

**MIDLANDS STATE UNIVERSITY**



**FACULTY OF SOCIAL SCIENCES**

**DEPARTMENT OF PSYCHOLOGY**

**RISK FACTORS FOR SUBSTANCE ABUSE AMONG HARARE NORTHERN  
CENTRAL DISTRICT HIGH SCHOOL ADOLESCENTS**

**BY**

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**A DISSERTATION SUBMITTED TO THE FACULTY OF SOCIAL SCIENCES IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF  
MASTER OF SCIENCE IN COMMUNITY PSYCHOLOGY DEGREE**

**GWERU, ZIMBABWE**

**OCTOBER, 2017**

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HARARE NORTHERN CENTRAL DISTRICT HIGH  
SCHOOL ADOLESCENTS.**

**DEGREE FOR WHICH THE DISSERTATION WAS PRESENTED: MASTER OF SCIENCE IN  
COMMUNITY PSYCHOLOGY DEGREE**

**YEAR GRANTED : 2017**

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## **DEDICATION**

This research is dedicated to my mother for always being my true north helping me keep my bearings and giving direction always.

## ACKNOWLEDGEMENTS

First of all, I would like to thank God for his mercies which are new every morning, am grateful. Thank you, Lord, This academic journey would have been impossible without the support of many people; therefore, I am indebted to the following:

His Excellency the president of the republic of Zimbabwe for his visionary leadership and policies on educating the girl child. *Tinotenda Gushungo*

My special gratitude and appreciation go to my research supervisor, Mrs Neddie Ncube, for taking the responsibility of the supervision role and for her guidance and support.

I would like to express my heartfelt gratitude and appreciation to my lecturers; Mr Maunganidze, Mr Nceda-Moyo, Prof Mudhovozi and Dr Mutambara, for their excellent guidance and unlimited mentorship and support throughout the study years. You have inspired me greatly.

MCP class of 2017 could never ask for a better class. Thank you so much for being family and may your stars shine brighter.

To the many boys and girls who took their time to be participants in the study, the school heads and teachers for your assistance, I am forever indebted to you.

I am grateful to my friends Copine Irakoze, Fatima Mapuke and Happiah Revai for being a source of information, constant moral support and advice. Your friendship is very close to my heart. To my big family for the many roles you played as I pursued my studies am grateful.

Last but not least my words of thanks go to my family for their support and encouragement. To my husband Derrick Dari for his love, tireless support, encouragement and patience “selflessness redefined” *ndotenda wagona*. Special

thanks go to our children Danai Jayden and Dane Mukudzei for their patience, understanding and help while I was busy with my studies and unable to be with them when they needed me. I love you guys a trillion times to the moon and back.

## ABSTRACT

The research sort to assess risk factors associated with substance abuse among Harare Northern Central District High School adolescents. The researcher observed that substance abuse is becoming a dominant element that impedes physical and psychological functioning amongst students. Therefore the research was directed towards identifying individual, environmental and lastly demographic risk factors for adolescent substance abuse. A non-experimental exploratory descriptive research design was used with 1 928 adolescents aged 12-19 who were sampled using multilevel stratified cluster random sampling from 29 schools in Harare northern central district. The SASUCRI self-report questionnaire was used as the research instrument. Data was analysed using STATA to determine both descriptive and inferential statistics. Fisher's exact test of association, Pearson product moment correlation were used together with logical regression models. Demographic risk factors were not a significant predictor of adolescent substance abuse. Peer influence (CI 3.41-7.1),  $p < 0.001$  had the highest likelihood of influencing substance abuse. Individual and environmental risk factors for adolescent substance abuse may not necessarily mean causality but continue to interact with each other to pose as risk factors for adolescent substance abuse to the developing adolescents in Harare northern central district. Future interventions to address adolescent substance use need to focus on the context of interactions between individual and environment as risk factors seem to lie in those domains.

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## **CHAPTER ONE: INTRODUCTION**

### **1.1 Introduction**

This chapter gives information concerning the background to the study as well as the statement of the problem leading to the conceptualisation of this study. The significance of the study to a variety of stakeholders is highlighted and fundamental research questions guiding the study articulated. The assumptions, purpose of the study, delimitations and limitations are indicated definition of terms and operationalising them as they are used in this study.

### **1.2 Background to the study**

Developing countries and their public health systems are under threat from substance abuse related problems (WHO, 2004). Alcohol, tobacco and illegal drugs are the commonly used substances by adolescents. Over 80% of substance use begins in adolescence (McGinnis & Foege, 1993). It is estimated that 13 million youths aged 12 to 17 become involved in alcohol, tobacco and other substances annually (Hoberg, 2001). Lang (1985) found that more than half of the high school seniors surveyed reported drinking before the tenth grade. He also postulated that 48.7% of high school students were regular drinkers, and 15% of the students fit the criteria for heavy drinking. In a survey of over 16,000 high school seniors. Johnston, O'malley, Bachman, and Schulenberg (2011) found that 93% of the students surveyed had taken alcohol at least once in their lives, 72% had used it within the past month and 6% used alcohol on a daily basis.

In America marijuana is the most widely used illicit drug, followed by stimulants, inhalants, hallucinogens, and cocaine (Johnston, O'Malley, Bachman, & Schulenberg, 2006). Adolescent in Czech Republic commonly use cannabis (45.1 %), Australian adolescents who used ecstasy are 4.7 % of the total adolescent population, Zambia had a significant number of adolescents using cannabis (35.3%) (WHO 2014). The Wisconsin Study conducted by the Search Institute

(1991) indicated that 34% of high school seniors have used marijuana one or more times in their lives. Johnston et al. (2006) found that 60% of high school seniors reported marijuana use, with 9% admitting that they used marijuana on a daily basis. It was also found that four out of ten high school seniors have used an illicit drug other than marijuana. Drugs and Crime (2010) reported that cocaine use is increasing among American high school students, with 17% reporting that they have used the drug at least once.

The South African Community Epidemiological Network on Drug Use (SACENDU) (2015) indicated that 16% of patients treated for substance use in Cape Town during the second half of 2011, were under the age of 20. Drugs commonly used by youth in Zimbabwe in descending order include alcohol, inhalants (solvents), amphetamines and cannabis. Others include mandrax, tranquilisers, sedatives and the hallucinogen (Acuda & Eide, 1984)

Substance abuse amongst adolescents is attributed to various risk factors. Hawkins, Catalano, and Miller (1992) cluster the causes into three distinct groups namely the individual risk factors, environmental risk factors and demographic risk factors. An adolescent disposition and milieu are statistically associated with the probability of increased or decreased substance abuse (Odgers et al., 2008).

Individual risk factors are inherent within the individual such as genetics, temperament, prenatal substance exposure, psychiatric comorbidity, sensation seeking behaviour and physiological response to substance. While environmental risk factors lie within an individual's environment such as family, peers, societal and cultural norms, legal statutes and socio-economic status.

Genetic factors influence the development of substance abuse as indicated by twin studies of children of alcoholics where despite being in a protective environment they were involved in substance abuse. Children of alcoholics are twice more likely to end up alcoholics themselves (Earls, Reich, Jung, & Cloninger,

1988). Bahr, Hoffmann, and Yang (2005) highlighted that individual responses to drugs, represent a complex interplay of biological features and actively play a role in adolescent vulnerability to substance abuse

Temperament constitute a risk factor through the individual's interaction with the environment (Windle & Windle 1999). Some individual's temperaments, in the face of environmental stressors are more likely to end up involved in substance abuse. Glantz et al 1999 highlights the risk temperamental clusters to be behavioural disinhibition, sensation seeking and difficult temperament.

Prenatal substance abuse by parent exposing the neonate to alcohol or drugs prior to birthing is a risk factor as adolescents who have been exposed to prenatal substance abuse are more likely to end up engaging in early substance use which later progresses to substance abuse (Bierut et al., 1998). The earlier the initiation of substance use, the higher the chances of dependence (Everett et al., 1999) and the lower the probability of cessation. Grant and Dawson (1997) indicated that rates of lifetime dependence declined from more than 40% among individuals who started using substances at ages 14 or younger to roughly 10% among those who started using at ages 20 and older.

Researchers have indicated that demographic variables such as age and gender can act as a risk factor to adolescent substance abuse (Sussman, Skara, & Ames, 2008; Zucker & Harford, 1983). Male sons of alcoholics are more likely than females to be involved in substance abuse (Schuckit & Smith, 1996), while more males are involved in substance abuse in comparison to females (Rudatsikira, Maposa, Mukandavire, Muula, & Siziya, 2009). Hoffmann and Cerbone (1999) indicated a positive relationship between early age of onset and progression to substance abuse.

Psychiatric comorbidity of substance abuse and a mental disorder have a higher rate of occurring thereby indicating that existence of a mental disorder is a risk factor to adolescent substance abuse (APA, 1994; Preuss et al., 2002). Abram

(2016); Grant and Dawson (1997) highlight that adolescents involved in substance abuse demonstrate impairment in capacities for abstraction, cognitive flexibility, attention, working memory and goal persistence which are consistent with executive cognition function.

Peer pressure is when adolescents act to conform to the in-group. Hoffmann and Cerbone (1999) state that peers who use illicit substances are a strong predictor to adolescent substance use. Hoberg (2001) notes that there has been an excessive growth in substance use among adolescents who go to school which could indicate the role of peer influence in substance abuse. He further refers to the alarming increase in the popularity of club drugs and drug parties among school-going adolescents. Rejection by peers in the early years is also a predictor of substance abuse (Eitle, 2005) during adolescence as it propagates an impaired self-esteem. Impaired self-esteem has been noted in studies with adolescent involved in substance abuse (Madu & Matla, 2003).

Baumrind (1991) linked parenting styles grouped into discrete subtypes, namely authoritative, authoritarian, and permissive and its subtype neglecting/rejecting, to adolescent substance use. Specifically, authoritarian and permissive parenting styles were linked to a higher rate of substance use in adolescents. Parents or siblings who are alcoholic or use drugs are likely to influence the adolescent through modelling, exposure to marital discord and stress (Mason, Kosterman, Hawkins, Haggerty, & Spoth, 2003). Becvar and Becvar (2012) noted that a common characteristics of families as risk factors for substance abuse is they are distant which prevent support and enmeshed families which prevent autonomy of its members. Disconnection from parents due to family conflict or poor family management can lead directly to substance abuse or indirectly by causing development of other mental disorders such as general anxiety disorders and depression as indicated in the DSM V and result in comorbidity with substance abuse (Baril, 2008).

Ramlagan, Peltzer, and Matseke (2010) found that some of the perceived reasons for drug abuse are poverty, idleness, boredom, living in an area surrounded by substance users, long working hours and living a stressful life. According to Drugs and Crime (2010) substance abuse is aggravated by multifaceted socio-economic challenges such as joblessness, poverty and crime in general and these societal problems are distressing a lot of communities. Drug dealers are manipulating young people into using substances so that once they are addicted they can also influence their friends to take substances (UNODC, 2010). Many young people appear to consider substance experimentation as a standard shift into adulthood and only a few think of the negative consequences of dependence on substances (Madu & Matla, 2003; Mash & Wolfe, 2012).

There are a myriad of studies showing that low socioeconomic status is linked with substance abuse (Hawkins et al., 1992) such that economically disadvantaged adolescent are considered as a risk group in relation to substance abuse (Mudavanhu, 2013). Low socioeconomic status is associated with neighborhood disorganization characterized by high population density, physical deterioration, high level of crime and drug trafficking (Jackson & Butler, 2015). Recently the assumption that economic privilege confers protection from substance abuse among privileged adolescents has been called into question (Levine & Kozak, 1979; Luthar & Latendresse, 2002).

Koplewicz, Gurian, and Williams (2009) indicated that affluent adolescent are a newly identified at-risk group. They noted that "affluenza", a metaphorical illness connoting hyper investment in material wealth, is rapidly spreading among upper-middle class, white-collar families. The children concomitantly show elevations in substance use. Evidence from community studies, in fact, indicates that substance abuse among the affluent adolescent stems from psychological factors such as heightened anxiety and depression which Luthar (2003) attribute to pressure.



Chopra and Sanders (2004) noted that a country's integration into the global economy causes it to lose several protective trade barriers and makes its population more prone to be exposed to substance abuse and drug trafficking thereby increasing availability of illicit drugs amongst the country's population. Acuda and Eide (1984) indicated that cannabis (mbanje) remains the most popular drug in Zimbabwe, mainly because it is either grown locally or smuggled in from neighbouring countries like Malawi and Mozambique indicating what Hawkins, Lishner, Catalano Jr, and Howard (1986) argue that availability of various substances acts as a risk factor to the adolescent population.

Societal values and attitudes favourable to substance use also pose as a risk factor to adolescents (Eide & Acuda, 1996). Kandel et al (1978) state that the inability to implement laws regulating availability, alcohol sales, and drug trafficking pose as a risk factor to the adolescents by making alcohol and illegal drugs much more available. Children who achieve higher scores on school readiness or IQ tests in early stages of school face achievement pressures to continuously achieve high scores. Such children predicted earlier and more frequent use of alcohol in adolescence (Travers, 2014). Academic failure and poor performance has also been positively correlated with increased levels of illegal drug usage in school going adolescents (Shehu & Idris, 2008).

The mortality and morbidity resulting from substance use is grave especially when one considers the age of initiation, harmful and dangerous patterns of use. (Hawkins et al., 1986; Organization, 2002) estimated that approximately 70% of premature adult deaths are due to behaviours which began during adolescence. McGinnis and Foege (1993); Organization (2002) estimated that everyday more than 13 000 people around the world die from tobacco related diseases which translates to a person dying every 6 seconds.

The continued rise of substance abuse among adolescents globally, brings with it a myriad of biological, psychological and social problems which affect the

adolescents, families, communities and nations (Brook, Brook, Pahl, & Liddle, 2006). The risk factors which increase probability of adolescence substance abuse lie within three categories the Individual, environmental and demographic domains. The three domains continuously interact with each other. A risk factor in one domain can aggravate the risk factors within the other domain, giving rise to substance abuse (Darling, 2007). Understanding risk factors for adolescents' substance use can greatly reduce rates of substance dependence and other negative consequences of substance abuse within the global population (Gesten & Jason, 1987).

### **1.3 Statement of the Problem**

Substance abuse is a nexus linking various problems such as adolescent pregnancy, HIV, mental disorders, road traffic accidents, school dropouts and deaths. Substance abuse related deaths continue to derail the economic success of Zimbabwe as well as the success of the ZimASSET economic blueprint as both consider the youths to be the torch bearers of the country's future.

Globally, substance abuse causes 6.975 million deaths annually (12.4% of total deaths). Of the total global funding that goes towards disability funding a loss of 131 million dollars (8.99 %) can be accounted against substance abuse through Disability Adjusted Life Years (DALY) (WHO, 2002). Some of the negative consequences of alcohol misuse include trauma, violence, unsafe sexual practices, organ system damage as well as harmful effects to family life, the criminal justice system and to the employment and social development sectors (Zucker & Harford, 1983).

### **1.4 Significance of the study**

The risk factors of adolescence substance abuse will not necessarily be the same over time and in different contexts, hence the findings seeks to inform the following:

- **Parents:** Knowing and understanding risk factors which contribute to development of adolescent substance abuse may help parents ensure protective factors are in place to curb the development
- **Mental Health practitioners:** The findings may help them design effective contextually relevant intervention programmes that address risk factors of adolescent substance abuse
- **SADC Parliamentary forum legislators:** In depth understanding of the risk factors can inform policy makers on legislation and bans that help safeguard the adolescent against substance abuse
- **Adolescents:** understanding the risk factors may equip the adolescents to assess their levels of risk
- **MopSE:** The study can provide insight into the determinants of substance abuse that place school going adolescents at risk. Identifying determinants will be crucial to inform age and context appropriate substance abuse -related intervention strategies.

### **1.5 Assumptions**

All adolescents in Harare northern central district high schools are at risk of substance abuse and aged 12-19. All responses given will be taken as true.

### **1.6 Purpose of the study**

The aim of this research was to identify the risk factors for substance abuse amongst the adolescents in Harare northern central high schools. It sought to analyze risk factors of substance abuse and their relationship with substance use/abuse among the diverse adolescent population in the Harare northern central district urban high schools

### **1.7 Research questions**

- What are the Individual risk factors of adolescent substance abuse?

- Are there any Environmental risk factors of adolescent substance abuse?
- Which demographic factors pose risk for adolescent substance abuse?

### **1.8 Delimitation of the study**

The study will be conducted with adolescents in the 29 public schools, private schools and independent colleges enrolled at high schools in Harare northern central district in the year 2017. The adolescents are aged between 12 to 19 years. The study will examine risk factors in the demographic, individual and environmental domain of the adolescents.

### **1.9 Limitations**

The data was collected from northern central district only and the findings cannot therefore be generalised to all adolescents in Harare. The sample consisted of school going adolescents enrolled in formal and registered colleges in Harare urban only but they are unregistered colleges, adolescents being home schooled and others who have dropped out of school altogether. Self-report questionnaires were used in the current study which are not always considered reliable for capturing participant's true opinion as they tend to provide socially desirable responses in over reporting or under reporting as indicated in the outliers of the regression model. The instrument itself though valid and reliable in an African context (South Africa) it's still need to be investigated further to examine validity and reliability of the scale among adolescents in Zimbabwean communities. The school environment as a stressor was not taken into consideration in the study though it is considered a major risk factor for adolescence substance abuse. Perhaps one of the most felt limitation was grouping together drugs that could be abused as literature indicated that epidemiology for different drugs differs significantly. Therefore, the current study could not produce knowledge about individual inferences for specific drugs

### **1.10 Definition of terms**

- **Substances:** "chemicals, psychoactive substances that are prone to be abused".

These chemical substances are both therapeutic and can be used for fun. These chemical substances can be administered in various ways for example orally, inhaled or injected (Organization, 2002). Substance will refer to cannabis, tobacco, alcohol, marijuana, cocaine, heroin and any other prescriber or illicit drug used for intoxication by adolescence in this study.

- **Substance abuse:** is a maladaptive pattern of drug use leading to clinically significant impairment or distress (APA, 1994). In the current study substance abuse will refer repeated use of alcohol, tobacco and permissible and illicit drugs that has the consequences of an individual failing to accomplish school and family responsibilities and therefore suffering the consequences.
- **Adolescence:** is the developmental bridge between childhood and adulthood where development continues to take place in the following domains physical, cognitive, personality and social. The development is affected by both nurture (environmental factors) and nature (biological factors) (Santrock 2002). In this research adolescents will refer to person aged between 12-19 years and currently in high school
- **Risk factors:** are those characteristics, variables, or hazards that, if present for a given individual, make it more likely that this individual, rather than someone selected at random from the general population, will develop a disorder (Mrazek and Haggerty 1994). A risk factor in this study will refer to any individual or environmental attribute that increases the likelihood of developing adolescent substance abuse
  - **Individual risk factors:** are those risk factors which belong to the persons disposition and exist within them as a permanent element or attribute such as gender and temperament (Baril, 2008). This study will define it as an attribute/ characteristic within the adolescent that increases the likelihood of developing substance abuse
  - **Environmental risk factors:** are those risk factors that are found within the individuals microsystem, mesosystem, exosystem and macro system

and may shift over time as the various systems continue to interact in flux (Bronfenbrenner, 1995). In this study the environmental risk factor will be described as an attribute/ characteristic within the adolescents ecology that increases the likelihood of developing substance abuse

- Demographic risk factors are linked to any individual's population characteristics such as age and gender (Beman, 1995). In this study the demographic risk factors will be described adolescents age, gender and type of school attended.

### **1.11 Chapter summary**

The chapter looked at the prevalence of substance abuse globally as well as the risk factors within the individual domain and environmental domain in the background to the study. A reflection of the various problems emanating from substance abuse were captured as part of the statement of problem. Various stakeholders who could benefit from the study were indicated and it was stated in what way they could benefit from it. Research questions on the risk factors of substance abuse were raised. Assumptions about the study were articulated as well as the aim and objectives of the study. The physical boundaries of the study were indicated and limitations highlighted. The recurring terms of the study were defined and operationalized for the study.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The chapter explores literature related to risk factors of adolescence substance abuse and the theoretical framework guiding the study. Also given are previous studies from which the knowledge gap is identified

### **2.2 Adolescence**

At around age 11, a child begins the journey into adolescence, which last until around 20 years of age. Louw, Van Ede, Ferns, Schoeman, and Wait (1998) describe adolescence as the developmental bridge between childhood and adulthood. During adolescence development continues to take place in the following domains physical, cognitive, social and emotional. The development is affected by both nurture (environmental factors) and nature (biological factors) (Santrock, 2012).

#### **2.2.1 Physical growth**

Rapid physical development as well as development of sexual maturity also known as puberty occurs during adolescence. Rates of sexual maturation differ amongst adolescents and this contributes to adolescents' experiences of varying emotions and uncertainty about their sexuality (Feldman, 2016). Adolescents report less favorable moods than school age children and adults (Berger, 2003). Moods of older adolescents are generally more stable than those of younger adolescents (Champion, Goodall, & Rutter, 1995). Littlefield-Cook, Cook, Berk, and Bee (2005) indicated that another contributor to adolescent moodiness is change in sleep schedules. Sleep deprived adolescents are more likely to suffer depressed mood, achieve poorly in school and engage in high risk behaviors.

Adolescence uncertainty has been cited as one of the major reasons why adolescents conform to such a greater extent to peer groups for norms and sexual behaviour (Koepke & Denissen, 2012). The physical changes occurring in the body have to be integrated into their body image, self-concept and identity in

a very short period of time (Loke & Mak, 2013)

Effects of physical maturation differ in adolescent boys and girls (Briggs, 2005). In adolescent boys' early physical maturation is a more preferred status as adolescents have higher self-esteem, more positive self-concepts and positive body image (Vernberg et al., 2008). The higher self-esteem brings with it tendencies towards risky behaviors such as adolescent substance abuse as they seek older companions in friendship (Spijkerman, Van den Eijnden, Overbeek, & Engels, 2007). The early physical maturity in boys brings with it adult expectations which adolescent boys may not always be able to live by thereby causing depression which is commonly comorbid with substance abuse (Berk and Meyers, 2015). Late maturation in adolescence boys is less preferred status amongst the boys as it causes low self-esteem, less positive self-concept and less positive body image. Such results can then act as risk factors for adolescents substance abuse as peer validation becomes an important aspect (Obeidallah, Brennan, Brooks-Gunn, Kindlon, & Earls, 2000). Overall late maturation amongst boys is associated with feelings of insecurity, inadequacy, poor coping skills, less cautiousness, impulsivity, less bound by rules and more conflict with parents as well as trouble at school (Mash & Wolfe, 2012).

In adolescent girls both early and late physical maturation are not preferred statuses as it is more preferable if it occurs same timing as peers (Berk, 2001). Both early and late maturers among adolescent girls are vulnerable to psychological distress (Tremblay & Frigon, 2005). Early maturation is considered a problem in adolescent girls as it puts them at risk for both behavioral and mental health problem such as depression, joining antisocial peer groups and substance abuse (Louw et al, 2007). Belsky et al. (2007); Ellis and Essex (2007); Tremblay and Frigon (2005) indicate that girls with a history of family conflict, harsh parenting or parental separation tend to reach puberty early.

### **2.2.2 Cognitive development**



Physical development in adolescence occurs interpedently with cognitive development as brain development also occurs allowing the adolescence to gradually gain in diverse cognitive skills including regulation of cognition and emotion as well as information integration (Berk, 2001; Syed & Seiffge-Krenke, 2013). Piaget (1995) state that all the cognitive skill necessary for development of scientific thought known as formal operation develop during adolescence. This level of advanced thinking enables adolescence to reason abstractly about their personal qualities and moral issues among other things (Santrock, 2012). Elkind (2009) points out that the inexperience of adolescents in this new form of thinking leads to adolescent idealism and critical attitude, argumentativeness, indecisiveness, self-consciousness and invulnerability.

Self-consciousness in adolescents usually manifests in imaginary audience where the adolescents formal operational thinking enables them to think of theirs and others thinking (Elkind, 1967). They are preoccupied with their thinking assuming everyone is also thinking about the thing they are thinking about. Adolescents even create an imaginary audience which is just as concerned about their thoughts, behaviour and appearance. Adolescents' invulnerability manifests in personal fable where they think they are unique and special and not subject to rules (Alberts, Elkind, & Ginsberg, 2007). Adolescents think their personal experiences are unique and differ from those of other people. Such thinking forms egocentrism and can lead to risky and self-destructive behaviour among adolescents.

Moral reasoning is another aspect of cognitive development that continues to develop during adolescence (Berk, 2001). During adolescence, adolescence move into level 11 of Kohlberg's theory of moral development known as Conventional morality. Conventional morality encompasses 2 stages, stage 3 known as morality of interpersonal cooperation which focusses on maintaining mutual relationship and approval of others and stage 4 known as the social order maintaining orientation focusing on social concern and conscience (Kohlberg,

1969). Moshman (2011) indicated that with few exceptions individuals move through the first four stages in predicted order. Moral development also takes place during adolescence as the teenager constructs sense of self around moral concerns and internalizes moral norms, moral understanding and moral judgment (Hardy & Carlo, 2005)

### **2.2.3 Psycho-social development**

During adolescence the individual goes through the search for identity (Erikson, 1994). Adolescents seek to define oneself, values and life course. This is done during such a time when dramatic events are taking place in all aspects of their being and their early sense of identity as a child is unglued (Baril, 2008). Erikson (1994) explained that adolescents go through a developmental stage where identity is formed and it's known as the identity vs. identity crisis stage. At this stage identity is the virtue and identity crisis is the vice. Erikson and Erikson (1998) stated that adolescents go through identity crisis which is a temporary period of distress as they experiment with alternatives before settling on goals and values. Marcia (1993) indicated that development follows many paths. Some young people may remain in one status whilst others experience many statuses in transition. Two key criteria, i.e. exploration and commitment are derived from Erikson theory to evaluate progress in identity development (Kreppner & Lerner, 2013). These two key criteria in their various combination yield four identity statuses which are; identity achievement which is when adolescents commit to values, beliefs and goals following a period of exploration. Identity moratorium is when adolescents explore without having reached commitment, identity foreclosure is when an adolescent commits in the absence of exploration. Lastly identity diffusion which is an apathetic state characterized by lack of both exploration and commitment (Berk, 2001; Marcia, 1993; Mash & Wolfe, 2012).

Parent, siblings and peers form the core social context in which this development takes place. The context is at times conflict ridden (Belsky et al., 2007) as

adolescents experience significant changes in their social relationships with individuals such as parents and peers (Baril, 2008). Contrary to the common stereotypes of “storm and stress” in parent-adolescent relationships, the majority of adolescents report having respect for their parents as individuals, feeling close to their parents, and feeling loved and supported by them (Belsky et al., 2007). However, adolescents represent a period of change in relationships and daily interactions with family members. For example, adolescents and their parents tend to engage in frequent disagreements over day-to-day issues such as household chores and clothing (Darling & Steinberg, 1993). In their quest for greater autonomy, adolescents generally become more assertive in expressing their opinions and negotiating during discussions with their parents (Meyer & Van Ede, 1998).

Certain amounts of substance use during adolescence is considered normative behaviour (Mash & Wolfe, 2012), though it is not harmless as it lowers inhibition, reduces judgment and increases risk of physical harm and sexual assault (Newcomb, Maddahian, Skager, & Bentler, 1987). However (Cleveland, Feinberg, Bontempo, & Greenberg, 2008) suggest that the adolescents who are involved in the normative acts experience poorer adjustment compared to their peers who refrain altogether.

### **2.3 Substance Abuse**

Substances are psychoactive chemicals that are prone to be abused (Berger, 2003). These chemical substances are both therapeutic and can be used for fun. They can be administered in various ways for example orally, inhaled or injected (Organization, 2002). List of substances include but not limited to the following; cannabis, tobacco, alcohol, marijuana, cocaine, heroin, ecstasy and any other prescriber or illicit drugs used for intoxication. Substance abuse is described as a maladaptive pattern of drug use leading to clinically significant impairment or distress (APA, 1994). Association (2013) state that criterion for substance abuse involves two or more

harmful repeated negative consequences of substance use over 12 months within the following categories. Use in large amounts for periods longer than intended, unsuccessful efforts to cut down or quit, excessive time spent using the drug, intense desire for drug, failure to fulfill major obligations, continued use despite social problems, reduction in hobbies and activities due to drug use, and recurrent use in situations, endangering one's physical or psychological wellbeing.

The most commonly used substance is alcohol (Bachman, O'Malley, & Johnston, 1980) followed by cigarettes with about 60% high school seniors in the USA reporting lifetime use of nicotine, whilst marijuana is rated third (Mash & Wolfe, 2012). Other drugs used include ecstasy, cocaine, crack, and other prescription drugs. In their study of urban and rural secondary schools in Zimbabwe Acuda & Eide (1994) concluded that alcohol, tobacco, inhalants (solvents), amphetamines and cannabis were the most commonly used drugs in descending order. Other drugs used included mandrax, tranquilisers, sedatives and the hallucinogen *mudzepete*. No students reported use of heroin, cocaine, LSD or opium. Drug use increased with age and involved both sexes, the problem being more acute in the urban schools.

Hawkins et al. (1986) Organization (2002) estimates that approximately 70% of premature adult deaths are due to behaviours which began during adolescence. Kandel (2003) found that the use of soft drugs, such as alcohol, tobacco and cannabis, during adolescence, are strong predictors of the use of harder drugs later in life. The author referred to these as gateway drugs as they are easily accessible and cheaper. However, Shedler & Block in Berk (2013) postulated that adolescence who dabble in alcohol, tobacco and marijuana are not headed for a life of addiction as they considered it as minimal experimenters which are usually psychologically healthy.

### **2.3.1 Consequences of Substance abuse**

Substance abuse among adolescent brings with it a myriad of biological,

psychological and social problems which affect the adolescent, families, communities and nations. Disproportionate numbers of adolescents involved with alcohol and other drugs face an increased risk of death through suicide, homicide, accident, and illness. Globally, substance abuse causes 6.975 million deaths annually (12.4% of total deaths) and disability loss of 131 million dollars (8.99 %) of total Disability- Adjusted Life Years (DALY) (WHO, 2002). Substance abuse related traffic fatalities cause death and injuries which may lead to physical disabilities.

Maseko (2014) indicates that adolescence substance abuse is a likely predictor of high risk behaviors that exposes them HIV/AIDS infections. The high risk behaviours include injected psychoactive substances and mood altering substances that lead to impulsive behaviours (Hawkins et al., 1992). Youths involved in substance abuse are more likely to have mental health problems such as suicide, depression or personality disorders (Mash & Wolfe, 2012).

Peer alienation and stigmatization are often experienced by adolescents involved in substance abuse. Decline in grades, delinquency and absenteeism leads to disengagement from school or community activities, while at the same time depriving the youths of possible positive contributions from these systems (Glantz & Leshner, 2000) ( Hawkins, Catalano, and Miller 1992) (Fergusson, Boden, & Horwood, 2008). Marijuana interferes with learning, short-term memory, and psychomotor skills, among adolescents. (Mudavanhu, 2013). WHO (2014) cites marijuana as one of the commonly used drugs by adolescents

Farrington and Welsh (2003) state that there is an undeniable link between substance abuse and delinquency. Arrest and intervention by the justice system are eventual consequences for any adolescents engaged in alcohol and other drug use. Substance abuse is associated with criminal activities such as robberies, prostitution, drug trafficking, and youth homicides (Piquero, Farrington, Welsh, Tremblay, & Jennings, 2009).

Adolescent's substance abuse affects both the individual adolescent and their family thereby causing family dysfunction jeopardizing many aspects of family life. (Tremblay & Frigon, 2005), (Becona et al., 2011). Another effect of substance abuse is that it causes depletion of a family's emotional or financial resources.(Littlefield-Cook et al., 2005)

Adolescent substance abuse does not only cause personal or family distress, it can also place burdens on the wider community as it impacts on future productivity as well as aggravates healthcare costs (Gassman-Pines, Gibson-Davis, & Ananat, 2015). Adolescent substance abuse increases the burden on the fiscal resources of a country (Mason et al., 2003) The fiscal burdens emanate from the financial losses and distress suffered by victims of drug-related crimes as well as increased medical and other support for adults who were involved in substance abuse since adolescence and are not able to self-support (Wills, Sandy, Shinar, & Yaeger, 1999).

#### **2.4 Risk Factors of Adolescence substance abuse**

Risk factors are considered to be those variables that, when present in an adolescent's life, make it more likely that if the individual is selected at random from the general population, is more likely to develop a disorder (Mrazek & Haggerty 1994). Risk factors are correlational and not necessarily causal as correlation does not prove causation (Sloboda, Glantz, & Tarter, 2012). Cleveland et al. (2008) states that being a child of an alcoholic cannot be said to cause adolescent substance abuse, but children of alcoholics have a higher rate of getting involved in substance abuse due to social modelling. Statistical methods are frequently used to assess the strength of an association to provide causal evidence (Bryman, 2015).

Risk factors for adolescence substance abuse lie within the context of development (Masten, Powell, & Luthar, 2003). The context for development comprises of the

individuals personal dynamics as they go through adolescence, peers, family, school and neighbourhood. Cleveland et al. (2008) indicates that risk factors for adolescent substance abuse can be grouped into three, the individual risk factors, environmental risk factors and demographic risk factors

#### **2.4.1 Individual risk factors**

Individual risk factors are those risk factors which belong to the persons disposition and exist within them as a permanent element or attribute such as personality (Baril, 2008). The attribute within the adolescent that increases the likelihood of developing substance abuse such as poor self-efficacy, poor sense of belonging, and identity diffusion (Florence, 2014)

Identity involves ones commitment to a set of personal values, beliefs and aspirations, Its development takes place during adolescence and has been highlighted as an important predictor of risk behaviours (Schwartz et al., 2010). Dumas, Ellis, and Wolfe (2012) examined identity development as a moderator between peer group pressure and adolescent engagement in risk behaviours such as substance abuse. The sample consisted of 1 070 adolescent from middle to high SES aged between 14-17 years from 2 public schools in Canada. The Ego identity processing questionnaire was used to measure identity development and items from the national longitudinal study of children and youth was used to measure substance use. Self-report questionnaires were completed by adolescent with parental consent during one of their class with teachers and research staff as administrators. Descriptive analysis were done using Pearson product moment correlation to explore relationship between continuous variables of interest. Identity diffusion had no significant association with engagement in risk behaviours such as substance use while identity commitment was positively related to engagement in risk behaviours.

Schwartz, Zamboanga, Luyckx, Meca, and Ritchie (2013) concluded the same in their study of 1 546 multisite college student sample who completed the

personal identity consolidation and risk behaviour engagement scales. Personal identity consolidation was negatively related to binge drinking and illicit drug use using Multivariate Poisson regression. The current study explored identity and its relationship to adolescent substance abuse. Identity diffusion and identity commitment were measured in one of the subscales to determine wherein risk for adolescent substance abuse lay within the identity continuum.

Self-efficacy is about the adolescent's belief in their own ability to exercise control over situations (Bandura & Walters, 1977). Poor personal and social skills for coping with life makes adolescents more susceptible to internal and external factors which promote alcohol and other substance-use behaviours (NK Morojele, Parry, & Brook, 2009). However McCrady, Epstein, and Sell (1996) contend that adolescents with poor competence skills may use alcohol as an alternative means of achieving popularity. McKay, Sumnall, Cole, and Percy (2012) conducted a study with 4 088 adolescence aged between 11 to 16 year olds spanning over 2 years in Northern Ireland. The assessment batteries used included the self-efficacy questionnaire for children (SEQ-C) Rosenberg self-esteem scale and Adolescent Alcohol Involvement Scale (AAIS). Self-report questionnaires were completed by adolescent with parental consent with teachers and research staff as administrators. Multinomial regression analysis was used to categorise the results of the AAIS into three group's abstainers, normal drinkers and misusers. ANOVA was then used to test significance of domains of self-efficacy on all AAIS groups and the results indicated that Low academic and emotional self-efficacy where significant predictors of substance abuse. Higher social self-efficacy was also indicated as a significant predictor of substance abuse. Baumeister, Campbell, Krueger, and Vohs (2005) in their review of literature and empirical studies on self-efficacy and adolescent risk behaviours concluded that poor self-efficacy own its own is not significantly predictive of adolescence substance abuse The current study also assessed self-efficacy and its relationship to substance abuse however global self-efficacy was used as it was not broken down to its domains.



Hopelessness is as a system of belief, negative cognitive framework, characterized by pessimistic expectancies about the adolescence self, abilities, future, and prospects for the world around them. Different from depression and low mood in its general interpretation of life yielding negative expectations on both the desired and valued outcomes as well as helplessness about changing the likelihood of the occurrence the outcomes . Duke, Borowsky, Pettingell, and McMorris (2011) conducted a cross-sectional analysis of data from 136,549 students in the 6th, 9th, and 12th grades responding to the 2007 Minnesota Student Survey. Hopelessness was measured using a single ordinal outcome and frequencies of response patterns were ascertained using different cut-points to define hopelessness. Univariate statistics was used to describe frequencies for hopelessness, adjusted and unadjusted logistic regression models were performed to analyse the relationship between hopelessness and risk behaviour. They concluded that high hopelessness was a significant predictor of adolescent engagement in risk behaviour. The current study will consider hopelessness from contexts characterized by economic crisis and structural disorganization

Sense of belonging refers to the experience of personal involvement in a system enough to ensure the persons feel they are an integral part of that system. The system can either be cultural, natural, relational or organisational. (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992). Sarason, Sarason, and Pierce (1990) described sense of community as a feeling that the members of a community have in relation to their belonging to their community, a feeling that fellow members worry about and are concerned with each other including themselves. Sense of community promotes an individual's sense of belonging.

Cleveland et al. (2008) in their study which focused on several domains of adolescents substance abuse, compared the risk and protective factors therein in n=91 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> graders in Pennsylvania. For the three independent variables, i.e. individual, peer and family risks association for each grade level

with recent or lifetime substance abuse were examined using linear mixed methods. The individual factors were strongly related to lifetime use cigarettes, alcohol and marijuana in their findings. The current study used generalised linear methods to examine associations among individual micro exo and macro risk factors however the sample size was much larger than 91.

#### **2.4.2 Environmental risk factors**

Environmental risk factors are found within the individuals microsystem, mesosystem, exosystem and macro system and may shift over time as the various systems continue to interact in flux (Bronfenbrenner, 1995). Attribute within the adolescents ecology that increases the likelihood of developing substance abuse include poor family functioning and management, peer influence, neighbourhood disorganisation and policies and practices that promote access and use of substances (Beyers, Toumbourou, Catalano, Arthur, & Hawkins, 2004).

Bahr et al. (2005) collected data from sample of 4 230 students in grades 7-12 focussing on five dependent variables: alcohol, binge drinking, marijuana cigarettes and illicit drugs use over the past 30 days. The final sample constituted 82% of enrolment and included 40 % students from alternative schools used as school dropout proxy. Negative binominal regression was used to estimate the effects of peer and six family variables on the risk of adolescent drug use. Results of the study showed that peer drug use had relatively strong effects on influencing adolescent drug use. The findings from the study of American adolescents had similar findings to the Hong Kong study by (Loke & Mak, 2013) of 805 secondary school students. They concluded that having a friend who was involved in substance use and an invitation to try substance were strong and dominant contributors to adolescence substance abuse for the Hong Kong adolescent sample. The current study used learners currently enrolled in secondary schools within Northern central district, the learners were from public, private and independent colleges.

In their longitudinal study of 1 956 drinking and non-drinking Dutch adolescents aged between 12-16 years. Spijkerman et al. (2007) collected data using self-report questionnaire with 22 items measuring prototypes about weekly drinking of both peers and parents as well as drinking norms of the two on weekly drinking. Results showed that parent's alcohol consumption is a risk factor for early adolescents alcohol use as it served as a prototype. In this study data was collected using self-report questionnaires from both adolescent substance users and non-users. However the questionnaire in the current study does not focus on parents and peers only.

Harrison, Fulkerson, and Park (2000) administered the Minnesota student survey anonymously in their study of 133 794 public school students in grade 6,9,12. The questionnaire addressed current frequency of substance use and how the substance were obtained. Data was analysed to determine relation between frequency and access and social sources especially peers predominate access across all age groups and substances. In Commercial sources students are more likely to obtain tobacco than alcohol. Peers form part of an adolescent microsystem and conformity to the in group is an important factor during this developmental stage (Berger, 2003). Hoffmann and Cerbone (1999) state that peers who use illicit substances are a strong predictor to adolescent substance use. Hoberg (2001) notes that there has been an excessive growth in substance use among adolescents who go to school which could indicate the role of peer influence in substance abuse. He further refers to the alarming increase in the popularity of club drugs and drug parties among school-going adolescents. Rejection by peers in the early years is also a predictor of substance abuse (Eitle, 2005)during adolescent as it propagates an impaired self-esteem which has been noted in studies with adolescent involved in substance abuse (Madu & Matla, 2003).

Risk factors in the microsystem of the adolescence include family functioning and management. Becvar and Becvar (2012) list the following characteristics of

families as risk factors for substance abuse among the adolescence, distant families which prevent support and enmeshed families which prevent autonomy of its members. Baumrind (1991) grouped parenting styles into discrete subtypes, namely authoritative, authoritarian, and permissive with subtypes neglecting/rejecting. Specifically, authoritarian and permissive parenting styles were linked to a higher rate of substance use in adolescents (Becona et al., 2011). However Rothrauff, Cooney, and An (2009) found no difference in substance abuse amongst adults who recalled their parents as either authoritative or authoritarian. In Spain García and Gracia (2014) concluded that permissive parenting was optimal as it is associated with less risk of substance abuse among 10-14 year olds. Darling (2007) noted that parenting styles on their own are inconsistent in predicting adolescence substance abuse as the whole context of adolescent needs to consider.

Disconnection from parents due to family conflict or poor family management can lead directly to substance abuse or indirectly (Stepp, Whalen, Pilkonis, Hipwell, & Levine, 2012) by causing development of other mental disorders such as General anxiety disorders and depression as indicated in the DSM V and result in comorbidity with substance abuse (Baril, 2008).

K. D. Wagner et al. (2010) examined the role of family function in predicting substance use. The total sample comprised of 1 433 adolescent of Hispanic descendent living in America and less parental monitoring was associated with increased risk for adolescent substance abuse. In a longitudinal study of urban African-American adolescents the results indicated children who at middle childhood (8 to 10 years old) had low parental monitoring were three times more likely to initiate substance use four years later (Chilcoat & Anthony, 1996). Interestingly Lac et al. (2011) in their longitudinal study of 1 369 adolescents at 9<sup>th</sup> and 11<sup>th</sup> grade to examine family functioning and marijuana use. They measured marijuana use, parental communication and family cohesion and the

data was analysed using longitudinal hierarchical linear regression to evaluate the associations between family factors and lifetime use. The results indicated that family functioning was integral in reducing marijuana use among boys and had no effect on marijuana use in girls. Significant challenges may undermine parenting effectiveness in mitigating substance abuse such as acculturative stress and lack of extended family support. The current study measure family functioning but did not look at the effects in relationship to gender. The constructs included in the family functioning subscale are acceptance communication and cohesion

Low socioeconomic status is linked with substance abuse (Hawkins et al., 1992) such that economically disadvantaged adolescent are considered as a risk group in relation to substance abuse (Mudavanhu, 2013). Low socioeconomic status is associated with neighbourhood disorganization characterized by high population density, physical deterioration, high level of crime and drug trafficking (Jackson & Butler, 2015) However Koplewicz et al. (2009) indicated that affluent adolescent are a newly identified at-risk group as they concomitantly show elevations in substance use/abuse. Maseko (2014) studied a sample of 160 adolescence in Gweru and the results indicated that life stress, parenting practices and peer pressure were predictive risk factors for adolescent substance use. Ramsoomar, Morojele, and Norris (2013) examined lifetime alcohol use for 3 273 Soweto birth cohort at age 13 and 18. At age 13 referred to as early adolescence low SES was related to alcohol use and future abuse while children from seemingly medium to high SES within the community were less likely to have used alcohol in their lifetime. The current study will look at the economic pressure within the family and its relationship to adolescent substance abuse.

Humensky (2010) analysed data from the National longitudinal survey of 20 745 adolescent health. The adolescents were a national representative of secondary

school students in the US. Data analysis examined the relationship between adolescent socioeconomic status and substance use and the results indicated that there is a strong positive correlation with cocaine, marijuana and binge drinking. Saunders and Rey (2011) however found that geographical concentrations were associated with risk factors for substance abuse and adolescence from low SES have a higher inclination towards substance abuse. Hanson and Chen (2007) reviewed 28 studies and found no clear pattern on the relationship between SES and alcohol consumption in adolescence. In 5 of the studies reviewed high SES was associated with high alcohol use while the other five linked low SES to high alcohol use. The remaining 16 found no association between SES and alcohol use.

Ramlagan et al. (2010) found that some of the perceived risks for drug abuse are poverty, idleness, boredom, living in an area surrounded by substance users, long working hours and living a stressful life. Drugs and Crime (2010) indicated that substance abuse is aggravated by multifaceted socio-economic challenges such as joblessness, poverty and crime in general and these societal problems are distressful to a lot of communities. The current study has participants from diverse SES and a subscale measuring economic pressure in the family. Bivariate analysis was used to determine the strength and direction of the relationship between neighbourhood and substance abuse.

Societal values and attitudes favourable to substance use pose a risk factor to adolescent for substance abuse (Eide & Acuda, 1996). Kandel et al (1978) states that laws regulating availability, alcohol sales and criminal laws and drug trafficking if not implemented pose a risk factor to the adolescents as the alcohol and illegal drugs are much more available. In their study Eide and Acuda (1996) to determine the relationship between cultural orientation and alcohol use among a two staged stratified random sample of 3061 secondary school students. An analysis was done between cultural orientation and alcohol use. The results indicated that adolescents who had a Zimbabwean cultural

orientation had a lower risk of alcohol use compared to their peers with a western cultural orientation who recorded a higher risk for alcohol use. In some cultures alcohol, tobacco and drugs such as cannabis and marijuana have a traditional role to mark important rituals and their use or abuse can go unabated (Lasimbang et al., 2015) The current study used multi staged stratified random thereby ensuring data was collected from all strata's of the target population to enable measuring of drug use tolerance across a wider population..

Messages communicated through media, way of life and direct communication on substance abuse form an important aspect of an adolescent socialisation in relation to adolescents substance abuse (Zyaambo et al., 2013). Reimuller, Hussong, and Ennett (2011) did a three-year study with 1663 parent child dyads to examine alcohol-specific communication and the effect of messages on adolescent alcohol use and alcohol-related consequences. They concluded that that parental messages regarding alcohol use may impact adolescent alcohol use beyond the effect of general parenting style and parental alcohol use. Permissive messages were associated with more frequent alcohol consumption for adolescent while negative alcohol messages were found to have no relationship with adolescent alcohol use. Similarly for their study in Nigeria Shehu and Idris (2008) concluded that negative drug messages were not significant in reducing drug use within School intervention programmes. Viriri, Viriri, and Chapwanya (2011) critically examined the influence of popular urban grooves music in Zimbabwe and concluded that a deeper analysis of the lyrical content of songs by popular urban groovers such as Winky D and Extra-Large reveals a message encouraging adolescent socialisation to substance use. The current study explored neither negative nor permissive messages related to substance use and abuse but focused on mixed messages which communicated both messages at the same time causing a double bind in the adolescence receiving the messages.

### **2.4.3 Demographic risk factors**

Demographic risk factors are linked to any individual's population characteristics such as age gender and type of school attended by adolescence. WHO, (2014) indicated that alcohol, tobacco and psychoactive drug use increase with age. However, (McGue, Pickens, & Svikis, 1992) highlighted that age of first use is the most widely supported risk factor for the onset of substance use problems and subsequent disorders. Odds of developing substance use disorders such as substance dependence and substance abuse decreased by 9% each year that the onset of drinking was delayed (Grant & Dawson, 1997). Duncan, Duncan, and Strycker (2006) examined alcohol use from pre to mid adolescence and the influence of various covariance's on changes in alcohol use rates during the development period in 405 randomly sampled cohorts within the following age groups 9. 11.13 assessed over a four-year period. Cohort sequential latent growth was used and results showed proportions of alcohol users increased steadily from ages 9-16. Substance use typically begins in adolescence. A fifth of 12-13-year olds report drinking alcohol. The proportion increases to 40-50% by age 14-15 and to over 70% by age 17. For tobacco the proportion of adolescence who smoke rises regularly from about 1% at age 11 to 26% of girls and 21% of boys at age 15 in the United Kingdom.(Bonomo & Proimos, 2005). In their study of 2 783 Zimbabwean secondary school students from rural and urban areas the Acuda and Eide (1984) indicated that drug use increases with age. The current study captured age of participants and descriptive analysis of the data was done to determine frequency of substance use non-use and abuse across the age groups. Fishers exact was used to determine significance of differences across the ages of substance use and abuse

Acuda and Eide (1984) conducted a survey of 2783 secondary school students from both rural and urban schools randomly selected. A self-report questionnaire was administered and the results showed that drug use increases with age and substance use was more acute in urban secondary schools than rural schools. With private schools scoring significantly higher on substance use than adolescence from public schools. The type of school attended by adolescent is



an indirect reflection of their socio economic status. Gana (2004) did a study of 1 820 grade 9 and 11 aged 14-17 from 20 high schools in Cape Metropolitan. In analysing the sample characteristic, it was noted that substance use was more prevalent amongst white members of the sample in comparison to the other population groups such as blacks. In conclusion it was stated that as many participants from the black population were from disadvantaged communities they did not have the resources to spend on substances unlike their white peers who could afford more easily to buy both legal and illegal drugs. The current study collected data from 29 schools in three strata's public schools, private schools and independent colleges.

Global evidence indicates that males outnumber females with regard to frequency of alcohol use, binge drinking, and alcohol use disorders (WHO, 2014). Gender differences in the association between depression and smoking has received inconsistent support among youth in national samples in the United States and other countries. Ramsoomar and Morojele (2012) in their study to understand alcohol use trends between 1998 and 2003 reviewed four national prevalence and two Sentinel surveillance studies. The data sets were analysed using chi square and significant gender differences existed with more males ever having consumed alcohol than females. However binge drinking among females had increased with over 10% for the period under review. Cotto et al. (2010) in their study to assess gender differences in rates of substance abuse among a national population aged 12- 25 totaling 217 978 divided the sample into two sub groups; 12-17 years and 18- 25 years. Overall rates of substance use were significantly higher in the male population for all substances except sedatives and tranquilisers, However patterns of use/ abuse in the 12-17 age group differed significantly by age and drug from the overall population. Girls exceeded boys in the use of alcohol, non-medical psychotherapeutics and sedatives and were more likely to abuse sedatives whilst boys were high in marijuana use and abuse. WHO (2014) reported that for cannabis boys and girls show similar prevalence post age 15 whilst in the 13-15 age groups the girls prevalence was half of the

boys. In their study Bandason and Rusakaniko (2010) concluded that Male gender was also more at risk of tobacco use. The current study looked at the gender distribution of substance use among the high school adolescence from Harare northern central district and had a much bigger sample size. Gender demography and its predictive power for adolescent substance abuse were investigated though substance of choice were not ungrouped.

von Sydow, Lieb, Pfister, Höfler, and Wittchen (2002) studied a community sample of adolescents and young adults in Munich Germany to determine risk factors of incident onset of use, abuse and dependence of cannabis. The risk factors were examined in a longitudinal study over 4 years with a sample of 2466 individuals aged between 14 and 24. The composite international diagnostic interview was used and data were weighted by applying the Huber-White sandwich matrix for robust estimates of standard errors within the logistic procedure of the STATA software package. The results indicated that different factors predict onset or severity of cannabis use and its further progression. Peer group pressure, drug availability, low self-esteem, family history and prior experiences with legal drugs play a significant role in the initiation, consumption and transition to cannabis use disorders. The current study will use the South African substance use contextual risk instrument (SASUCRI) to measure risk factors of use/abuse. The instrument measures variables in the individual, environmental and demographic domain. The study was conducted over a shorter time span compared to the 4 years in the Munich study.

## **2.5 Theoretical Framework**

This study was premised on the ecological model as the theoretical framework which focusses on the individuals and their interactions with their environments. The ecological model postulate's that an individual's immediate settings actively shape the outcome of their life in either positive or negative direction. Individuals live inside multifaceted structures that contain their immediate settings, social networks and

traditional communities established in a wider social structure (Bronfenbrenner, 1992, 1995; Darling, 2007)

The ecological theoretical framework holds that an individual's biological disposition and environmental systems levels, as well as the interaction between these two components, shape the individual's development in a non-predictive but descriptive pattern (Bronfenbrenner, 1995)(Bronfenbrenner, 1995). This theory presents a framework within which to study the impact of these systems levels on the individual's development and subsequent behaviours. Another component of the framework is time, with regard to the individuals own development and historical developments in the setting (Baril, 2008; Bronfenbrenner, 1995). Bronfenbrenner (1995) postulates that people are both producers and products of their development, which means that a human being is naturally prone to act or be acted upon by his or her surroundings, equally impacting each other. Various risk factors lie in each domain of the system, which can be classified into divisions namely individual, micro, meso, exo, macro and chrono system (Cleveland et al., 2008). The individual system comprises of the adolescent's own personality characteristics and biological dispositions, whilst the micro, meso, exo and macro systems are nested within an adolescent's environment and relationships and chrono system can refer to adolescent's demographic factors such as age.

The individuals own structures and functions affect development, namely the biology, psychology and behaviour of the individual (Wachs, 2010). There are three types of person characteristics that most influence the direction and power of the proximal processes. Forces which can set proximal processes in motion and sustain them, refer to characteristics like temperament, self-efficacy, persistence, and so on. Bio-ecological resources include mental and emotional resources such as ability, experience, knowledge and skill for effective management of proximal processes, as well as social and material resources such as housing and education. These can foster or disrupt the operation of proximal processes. Individual differentiation of these three types of characteristics leads to their combination in patterns of person

structure which make them susceptible to substance abuse (Evans & Wachs, 2010).

The *micro* system level consists of the individual's most immediate environment. The environment consists of those people in close relationship to the individual for a substantial amount of time, such as family, peers and neighbourhood (Hawkins et al., 1986). It makes up the individual's initial and most intimate learning context, which then becomes their reference point (Santrock, 2012). Substance abuse can develop through this systems level through modeling, unhealthy family interaction and peer influence

The *meso*-system level refers to the relations among the micro-systems which the individual is part of during a given period of development, such as home, school or work facilities, peers and the neighbourhood (Berger, 2003). This systems level can also be described as a system of micro-systems. The interactions between the micro-systems permeate the individual's life in every dimension and foster his/her development (Becvar & Becvar, 2012). The interaction of the micro systems within this systems level is key in this theory. There are several types of interactions that take place in this level. The most basic type of interaction is the ecological transition, which is when the individual moves into a new or different context such as starting school, moving to a new school, neighborhood or church, going camping and graduating (Corey, 2015). Each of these transitions has developmental consequences (Champion et al., 1995).

The *exo*-system level does not include the individual, but events that occur here affect the settings that do contain the individual. This systems level refers to settings such as the parents' workplace (Bronfenbrenner, 1992). This systems level is seen as an extension of the meso-systems level. These levels can be formal or informal and involve significant others or not, and usually includes any institution that makes decisions that affect family life, the consequences of which can be far-reaching and often unintentional (Webster-Stratton, Reid, & Hammond, 2004). An example of this would be the way the parents' work schedules affect their availability

to the adolescent, or how it (the works salary schedule) affects the parents' capacities in meeting their financial obligations. These influences can be degrading to the adolescent.

The *macro* system is the superordinate systems which includes patterns of stability at the cultural or sub-cultural level and includes beliefs, norms, customs, political trends, lifestyles, laws and community practices (Bronfenbrenner, 1995). All the other ecological levels are influenced by the principles that are defined by the components of this system's level. This system influences how, what and where we carry out our relationships. They help to hold together the threads of our lives and create an umbrella of beliefs, services and support (Prilleltensky & Nelson, 2002). Thus the experiences of individuals in the same context will be somehow similar.

*Chrono* systems captures the time factor referring not only to the stages of the individual's development, but also to what is happening around them, and how the systems levels are affected by the historical climate in the individual's context. Chrono systems level refers to the historical context as it occurs at different systems level and to changes that take place in the individual's development context (Ratele et al., 2004). These changes can be internal (natural maturation in the individual as they age) or environmental, such as the history of family dynamics that can explain a parent-individual relationship, trans generational and cultural trauma (Prilleltensky, 2003). It also refers to historical influences in the macro-systems level that have an impact on the family's responses to stressors. The chrono-systems level includes multiple dimensions of temporality, namely micro/ontogenic, meso/family and macro/historical time (Darling, 2007). These three dimensions moderate change across the individual's lifespan.

Lasimbang et al. (2015); Stone, Becker, Huber, and Catalano (2012); Swick, Williams, and Fields (2014) noted that while the abuse of drugs is an individual act, it is embedded within social structures and can distort individual's immediate environment (micro system). The problems in the micro-systems level then typically

expand to the exo-systems level and the meso-systems level. Vulnerability is influenced by multi-level factors, namely individual, environmental and demographic (Gritz et al., 2003; Hutcheon & Lashewicz, 2014). Bogg, Finn, and Monsey (2012) report that while alcohol consumption decision-making is definitely influenced by meso-, exo- and macro-systems levels, the decisions are made in the individual systems level.

Sutherland and Shepherd (2001) explained that risk factors cannot be considered in isolation, and a bio psychosocial approach is needed to make sense of them. They added that there could be individual and environmental differences between adolescents who use substances and those who do not. Though the precise nature of the differences between users and non-users is unclear, research has clearly demonstrated that these differences/associations are consistent across various populations within different domains

This points to the need to explore the problem of substance use in context of the ecological theoretical framework, in that there could be factors at the different systems levels that influence the development of substance use/abuse in Harare Northern Central district high schools amongst the adolescence.

## **2.6 Knowledge gap**

The previous studies reviewed, while yielding useful information, differ significantly in context with the context of the adolescence in the current study. While some of the studies do address the factors in the environment that affect drug use, these are relevant to their particular context and not to the communities considered in this study which is vastly different in terms of history, culture, and other societal factors and functioning. Of the studies reviewed, some aim to inform interventions, much like the current study, but not only are the measurement tools used in some of the studies inappropriate in the Zimbabwean context, but these instruments do not cover the whole spectrum of risk factors within the adolescents' ecology.

Previous studies explored measure risk factors either in the individual or microsystem or may look at the macro system but do not explore the risk factors from across the whole ecosystem. This current study aims to look at the broader ecosystem and the risk for substance use that may lie within it for the adolescent.

## **2.7 Chapter Summary**

The chapter explored literature related to risk factors of adolescence substance abuse and the theoretical framework guiding the study. Also given are previous studies from which the knowledge gap is identified.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter explores the adopted research paradigm used in order to achieve the research objectives. Also highlighted are the research design, target population and sampling techniques, data collection procedure as well as data analysis and presentation. The research instruments' validity and reliability along with ethical considerations used for this study are articulated.

### **3.2 Research Paradigm**

The underlying assumptions and intellectual structure upon which the current study was developed is the positivist paradigm which sought to establish the risk factors underlying adolescent substance abuse by quantifying statistical evidence. This paradigm enabled that hard data be collected, tested empirically, confirmed, verified and disconfirmed. Objective reality was discovered for risk factors of substance abuse among Harare northern central district high school adolescent. The risk factors were believed to be relatively constant across time and settings, therefore knowledge gathered was generalizable to all the members of the target population. Scientific methods such as the self-report questionnaires was used to gather data, achieve objectivity and neutrality during the research process thereby ensuring the study was value free (C. Wagner, Kawulich, & Garner, 2012). Prediction of general patterns of risk that can be used as a basis for intervention were uncovered.

### **3.3 Research Design**

The non-experimental exploratory descriptive research design was used as a blueprint for conducting the current study with maximum control over factors that interfered with the validity of the findings. This research design was necessary to identify substance abuse trends in the population of adolescents from high schools in Harare northern central district and its related risk factors. The research design allowed for highly objective, reliable and structured data to be collected as it did not manipulate the variables. The main emphasis of the design was deductive reasoning which moved from the general to the specific (Bryman, 2015). Access to all



members of a group was not achievable hence a sample of the population was used to allow for inferences to the larger groups (Mouton & Babbie, 2001). This design was used because the sampled adolescents and risk factors were simply being observed with no attempt to control or manipulate them as manipulating the variables could cause psychological harm. The research design allowed for gathering of data which could be used to describe the nature of the risk factors associated with adolescent substance abuse in high schools within Harare northern central district using self-report questionnaires. While descriptive research designs produced data which was consistent, precise, generalizable and reliable the data was not robust enough to explain complex issues and causality of adolescence substance abuse. Context of the phenomena was lost and difficult to understand in the designs.

### **3.4 Target Population**

The entire aggregation of individuals that met the designated set of criteria in this study constituted all adolescent enrolled at high schools in Harare northern central district. High schools in Harare northern central district were divided into three strata namely public schools, private schools and independent colleges with a total population of 12 169 students. They were seven public schools in Harare northern central district with four of the seven offering both boarding and day school facilities, five of the seven schools were coeducational, of the two same sex school one was a girls high whilst the other was a boys high. Total population of students in public schools was 7 327.

Harare northern central district houses six private schools whose total enrolment population was 3 196. Amongst the private schools four of the six offer day school facilities only and the remaining two offering both boarding and day school. Three of the six schools were coeducational and of the three remaining same sex schools two were for boys and one for girls. There was a total of 16 registered independent colleges in Harare northern central district. All the colleges offer day school facility,

were coeducational and have a total enrolment of 1646 students.

### 3.5 Sample

The research was done for the benefit of the population, however due to the large sizes of target populations all individuals could not be tested but a subset of the population was selected (C. Wagner et al., 2012). The sample allowed for results to be generalizable to the target population as it had similar characteristics as target population (Patton, 2005). The sampling frame consisted of 29 schools with a total of 12,169 children enrolled in forms 1 – 6 (Table ), 60% were from public schools with 26% and 14% coming from private schools and independent colleges respectively.

**Table 3.1: Sampling Frame**

Type of School	Number of Schools	Number of Students
Public Schools	7	7327
Private Schools	6	3196
Independent Colleges	16	1646
<b>Total</b>	<b>29</b>	<b>12169</b>

#### 3.5.1 Sampling and sampling technique

A group of adolescents from high schools in Harare northern central district were selected to conduct the current study with, who were a portion that represented the whole population. A stratified cluster random sampling technique with probability proportional to size was used to select respondents in the current study. Stratified random sampling with probability proportional to size ensured each individual from different strata had an equal chance of selection (C. Wagner et al., 2012), that is, the probability of selecting an individual from stratum A was equal to the probability of selecting an individual from stratum B, even if strata A and B were not equal. Cluster sampling was done as the natural groups present in the population where internally heterogeneous (Bordens & Abbott, 2002).

In this study sub populations were identified within the population, these are, the public schools, private schools and independent registered colleges which formed the three strata. Within each stratum, a school was identified as a cluster, that is, a natural group with heterogeneous students. The minimum required sample size for each type of school was determined using the following formula:

$$n = \frac{\text{deff} \times LF \times Z^2 \times p \times (1 - p)}{e^2} = 260$$

where:

- *deff* is the design effect to account for variability introduced by clustering. This is assumed to be 2 in this study,
- *LF* is the loss factor to account for respondents who might refuse to complete the questionnaire or some questionnaires which might be badly completed. The loss factor is assumed to be  $\frac{100}{100 - 10} = 1.11$ ,
- *Z* is the standard normal deviation corresponding to the significance level. Significance level in this study was set at 5% and the corresponding *Z* value is 1.96.
- *p* is the estimated proportion of students abusing drugs. This was taken to be 0.183 (Rudatsikira et al., 2009).
- *e* is the margin of error (precision). This is set at 7% since 5% was considered to be too conservative while 10% was considered to be too wide a margin. A value in-between was chosen for this study.

To obtain a final sample that is proportional to the size of the type of school, a proportionality factor was calculated by dividing the population of independent registered colleges, the smallest stratum, by the minimum required sample size, *n*. Thus, the proportionality factor was calculated to be  $\frac{1646}{260} = 6.32$ . The final sample size for each type of school was obtained by the following formula:

$$n_h = \frac{N_h}{PF}, \text{ where } N_h = \text{type of school population}; PF = \text{proportionality factor}$$

The final sample sizes are shown in Table 3. below. Details of the number of

students selected from each school are indicated (Appendix G)

**Table 3.2: Sample Size**

Type of School	Number of Schools	Sample Size
Public Schools	7	1160
Private Schools	6	506
Independent Colleges	16	260
<b>Total</b>	<b>29</b>	<b>1926</b>

### 3.6 Research Instrument

The current research used a self-report questionnaire (Appendix A) as the data collection tool. The self-report questionnaire was the principal instrument for data collection which ensured data was collected from large samples within limited time (Bryman, 2015). The self-report questionnaire reduced researcher bias as it is a highly impersonal instrument (Graziano & Raulin, 2009).

In this study the South African Substance abuse contextual risk instrument (SASUCRI) was administered as a self-report questionnaire. The SASUCRI, according to Florence (2014) is administered to adolescents as a self-report questionnaire that uses Likert scales to identify risk factors for adolescents substance abuse within the ecological framework and to discriminate between adolescents substance users and non-users. It is coded in the following range: Always, Often, Seldom and Never which in some statements a numerical code is assigned and differs in direction from subscale to subscale. The numerical code for scoring is equivalent to the raw score for each statement which is then added to calculate risk within each subscale. The SASUCRI has 11 subscales with various statements each measuring a construct involved in the study, one of the subscales looks at the effects of drugs to screen users, non users and substance abusers. There is a section which focusses on

collecting biographical data on participants. Details regarding the various measures of the study are provided below.

### **3.6.1 Administration and Scoring**

Questions from three subscales i.e. identity, neighborhood and tolerance for adolescent substance abuse were scored on a continuum of a four-point Likert scale that scores each of the 4 possible responses on an ascending scale, with the first response *Always* receiving a raw score of one, and the last response *Never* receiving a raw score of four. Questions from the remaining subscales were each scored on a four-point descending scale with the first response *Always* receiving a score of four, to the last response *Never* receiving a raw score of one. Two subscales effects of drugs and neighborhood have a fifth possible response scale N/A whose raw score was 0 All of the scores were totaled up at the end of each subscale to provide a total score. On the following subscales; effects of drugs, peer influence, mixed messages and tolerance for child and adolescent drug use, higher scores indicate higher levels of risk for substance abuse. In the remaining subscale, low scores indicate a presence of substance abuse risk factors, see (Appendix A) for scoring sheet. The effects of drugs subscale is the subscale organized by the SASUCRI to discriminate between adolescent substance users and non-users.

### **3.6.2 Reliability and Validity**

Reliability is the consistency of an instrument to consistently measure what it is intended to measure and validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform (Bagele, 2007). Florence (2014) validated the SASUCRI using high school adolescents in the Western Cape province of South Africa and found the questionnaire to be a sound and valid measure of where risk factors for adolescent substance abuse lay within the adolescent ecosystem. Rawoot and Florence (2017) reported positively on the reliability and validity of the Instrument

stating that the questionnaire measured the constructs that it sought to measure with consistent test retest and internal consistency reliability.

The Cronbach's alpha reliability ( $\alpha$ ) of the measures in the 11 subscales are Identity (0.74), Sense of belonging (0.81) Self-efficacy (0.84), effects of drugs (0.93), family functioning (0.86), economic pressure (0.88), peer pressure (0.78), neighborhood (0.78), Mixed messages (0.86), tolerance for child soft drug use (0.85) and hope for the future (0.76). The Cronbach's alpha reliability ( $\alpha$ ) of the measures in the 11 subscales are above 0.60 thereby are reliable.

However, the SASUCRI has some weaknesses. It was developed and standardized in South Africa using non Zimbabwean populations, and this may be considered to impact its applicability for a Zimbabwean population. It should be mentioned however that the limitations due to lack of Zimbabwean standardization can be leveled against many internationally developed questionnaires. Lastly, SASUCRI was normed using adolescents in low socio-economic status (SES) communities (Florence, 2014) and the community under study has members from low, medium and high socioeconomic status (SES). The questionnaire, however, still remains useful as it provides insight into the risk factors associated with substance use among adolescents.

### **3.6.3 Pretesting**

A pretest was done as a trial run of the major study and its intended purpose was to check on the technicalities of instrument administration (Cohen et al, 2002). The instrument was developed and normed using South African participants, to test the questionnaire on the Zimbabwean population of high school adolescent ten respondents (n=15) with similar characteristics as population sample who were not part of the main study were administered the SASUCRI. Following the pretest some questions were rephrased as they had South Africa written as participant's country which was changed to read Zimbabwe. Time for

interviewing each participant was approximated to 30 minutes.

### **3.7 Data Collection Procedure**

Ethical approval was granted by the Midlands State University department of Psychology to conduct the research (Appendix B). Prior clearance was sought from the Ministry of Primary and Secondary Education (MoPSE) head office, provincial office, district office and school heads to access learners within the 29 schools (Appendix C). A week before the actual collection of data the researcher and the research assistants visited the school and gave the randomly selected students a copy of learners' information sheet (Appendix E) and explained in detail about the research and its aims as well as the role of the learners. A copy of information sheet for parents (Appendix D), Consent and assent Form (Appendix F) were given to the learners to take with them to their parent/ guardian. For those in boarding schools the boarding master/ matron acted in loco parentis.

Data collection took place at each school during a pre-scheduled time. All the research participants in the school would gather in the school hall. The research team would ask the participants if their consent forms had been signed by their parents or guardian. Those with unsigned consent forms were asked to leave the room and it was explained to them why they could not continue. The remaining participants were then asked if they understood what the exercise was about and if they were willing to continue. They were asked to sign assent forms which were on the same sheet as consent form. The research team then collected the consent and assent forms ensuring all with both duly signed forms were given the questionnaires. The participants were advised that if they felt uncomfortable they could withdraw from the study anytime. Participants were asked to complete the self-report questionnaire containing a biographical questionnaire to provide descriptive statistics as part A. Part B constituted the South African Substance abuse contextual risk instrument (SASUCRI), aimed at identifying risk factors within the adolescents' ecological milieu. The completed questionnaires were collected

immediately by the researcher for scoring and further analysis after the administration process was completed.

### **3.8 Ethical Considerations**

Ethical issues observed in this study included:-

#### **3.8.1 Ethical clearance**

To collect data in schools permission in writing was sought from the permanent secretary in the Ministry of Primary and Secondary Education (MoPSE) the provincial education director Harare, District schools Inspector ( northern central) and the school heads for schools where data was being collected. The study, study protocol, information sheets, consent and assent forms were approved by the Midlands state university department of psychology

#### **3.8.2 Informed consent:**

Information sheets and consent forms were delivered to the school and given to participants a week before administration of the research to ensure informed parental/ guardian consent. The forms were issued by the research team at the various school and colleges to be signed by the parents and handed back to the research team prior to administration of questionnaire to participants. On the day participants were oriented to the study and issued with assent forms thereby providing their own consent to participate in the study.

#### **3.8.3 Confidentiality**

Members of the research team were present during the administration and completion of all questionnaires and collected them immediately after completion to assure maximum confidentiality. It was negotiated that no teachers be present during administration in order to facilitate a more trusting environment considering the sensitivity surrounding substance abuse which is an offence that can cause one to be expelled from school No identifying data was collected from the participants and the schools involved in the research.

#### **3.8.4 Freedom from Harm**

In this study physical harm was not to be considered, however, the researcher



bore in mind that the psychological consequences needed sensitivity. The researcher was sensitive to the participants' emotions when exploring some of the questions on answer questionnaire that could cause psychologically harm the participants. The researcher told the participants that if they felt that they could not continue they were free to withdraw from the study or choose not to answer the questions lastly participants were informed they were no consequences for choosing not to participate and that they could leave when they felt uncomfortable.

### **3.9 Data Presentation and Analysis Procedure**

The data is exhibited in such a clear and conscious manner so that it could be easily understood and analyzed (Bryman, 2015). The Quantitative data from the SASUCRI was presented in the form of text and tables for key findings. Tabular presentation of the data were used to ensure data was easy to read as numerals and textual matters are not combined, textual presentation of data was used to supplement tabular presentation and graphical presentation of data was used to present the variations, changes and relationship of data comprehensively.

The data in the current study was organised to provide structure and elicit meaning and analyzed by coding the responses in line with the scoring framework earlier discussed. The total score of each subscale was recorded, captured using Epidata to minimize on capturing errors. STATA data analysis and statistical software was used to analyses the captured data for frequencies, relationship and their strengths using a variety of statistical tests i.e. Pearson's correlation, fishers exact for independent samples. The logistic regression model was used to calculate the adjusted odds ratios

### **3.10 Chapter Summary**

This chapter described the research paradigm, design and methodology, including sampling, population, data collection, ethical considerations and data presentation and analysis.

## CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

### 4.1 Introduction

This chapter focusses on the findings of the research. It presents the data collected in the form of tables, analyses the data using descriptive and inferential statistics as well as interpret the findings.

### 4.2 Demographic Characteristics of Adolescents

A total of 1 926 participants completed the questionnaire (Appendix H) of which 55.6% were male, 43.6% were females and 0.8% had a missing value for sex. Minimum age was 12 and maximum age was 19. Mean age was 15.48 years, with a standard deviation of 2.03 years and 2.7% had missing age.

***Table 4.1: Age Distribution***

		1926	
N	Valid	1874	97.3 %
	Missing	52	2.7%
Mean		15.48	
Standard Deviation		2.03	
Minimum		12	
Maximum		19	

The above table 4:1 indicates that the youngest adolescents who participated in the study were aged 12 and the oldest were 19. 52 of the participants did not provide their age and it may be outside the two stated ranges.

**Table 4.2: Sex distribution**

Sex Distribution		
	Freq.	Percent
Male	1,070	55.6%
Female	840	43.6%
Missing	16	0.8%
Total	1,926	

The data in table 4.2 indicates that there were more males than females among the participants of the study.

**Table 4.3: Type of School**

	Freq.	Percent
Public	1,160	60.2%
Private	507	26.3%
College	259	13.4%
Total	1,926	

The data in table 4.3 indicates the type of schools where data was collected from in Harare northern central district and most of the participants were from public schools.

**Table 4.4: Reliability of Data**

Reliability Analysis	Public	Private	College	Total

<b>Average inter-item covariance</b>	4.492	4.606	9.522	5.199
<b>Number of items in the scale</b>	11	11	11	11
<b>Scale reliability coefficient</b>	0.678	0.682	0.824	0.704

Table 4:4 shows that the cronbach alpha for the data analysed is 0.704. The value of 0.704 indicated that the data collected is reliable and therefore acceptable.

***Table 4.5: Substance use prevalence***

	Frequency	Percent
Non substance use	854	44.3%
Substance use	808	42.0%
Substance abuse	264	13.7%
Total		

The prevalence of substance use/abuse and non-use was measured using the effects of drugs subscale. 1 072 adolescents were involved in substance use while 13.7% of the 1 072 are indicated as substance abusers and 854 do not use substances.

### **4.3 Individual risk factors for adolescent substance abuse**

They were four subscales which measured risk factors within the individual domain namely identity, sense of belonging, self-efficacy and hope for the future subscales. Each of the subscale was scored for high risk and low risk and within each of the two subgroups number of individual within each of the categories for substance use/nonuse and abuse were recorded. Fisher's exact test of association was used to determine if there is an association between a subscale high risk level and substance abuse.

**Table 4.6: Frequency distribution table for individual risk factors**

		N	Non-Use	Use	Abuse	p-value
Identity	Low Risk	1 745	47.34%	42.92%	9.74%	<0.0001
	High Risk	181	15.47%	32.6%	51.93 %	<0.0001
Sense of belonging	Low Risk	1 734	46.19%	44.06%	9.75%	<0.0001
	High Risk	192	27.6%	22.92%	49.48 %	<0.0001
Self-efficacy	Low Risk	1 837	46.05%	42.62%	11.32 %	<0.0001
	High Risk	89	8.99%	28.09%	62.92 %	<0.0001
Future Hope	Low Risk	1 821	46.9%	42.01%	11.09 %	<0.0001
	High Risk	105	0	40.95%	59.05 %	<0.0001

The number of participants in high risk for all subscales is proportionally lower compared to the low risk. However, for substance abuse the percentages are significantly higher for the high risk population. In the subscale hope for the future all participants in the high-risk category were substance users and substance abusers. At 5% level of significance there is a significant association between high risk and substance abuse in all subscales in the individual domain fishers exact  $p < 0.0001$ .

**Table 4.7: Correlation between individual risk factors and substance abuse**

Risk Subscale	Pearson Coefficients	Correlation	P-value
Identity	0.358		<0.0001
Sense of belonging	0.3461		<0.0001
Self-efficacy	0.315		<0.0001

Future hope	0.3166	<0.0001
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Pearson correlation coefficients were calculated to determine the nature of linear relationship between substance abuse and the subscale domains. From *table 4.7*, at 5% significance level, there is a medium positive relationship between substance abuse and all the individual risk domains.

#### 4.4 Environmental factors related to adolescent substance abuse

Environmental risk factors subscales included family management, peer influence, neighborhood, mixed messages, tolerances, and economic pressure. Each of the subscale was scored for high risk and low risk and within each of the two subgroups number of individuals within each of the categories for substance use/nonuse and abuse were recorded. Fisher's exact test of association was used to determine if there is an association between a subscale and substance use

***Table 4.8: Frequency distribution table for individual risk factors***

		N	Non-Use	Use	Abuse	p-value
Family Functioning	Low Risk	1 775	44.85%	42.25%	12.9%	<0.0001
	High Risk	151	38.41%	38.41%	23.18%	<0.0001
Economic Pressure	Low Risk	1 835	44.63%	42.83%	12.53%	<0.0001
	High Risk	91	38.46%	24.18%	37.36%	<0.0001
Peer Influence	Low Risk	1 113	58.04%	37.38%	4.58%	<0.0001
	High Risk	813	25.58%	48.22%	26.2%	<0.0001
Neighbourhood	Low Risk	1 576	44.48%	43.72%	11.8%	<0.0001
	High Risk	350	43.71%	34%	22.29%	<0.0001
Mixed Messages	Low Risk	763	62.65%	31.59%	5.77%	<0.0001
	High Risk	1 163	32.33%	48.75%	18.92%	<0.0001

Drug Tolerance	Low Risk	1 033	35.33%	53.34%	11.33%	<0.0001
	High Risk	893	54.76%	28.78%	16.46%	<0.0001

Overall, they were more participants in the low risk participants of each environmental domain. However the proportion of participants in the high risk scores for peer influence, mixed messages and drug tolerance is significantly higher compared to the high risk scores in other subscales. High risk participants in all subscales have a higher frequency of substance abuse. At 5% level of significance there is a significant association between high risk and substance abuse in all subscales in the environment domain fishers exact  $p < 0.0001$ .

***Table 4.9: Correlation between environmental risk factors and substance abuse***

Risk Domain	Pearson Correlation Coefficients	P-value
Family Functioning	0.0803	0.0004
Economic Pressure	0.1532	<0.0001
Peer Influence	0.3104	<0.0001
Neighbourhood	0.1175	<0.0001
Mixed messages	0.187	<0.0001
Drug tolerance	0.0745	0.0011

Pearson correlation coefficients were calculated (Table 4.9) to determine the nature of linear relationship between substance abuse and the subscale domains at 5% significance level, there is a small positive relationship between substance abuse and all the environmental risk domains, except for peer influence which has a medium positive correlation with substance abuse.

#### **4.5 Demographic factors affecting adolescent substance abuse**

Demographic risk factors included age, sex and type of school attended by the adolescents. Each of the domains categorised for substance use/nonuse and abuse are recorded. Fisher's exact test of association was used to determine if there is an

association between the various scales and substance use

**Table 4.10: Frequency distribution table for age**

Age	N	Non-Use	Use	Abuse	p-value
12	155	44.52%	41.29%	14.19%	0.989
13	225	40.89%	45.33%	13.78%	0.989
14	264	45.83%	39.77%	14.39%	0.989
15	292	43.84%	43.84%	12.33%	0.989
16	287	46.34%	41.46%	12.2%	0.989
17	294	43.54%	42.86%	13.61%	0.989
18	222	44.14%	39.64%	16.22%	0.989
19	135	43.7%	41.48%	14.81%	0.989

The 12 and 19- year olds comprised of the fewer members of the groups and the 16 year old age group has the highest number of non-substance users while substance use is more prevalent among the 13- year olds. Substance abuse is high among the 18- year olds. At 5% level of significance there was no significant relationship between adolescent's age and substance abuse

**Table 4.11: Frequency distribution table for Sex**

Sex	N	Non-Use	Use	Abuse	p-value
Male	1 070	44.11%	42.9%	12.99%	0.608
Female	840	44.64%	41.07%	14.29%	0.608

They were fewer females than males but on percentage more females 14.29% were substance abuser with more males involved in use compared to women, for the Nonuse category the proportions are generally equal. There was no significant association between gender and substance at 5% level of significance (fishers



exact=0.608)

**Table 4.12: Frequency distribution table for type of school**

School	N	Non-Use	Use	Abuse	p-value
Public	1 160	41.55	44.74	13.71	<0.0001
Private	507	43.59	43.39	13.02	<0.0001
College	259	58.3	26.64	15.06	<0.0001

At 5% significance level there is an association between type of school and substance abuse (fishers exact<0.01) adolescents from colleges had a higher percentage for both non use and abuse.

#### **4.6 Regression Analysis**

A logistic regression model between substance abuse as the dependent variable and risk domains as the independent variables (covariates) was developed. The purpose of this model was to answer the question “Does exposure to a risk domain affect an adolescents odds of abusing substances?”

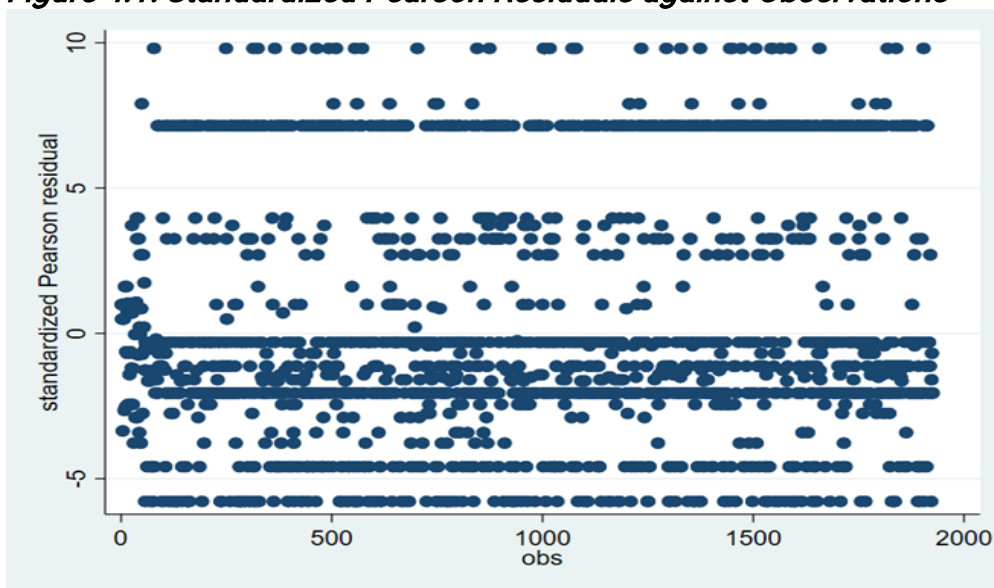
##### **4.6.1 Model building**

In fitting the logistic regression model, the Bayesian Information Criterion (BIC) was used, Akaike Information Criterion (AIC) and likelihood ratio test to find the “best” model. “Best” model is defined as one which is parsimonious and has good explanatory power. First only one covariate is regressed with substance abuse and the model with the lowest BIC and AIC was chosen. Covariates were added one at a time and the model that reduced the BIC and AIC significantly than others was chosen. The likelihood ratio test was used to select a model where the numbers of observations were equal and two models had very similar but not necessarily equal BIC and AIC. Out of the 13 covariates that initially

present, only 7 were included in the model. Coefficients for type of school, age, sex, economic pressure, neighbourhood and hope for the future were found not to be significantly different from zero ( $p>0.1$ ) and these were not included in the final model. However, before the model can be interpreted, it is necessary to check that this form of the linear predictor is appropriate and that there aren't any unusual observations which are exerting undue influence on the model.

#### 4.6.2 Model Diagnostics

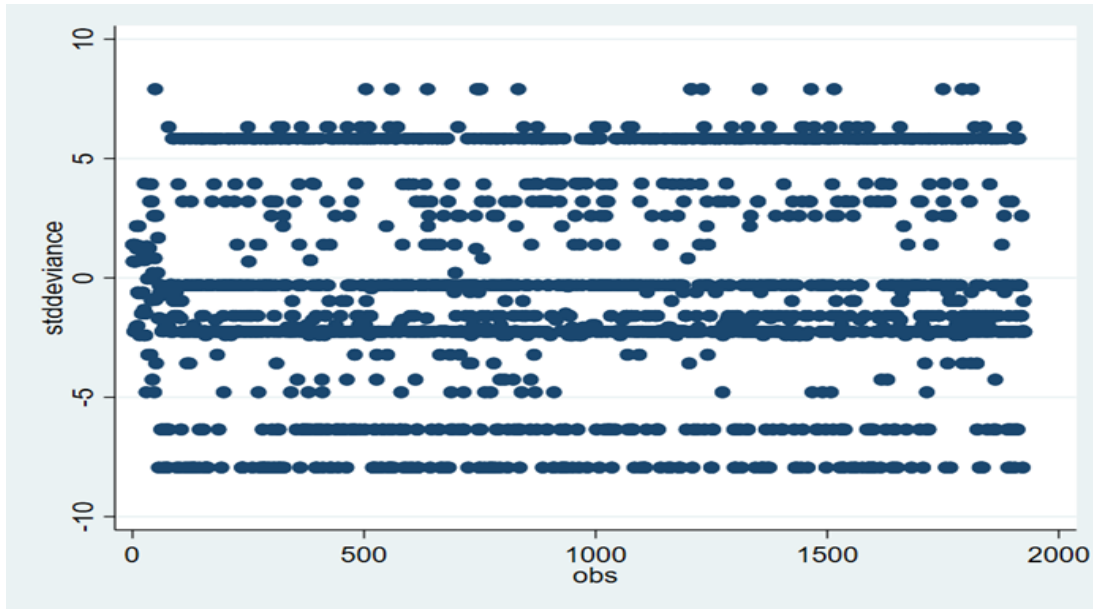
*Figure 4.1: Standardized Pearson Residuals against Observations*



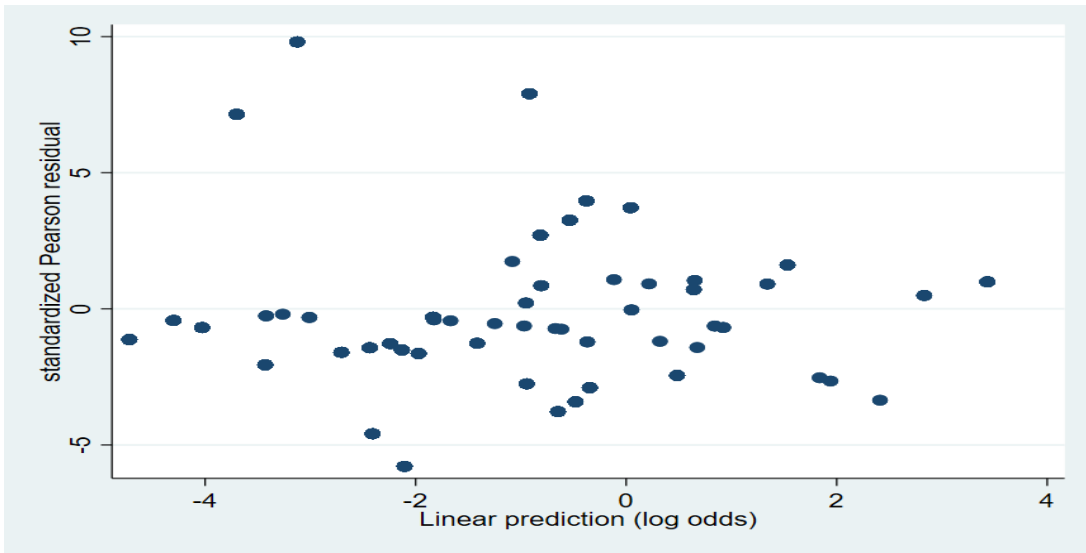
In this section, all the residuals needed as new variables were created using Stata. This was done to find any particularly large residuals which may be of concern as far as the fitted model is concerned. Figures 4.1 and 4.2 show a random scatter of the residuals against observations which indicate that linear predictor is satisfactory and correctly specified. The graphs of residuals against linear predictor (Figures 4.3 and 4.4) show that the residuals are pretty symmetrically distributed between -5 and 5, tending to cluster towards the middle of the plot. In general, the residuals are well behaved as they are clustered around the lower single digits of the y-axis, i.e. between -5 and 5, and do not show any clear pattern (randomly spread) suggesting

that the model is a good fit. However, there are possible outliers in the model as shown by a few points falling outside the range of -5 and 5 where most of the points are clustered. An investigation on some of these observations showed a normal and expected covariate pattern.

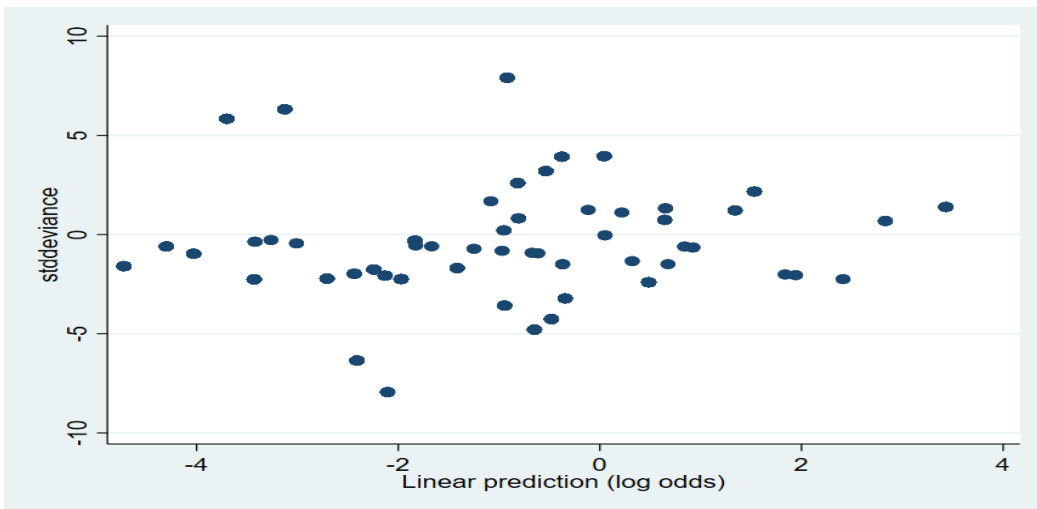
**Figure 4.2: Standardized Deviance against Observations**



**Figure 4.3: Standardized Pearson Residuals against Linear Predictor**



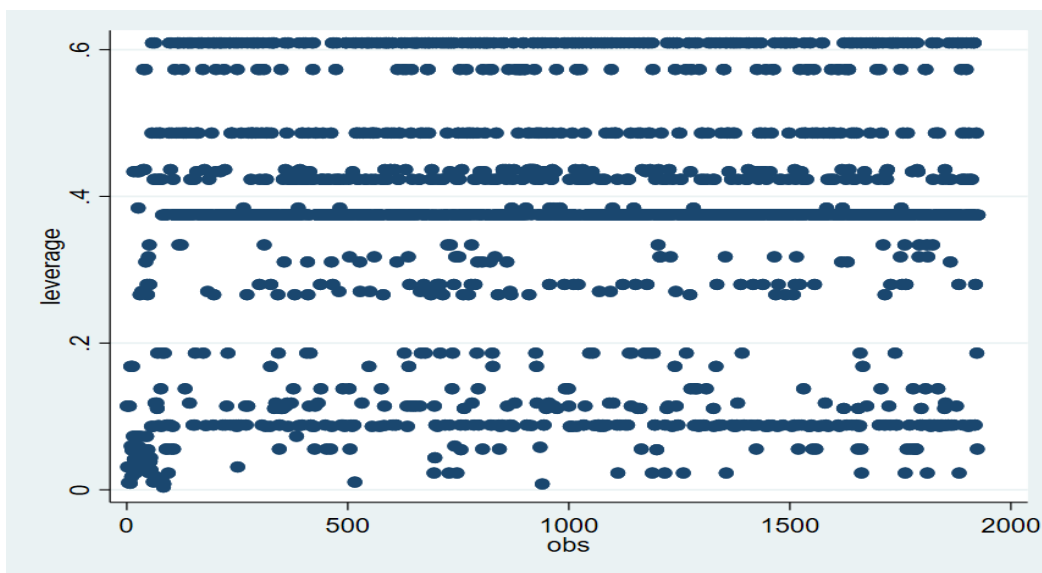
**Figure 4.4: Standardized Deviance against Linear Predictor**



To investigate whether an observation is an outlier exerting undue influence on the model, a graph of leverage against observations was plotted as shown in Figure 4.5.

Observations with high leverage were identified and investigation of these observations showed a normal and expected covariate pattern. Therefore, observations with high leverage were not exerting undue influence to the model and are therefore not of concern as far as model specification is concerned. In detail, the specificity of this model is 98.1% and the sensitivity 32.6% with 89.2% cases being correctly classified (Table 4.13). The model has good predictive power as shown by the area of 0.84 under the Receiver Operator Curve (Figure 4.6). As such the model is “best” in terms of the covariates included.

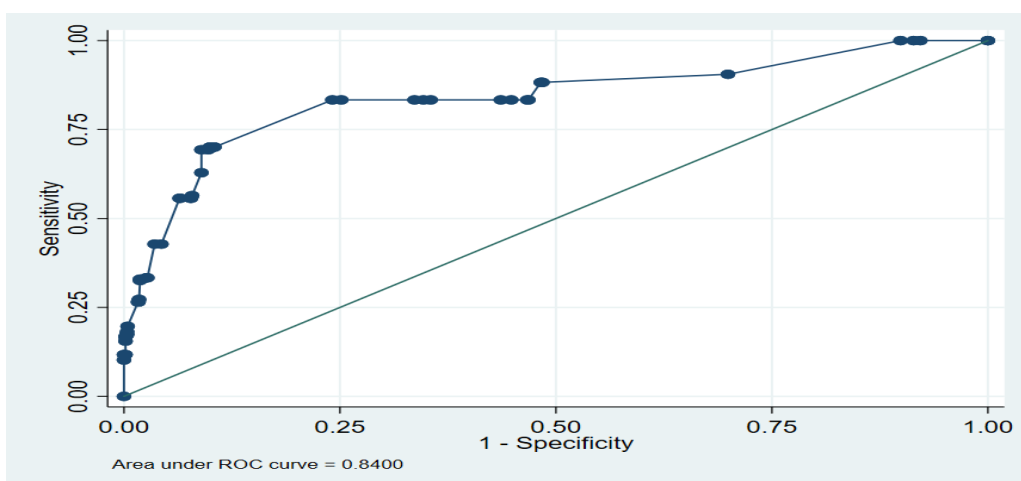
**Figure 4.5: Leverage against Observations**



**Table 4.13: Sensitivity, Specificity, Predictive values and Classification of the model**

Sensitivity	32.58%
Specificity	98.13%
Positive predictive value	73.50%
Negative predictive value	90.16%
Correctly classified	89.15%

**Figure 4.6: Receiver Operator Curve**



### 4.6.3 Model Interpretation

Having been satisfied with the model, it is necessary to interpret the results of the model. Seven risk domains were included in the model as covariates. Table 4:14 shows the coefficients of the logistic regression model as well as the associated adjusted odds ratios for the seven risk domains.

**Table 4.14: Logistic Regression Coefficients and corresponding Adjusted Odds Ratios**

Risk Domain	Coefficients	95% CI	Adjusted Odds Ratios	95% CI	P-value
Peer Influence	1.59	1.22-1.96	4.92	3.40-7.13	<0.0001
Sense of Belonging	1.46	1.06-1.86	4.30	2.88-6.41	<0.0001
Identity	1.30	0.89-1.71	3.67	2.44-5.51	<0.0001
Future Hope	1.49	0.96-2.03	4.44	2.58-7.65	<0.0001
Mixed messages	1.29	0.85-1.73	3.64	2.35-5.63	<0.0001
Drug tolerance	1.02	0.66-1.38	2.77	1.93-3.99	<0.0001
Family functioning	-0.60	-1.17-(-0.03)	0.55	0.31-0.97	0.038
Constant	-4.72	-5.27-(-4.17)	0.01	0.01-0.02	<0.0001

From the model, a student classified as high risk in any of the risk domains, except the family functioning risk domain ( $P = 0.038$ ), is more likely to abuse substances than one classified as low risk. Those who are classified as high risk in the peer influence risk domain are five times (coefficient, 1.59) more likely to abuse substances than those classified as low risk. This risk domain has the highest likelihood of substance abuse if classified as high risk in this domain than any other risk domain, followed by the Future Hope risk domain (coefficient, 1.49).

### 4.7 Chapter Summary

The chapter covered data presentation and analysis. Data was presented under

three themes which sought to answer the study's research questions. The next chapter deals with discussions, conclusions and recommendations based on the presented and analysed data.



## **CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

The chapter discusses the study's results by drawing comparisons with other similar studies. Conclusions which answer the study's research questions are presented. The chapter concludes by submission of recommendations.

### **5.2 Discussion of results**

Adolescent substance use was very prevalent (55.7%) amongst the adolescents in Harare northern central district high schools. In their study Rudatsikira et al. (2009) recorded a prevalence of 18.3% a figure which has since almost tripled therefore concurring with the WHO (2014) report on adolescence substance abuse becoming a major public health concern globally. The aim of the study was to determine the risk factors for adolescent substance abuse amongst in Harare northern district high schools using descriptive analysis methods. The ecological theory of Bronfenbrenner views individuals in context and postulates that the environment through its multilevel system influences the individual through interactions with their biological and psychological dispositions. The results from the individuals' dispositions, demography and environmental will be discussed

#### **5.2.1 What are the individual risk factors for adolescent substance abuse?**

High risk scores in the identity subscale were consistent with empirical studies on their consistency to predict risk for adolescence substance abuse in comparison to low risk score. High risk within the identity domain which is linked to identity diffusion, moratorium and foreclosure and not achievement (Erikson, 1994) was a significant predictor of substance abuse amongst the adolescence which is a consistent finding in relation to empirical studies on identity and substance abuse (Berzonsky & Adams, 1999; Dumas et al., 2012). An adolescent in the high risk domain on the identity scale is 4 times (CI: 2.44 - 5.51) likely to abuse drugs than one who is diagnosed as low risk ( $p < 0.0001$ ). Dumas et al. (2012) concluded that identity commitment was a buffer against substance abuse while identity diffusion, moratorium and foreclosure was a risk factor. Adolescence with poor identity

development are more likely to be influenced by peers as they have not committed to any values and goals as they experiment with various alternatives (Marcia, 1993). Multivariate Poisson regression indicated that personal identity consolidation was negatively related to binge drinking, and illicit drug use in a college sample of 1546 male and females (Schwartz et al., 2010; Schwartz et al., 2013) thereby supporting the findings of the current study that high risk in the identity subscale associated with poor identity consolidation has significant predictive power for adolescence substance abuse.

Sense of belonging scale measured an adolescent's perception of their community belonging and individuals who felt alienated from their communities were indicated as high-risk groups. There was a significant predictive power of adolescence substance abuse for adolescence scoring high risk within this domain confirming the findings of Baumeister and Leary (1995) who indicated that all human beings, adolescence included; have a fundamental and pervasive need to belong and the absence of such attachment can lead to high risk behaviours such as substance abuse. An adolescent in the high risk domain on the sense of belonging scale is 4 times (CI: 2.88 – 6.41) likely to abuse drugs than one who is diagnosed as low risk ( $p < 0.0001$ ). With more recent empirical findings indicating that a low sense of belonging is a precipitator for depressive symptoms. In their study McCallum and McLaren (2010) concluded that low scores in the sense of belonging to the general community measure contributed significantly to prediction of depression and loneliness using regression models. Lambert et al. (2013) concluded that sense of belonging ensures meaning in life and a positive sense of belonging is likely to steer away adolescents from high risk behaviours as they perceive their contribution as valuable and meaningful to their communities.

Hope for the future scale measure adolescent's hopelessness about their outcomes within their community and adolescent who were considered high risk had scores signifying hopelessness and the high-risk scores were predictive of adolescent substance abuse. An adolescent in the high risk domain on the hope for the future

scale is 4 times (CI: 3.4 - 7.1) likely to abuse drugs than one who is diagnosed as low risk ( $p < 0.0001$ ). Hopelessness is often linked to depression (Duke et al., 2011) which has been indicated as a strong predictor of comorbidity of adolescence substance abuse. Preuss et al. (2002) indicated that people with depressive feeling may use substances to cope (self-medicate). Depression and substance abuse are considered as different expressions of underlying risk factors such as difficult in emotional regulation (Preuss et al., 2002). Empirical findings have consolidated the theoretical assumptions as Kumpulainen (2000) study of 15 year olds concluded that male and female heavy users of alcohol had more commonly displayed externalizing behaviour and hyperactivity 3 years earlier than had their peers. Logistic regression analysis using parent-assessed symptoms and self-reported depressive symptoms showed that externalizing behaviours and depression were the factors predicting the heavy use of alcohol in adolescence

Adolescents who were able to solve problems, make independent decisions and felt capable were scored as low risk on the self-efficacy subscale. On the other end of the spectrum were the high-risk group who did not trust in the ability to deal with issues arising in their life. High risk in the self-efficacy domain had a positive medium correlation with substance abuse ( $r = 0.315$ ,  $n = 89$ ,  $p < 0.0001$ ). However, when adjusted for odds ratios it had no significant predictive power thereby indicating there could be moderating factors as highlighted by Baumeister et al. (2005) that poor self-efficacy on its own is not significantly predictive of adolescence substance abuse but only becomes predictive in the presence of environmental risk such as peer influence and neighbourhoods. McKay et al. (2012) indicated that self-efficacy exists in 3 sub categories which are academic self-efficacy, emotional self-efficacy and social self-efficacy. In their study of self-efficacy and its correlation with adolescent alcohol involvement. They concluded that low academic and emotional self-efficacy are significant predictors of substance use. Notably higher social self-efficacy was also indicated as a significant predictor of substance abuse

### **5.2.2 Are there any environmental risk factors for adolescent substance abuse?**

The subscales which measured risk in the environment at micro system, meso system and macro system were also consistent with empirical findings in that high-risk score in the subscales significantly predicted adolescent substance abuse. High risk in the peer influence, mixed messages and tolerance for soft drug use by children had a significantly higher predictive power when adjusted for odds ratios.

A critical finding in this study was that peer influence was a significant predictor of adolescent substance abuse. An adolescent in the high risk domain on the peer influence sub scale is 5 times (CI: 3.4 - 7.13) likely to abuse drugs than one who is diagnosed as low risk ( $p < 0.0001$ ). Adolescents who were more prone to succumb to peer influence in order to conform were ranked in the high-risk spectrum of the scale. The adolescents who were more likely to change in order to fit in and conform to avoid being embarrassed were more likely than their peers who didn't thrive on conformity and fitting to end up involved in substance abuse. The current study confirms existing empirical influence on the significance of peer influence; where peers involved in substance abuse tend to influence adolescent to substance abuse (Bahr et al., 2005). They influence either through modelling or direct invitation as indicated by Loke and Mak (2013) in their study of 805 secondary school students in Hong Kong. They concluded that having a friend who was involved in substance use and an invitation to try substance abuse were strong and dominant contributors to adolescence substance abuse. Harrison et al. (2000) in their analysis of frequency of substance use and how it was obtained noted that adolescents who had an increased frequency of substance use were more likely to have obtained it from social sources than commercial sources and peers were the most common social source. This explains the significant correlation between high risk in peer influence and actual substance abuse as peers can serve as access sources. Besides the fact that peer pressure is conducive in the life of an adolescent, literature has shown that peers provide a normative regulation as they provide a staging ground for identity development. Koepke and Denissen (2012) concluded that adolescents who often have trouble finding their identity experiment with varied roles and discover their identities through their involvement with peers which Erikson and Erikson

(1998) attributes to adolescent trying to figure out what is unique and distinctive about themselves. Dumas et al. (2012) found that identity commitment is a buffer to substance use and identity exploration is a buffer to general deviancy in more pressuring peer groups. Accordingly, adolescents affiliated with a certain crowd or group are likely to be influenced by the group's norms and will adopt their normative behaviours (Dumas et al., 2012).

Mixed messages subscale looks at confusing information encoded to the adolescence concerning substance abuse which causes a double bind as each message negates the other. Adolescents who were scored as high risk within this subscale felt confused by the dual set on information communicated by the environment to them. High risk in the mixed messages subscale predicted adolescent substance abuse which is consistent with research findings that negative drug messages were not significant in reducing drug use (Shehu & Idris, 2008) while permissive messages were associated with frequent alcohol use (Reimuller et al., 2011) as well as media messages (Viriri et al., 2011; Zyaambo et al., 2013). An adolescent in the high risk domain on the mixed messages subscale is 4 times (CI: 2.35 – 5.63) likely to abuse drugs than one who is diagnosed as low risk ( $p < 0.0001$ ). The media can promote substance abuse through its portrayal of substance use as cool within songs and adverts whilst anti substance abuse campaigns will cast it in bad light thereby sending mixed messages to adolescents which may be confusing and reduce the significance of the other.

Adolescents from communities that had tolerance for use of soft drugs by young people scored high in the subscale and it had significant predictive power for adolescent substance abuse. An adolescent in the high risk domain on the tolerance for use of drugs by young people sub scale is 3 times (CI: 1.93 - 399) likely to abuse drugs than one who is diagnosed as low risk ( $p < 0.0001$ ). This findings concurred with Eide and Acuda (1996) who indicated that societal values and attitude favourable to substance use pose a risk factor to adolescents for substance abuse. Availability of alcohol and its sale to younger people as well as absence of criminal

laws on drug trafficking pose a risk factor to the adolescent as both legal and illegal drugs are much more available. Viriri et al. (2011) in their analysis of lyrical content of “urban groovers” who are musicians more popular among the adolescent population indicated that the messages conveyed encourages adolescents’ socialization to substance use. Tolerance for soft drugs can possibly be communicated using media such as adverts and music. Studies both abroad (i.e. United States) and in Africa (i.e. Zambia) established pro-tobacco advertisements to encourage the uptake and maintenance of substance abuse among adolescents (Gritz et al., 2003; Siziya, Rudatsikira, Muula, & Ntata, 2007). Pro-tobacco media exposure is frequently found to be a great risk factor for adolescent smoking (Gilpin, Lee, & Pierce, 2004).

High risk in the family functioning subscale has an association with substance abuse ( $p < 0.0001$  Fishers exact test) and a weak linear relationship with adolescence substance abuse ( $r = 0.0803$ ,  $n = 151$ ,  $p = 0.0004$ ). The family function subscale scored adolescents whose family functioning predicted warmth, nurturance, control and communication in the low risk domain and these were less likely to be involved in substance abuse compared to their peers in the high-risk domain. Family functioning of high risk adolescents indicated low scores in nurturance, communication, parental control and communication. The results of this study concurs with Baumrind (1991) grouping of parenting styles and the findings that authoritarian and permissive parenting styles are linked to higher rates of substance abuse in adolescence unlike authoritative parenting. Newman, Harrison, Dashiff, and Davies (2008) also confirmed the findings stating that authoritative parenting styles in general is associated with more positive adolescent wellbeing. Generally parents who are perceived to apply an authoritative parenting style in child care are more likely to raise adolescents who are well adjusted exhibiting lower rates of mental illness (McKinney, Donnelly, & Renk, 2008). These studies affirm the results obtained in the present study, lending credence to the conclusion drawn that perceived authoritative parenting styles which was indicated by low risk scores in family functioning subscale are related to a lower rate of adolescent substance use.

However, family functioning when adjusted for odds ratios has a low predictive power.

Economic pressure in the family subscale focused on the family of the adolescent's ability to meet their financial obligations. Adolescents whose family struggled to meet the financial obligation fell within the high risk cohort. High risk in the economic pressure in the family had an association with adolescent substance abuse for  $n=91$  ( $p<0.0001$  Fishers exact test) Confirming previous studies which indicated that poverty, living a stressful life and long working hours for parents is more likely to place the adolescent at risk of becoming a substance abuser (Drugs & Crime, 2010; Ramlagan et al., 2010). Mudavanhu (2013) concludes that economically disadvantaged youth in Cape Town are at greater risk of developing substance abuse. However Koplewicz et al. (2009) refute that economic disadvantage was a significant predictor of adolescent substance abuse citing that economic privilege which he termed "affluenza" was a predictor of adolescent substance abuse as affluent adolescents showed noncommittally elevations in substance abuse as with the adolescence in the current study who were primarily from middle to high income communities and had significant rates of substance abuse. There was no statistical significance in the type of schools attended and adolescent substance abuse concurring with the findings from Koplewicz et al. (2009) that high SES is not necessarily a buffer against adolescent substance abuse. Economic pressure is at times affected by events in the broader macro and chrono system of the country's economy where provision of basic need is affected by policy not necessarily linked to low SES (Turner, Irwin Jr, & Millstein, 2014). Gana (2004) in a study of adolescence in metropolitan cape indicated that adolescents from richer families have more resources to access legal and illegal substances as they have increased resources than their peers from poor families. Whites ranked high for substance abuse in comparison to the black adolescent's population who were more economically disadvantaged.

Substance abuse was associated with high risk behaviour within the neighbourhood

domain ( $p < 0.0001$  fishers exact test). But failed to predict substance abuse when adjusted for odd ratio. Neighbourhoods considered to be high risk are characterized by availability of drugs and fewer control giving undeterred access to both illegal and legal highs (Beyers, Bates, Pettit, & Dodge, 2003) for the growing adolescent. This finding confirms data from existing studies on neighbourhood and the risk it possess for substance abuse such as Ramlagan et al. (2010) who in their study of south African adolescents to determine epidemiology of substance abuse concluded that living in an area surrounded by substance users increased the risk of the adolescent to end up involved in substance abuse. However Jackson and Butler (2015) concluded that high geographical concentrations within neighbourhoods were associated with substance abuse. However the current results were drawn from adolescents residing in neighbourhoods with fewer geographical concentrations thereby indicating that geographical concentrations may not be in fact the only important factor in risk neighbourhoods. (Reddy et al., 2002) noted that “at risk” in adolescents is often used to denote adolescent from disadvantaged neighbourhoods however (Jackson & Butler, 2015) argued that risk in adolescents is a natural process and occurs in all neighbourhoods.

### **5.2.3 Which demographic risk factors pose risk factors for adolescents substance abuse?**

A key finding of this study is that gender does not significantly pose risk for adolescent substance abuse. This pattern is consistent with empirical research that found no significant association between adolescent gender and substance abuse among 20 227 learners in South Africa on lifetime prevalence for both males and females (N Morojele et al., 2013). Cotto et al. (2010) concluded that patterns of abuse differed by type of drug as their results indicated that although males were more likely to meet substance abuse criteria the pattern only held for marijuana in the younger groups aged 12- 17. Bandason and Rusakaniko (2010) confirmed the drug specific prevalence across gender they concluded that Males were more at risk for tobacco use compared to females in the 12-19-year age group. The current study however did not differentiate on type of drugs which could explain the emerging



patterns of no significant difference on substance abuse between male and female adolescents in Harare northern central district high schools. The trend however is contrary to other studies that have found significant differences between males and females regarding substance abuse (WHO, 2014)

Age was also not a significant predictor of substance abuse contrary to empirical studies which indicated that proportions of alcohol users increase steadily from age 9 -16 (Duncan et al., 2006). (F. A. Wagner & Anthony, 2002) highlighted that age of first use is the most widely supported risk factor as odds of developing substance abuse decreased by 9% each year that the onset of drinking was delayed. The current study did not enquire on age of onset to ensure further analysis of age and substance abuse

Type of school attended by adolescent was also not a significant predictor of substance abuse a result which concurs with Luthar and Latendresse (2002) who contend that affluence associated with private schools is not a protective factor against substance abuse. Whilst causes and trajectories of substance abuse among adolescence from the types of school may differ there is no type of school which poses more risk compared to the other. Type of school variable could have been moderated by the neighbourhood variable as the participants were drawn from the same district which is generally the affluent suburbs of Harare and the culture and values would be similar from school to school and between adolescents.

### **5.3 Conclusions**

Individual risk factors for adolescent substance abuse include a poorly developed identity of oneself, poor sense of belonging and hopelessness about the future. Adolescents in the high risk scores on the sense of belonging, hope for the future and identity subscales are more likely to be involved in substance abuse. However, it should be noted that there is an overabundance of other factors that play a contributing role thus explaining the group that is supposedly at risk but are non-

users at all and the non-risk group who are substance abusers.

Environmental risk factors which affect adolescent substance abuse include peer influence, mixed messages and tolerance for drug use which are strong predictors of adolescence substance abuse and family management though it has a poor predictive power. The findings confirm Bronfenbrenner's ecological model that the adolescent is at the center of their world and is constantly interacting, affecting and being affected by their environment.

The demographic variables are non-predictive of adolescent substance abuse as they are not statically significant when adjusted for odds ratios. This implies that an adolescent age, gender or type of school attended pose no risk factors for adolescent substance abuse.

Risk factor does not mean causality but their presence increases adolescence susceptibility to substance abuse, whilst the demographic variable poses no risk for adolescent's substance abuse. The continued interaction of the individual and their environment can precipitate substance abuse in the presence of predisposing factors in each of the domains. Individual risk factors are the strongest predictors of substance abuse as indicated in the correlational coefficients and adjusted odds ratio of the logical regression model. Environmental risk factors have a weaker correlation and predictive power of substance abuse except peer influence which is consistent on the two scales correlation and adjusted odds.

### **Limitations**

The data was collected from northern central district only and the findings cannot therefore be generalised to all adolescents in Harare. The sample consisted of school going adolescents enrolled in formal and registered colleges in Harare urban only but they are unregistered colleges, adolescents being home schooled and others who have dropped out of school altogether. Self-report questionnaires were used in the current study which are not always considered reliable for capturing

participant's true opinion as they tend to provide socially desirable responses in over reporting or under reporting as indicated in the outliers of the regression model. The instrument itself though valid and reliable in an African context (South Africa) it's still need to be investigated further to examine validity and reliability of the scale among adolescents in Zimbabwean communities. The school environment as a stressor was not taken into consideration in the study though it is considered a major risk factor for adolescence substance abuse. Perhaps one of the most felt limitation was grouping together drugs that could be abused as literature indicated that epidemiology for different drugs differs significantly. Therefore, the current study could not produce knowledge about individual inferences for specific drugs

#### 5.4 Recommendations

- **Parliamentary legislators:** Address legislation which send mixed messages to adolescence and tolerance for drug use within communities and ensure more punitive measures are put in place to deter importation, selling and use of drugs.
- **Ministry of Primary and Secondary Education (MoPSE):** As the primary custodian of learners in schools there is need to facilitate for a nationwide study to ascertain actual prevalence of substance use and abuse in schools to help ensure comprehensive and relevant intervention aimed at both learners and teachers
- **Mental Health practitioners:** It is recommended that they design effective intervention programmes in addressing risk factors of adolescent substance abuse which are contextually relevant
- **Parents:** There is need for parents to create safer environments were children feel safer to explore. This can be achieved by practising authoritative parenting. Understanding the development of substance abuse from seemingly innocent use of "gateway" drugs such as alcohol.
- **Adolescent:** understand the context of adolescence development and its

psychosocial challenges and how best they can navigate through its related challenges

- **Researchers:** Conduct comprehensive epidemiological surveys of substance abuse focussing on specific drugs per study. Develop screening tools which are empirically validated, contextually relevant and multilingual

## **5.5 Chapter summary**

The chapter presented discussion of the study's results and other research findings confirming the current findings of the study were noted. Conclusions and recommendations in line with the subject under investigation were also given. Substance abuse is a major public health threat to Zimbabwean adolescents, whilst adolescence is a period of exploration, creation of safer environments which do not increase adolescent's susceptibility to substance abuse remains crucial at all levels of the adolescence ecosystem.

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