	Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree

APPENDIX 3

DEMOGRAPHICS QUESTIONNAIRE

DEMOGRAPHIC ATTRIBUTES

1. Sex? Male ☐ Female ☐
2. Age? _____ years
3. Place of birth? Urban ☐ Rural ☐
4. What race or ethnicity do you consider yourself?
 Black ☐ White ☐ Coloured/Mixed Race ☐ Indian/Asian ☐
5. What is the marital status of your parents?
 Married ☐ Divorced ☐ Widowed ☐ Stepparents ☐ Single ☐
 Other(specify) _____
6. Your Father's educational level?
 No Schooling ☐ Grade 1-6 ☐ Grade 7-12 ☐
 Certificate/Diploma ☐ Degree ☐ Post Graduate Degree ☐
7. Your Mother's educational level?
 No Schooling ☐ Grade 1-6 ☐ Grade 7-12 ☐
 Certificate/Diploma ☐ Degree ☐ Post Graduate Degree ☐
8. Your educational level?
 No Schooling ☐ Grade 1-6 ☐ Grade 7-12 ☐
 Certificate/Diploma ☐ Degree ☐ Post Graduate Degree ☐
9. Who are the people who live in your household for the better part of the year?
Please mark all the individuals who live in your household for the better part of the year.

Biological Father	☐	Step-Father	☐	Maternal Grandfather	☐	Paternal Grandfather	☐
Biological Mother	☐	Step-Mother	☐	Maternal Grandmother	☐	Paternal Grandmother	☐
Sisters	☐	Brothers	☐	Uncles	☐	Aunts	☐
Lodgers	☐	Other (Specify)	☐	_____			

10. In what type of place do you stay? _____
(eg. House, Flat, Townhouse, Complex, Room etc.)

11. How many people stay in the household?

12. How many bedrooms are there?

13. Do you have your own room? Yes ☐ No ☐

14. What is your definition of substance abuse? _____

15. Do you think your Father abuse alcohol or any other drug? Yes ☐ No ☐

If yes, which drugs are his preferred choice? _____

16. Do you think your Mother abuse alcohol or any other drug? Yes ☐ No ☐

If yes, which drugs are her preferred choice? _____

17. Have you ever used alcohol? Yes ☐ No ☐

If yes, how often do you use alcohol? _____

18. Have you ever used any drugs? Yes ☐ No ☐

If yes,

How often do you use drugs? _____

What type of drugs do you use? _____

Why do you use drugs? _____ Is

there anything that will convince you to stop? _____

If no, why not? _____

19. Have you ever been in trouble for using drugs or alcohol? Yes ☐ No ☐

If yes, how and where? _____

20. Have you ever been to a rehabilitation centre for a drug or alcohol problem?

Yes ☐ No ☐

If yes, when and how long? _____

21. Is there anyone in your family that has a drug or alcohol problem that you know of?

Yes ☐ No ☐

If yes, please specify who and what substance? _____

22. Is there anyone in your family that has been diagnosed with any mental illness?

Yes ☐ No ☐

If yes, please specify who and for what? _____

23. Do you have friends that you know uses drugs? Yes ☐ No ☐

If yes, what type of drugs? _____

Why do you think they use drugs? _____

24. Do you smoke? Yes ☐ No ☐

If yes,

On awakening in the morning, how long before you feel that you need a cigarette?

Less than 30 minutes ☐ 30 – 60 minutes ☐ More than 60 minutes ☐

How many cigarettes do you smoke per day? _____

How many cigarettes do you smoke per day? _____

Do you wish to stop smoking? Yes ☐ No ☐

25. Have you ever smoked marijuana / dagga? Yes ☐ No ☐

If yes, why? _____

26. Please indicate what of the following properties your parents have in your household.

Refrigerator	☐	Vacuum cleaner	☐	Television	☐	DVD Player	☐
Radio	☐	Microwave	☐	Kitchen sink	☐	Flush toilet	☐
Motor Car	☐	Domestic servant	☐	Stove or Hotplate	☐	Bank account or credit card	☐
Having an account at a retail store	☐	X-Box Wii Playstation	☐	Computer or Laptop	☐	Cell phone	☐
Running water in the home	☐	Washing machine	☐				

APPENDIX 4

LETTER OF CONSENT

Department of Psychology

Faculty of Humanities and Social Sciences

Private Bag X2046

North West University (Mafikeng Campus)

Mmabatho

2735



CONSENT FORM

Dear Respondent

First of all I would like to thank you for showing interest in taking part in this research. My name is Ilze Barnard and I am a post graduate student at North West University (Mafikeng Campus) in the Department of Psychology. At the moment, I am conducting research to complete my PhD. The aim of this research is to investigate and generate information on the personality profiles and self-regulation abilities of adolescent non-substance abusers and compare that with the profiles of adolescent substance abusers. The aim of this study is to write an intervention programme to assist adolescents with the necessary skills to contest the lure of substance abuse. Please note the following:

- You will not be expected to write your name on any of the questionnaire pages.
- The experimental protocol, i.e., the extent, aims and method of research will be explained in detail on the data collection day.

- Access to the records that pertain to your participation in the study will be restricted to persons directly involved in the research.
- Any questions that you might have regarding the research, or related matters, will be answered by the researcher;
- Participation in this research is voluntary and you can withdraw your participation at any stage.

If you are interested and willing to participate, please sign the form at the back of this document.

I _____ hereby voluntarily consent to participate in the research project and is aware of the fact that all information is confidential.

Signature of participant

Signature of parent/legal guardian

Date: _____

Date: _____

Ilze Barnard (Clinical Psychologist)
PhD Student
076 771 7746

Prof. E.S. Idemudia
Research Supervisor
(018) 389-2424

APPENDIX 5

GROUP SESSION RATING SCALE

Group Session Rating Scale (GSRS) (ages 13 to adult)

Name _____ Age (Ym): _____ Session # _____ Date: _____

Please rate today's group by placing a mark on the line nearest to the description that best fits your experience.

I did not feel understood, respected, and/or accepted by the leader and/or the group.	Relationship _____	I felt understood, respected, and accepted by the leader and the group.
We did not work on or talk about what I wanted to work on and talk about.	Goals and Topics _____	We worked on and talked about what I wanted to work on and talk about.
The leader and/or the group's approach is a not a good fit for me.	Approach or Method _____	The leader and group's approach is a good fit for me.
There was something missing in group today—I did not feel like a part of the group.	Overall _____	Overall, today's group was right for me—I felt like a part of the group.

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APPENDIX 6
CONFIRMATION OF LANGUAGE EDITING

DECLARATION

TO WHOM IT MAY CONCERN

I hereby declare that I, NM Erasmus edited the dissertation done by Ilze Barnard in order to obtain a Doctorate in Philosophy in Psychology at the North West University.

I am a qualified Language Practitioner and also a member of the South African Translation Institute (Membership number: 1002449).

NM Erasmus

ID number: 5412290086083

MA Language Practice (University of the Free State)

12 November 2015

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