

**TOBACCO USE, ALCOHOL CONSUPTION AND ILICIT DRUG USE AMONG
SCHOOL GOING ADOLESCENTS IN ZAMBIA: RESULTS FROM
KALULUSHI DISTRICT.**

BY

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19001409

**A THESIS SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE
MASTER OF PUBLIC HEALTH**

THE UNIVERSITY OF ZAMBIA

Lusaka

June 2022

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DECLARATION

I Chileshe Bautister declare that this dissertation is my own work and that all the sources i have cited have been indicated and acknowledged using complete references. I further declare that this dissertation has not been previously submitted for a Diploma, a Degree, Masters or for any other qualifications at this or any other university. It has been written according to the guidelines for Master of Public Health research Thesis of the University of Zambia.

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APPROVAL

This dissertation of Bautister Chileshe has been approved as fulfilling part of the requirements for the award of the degree of Master of public health by the University of Zambia.

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ABSTRACT

Introduction: Substance use is a global public health problem affecting adolescents and young adults especially in developing countries (Gotsang et al, 2017). Globally, 450,000 people died as a result of substance use, of those deaths, 167,750 were directly associated with drug use disorders mainly overdose (World Health Organization WHO, 2016). The problem negatively impacts the socio-economic, psychological, and physiological wellbeing of the abusers, their families and community at large. This study used a cross sectional study design to assess the prevalence and predictors of Tobacco smoking, alcohol use and illicit drug use among secondary school going adolescents from Kalulushi district.

Methods: The Target population was 2000, out these, 333 school going adolescents from grade 8 to 12 were selected using random sampling. Adolescents below 18 years whose parents/guardians consented to participate in the study were included. Modified World Health Organization student drug survey was used to measure Tobacco and illicit drug use (Yes/No). Alcohol was measured by the Alcohol use and Dependency Inventory Tool (AUDIT-C) (Saunders, 1993). Data was analyzed using Statistical Package for Social Sciences (SPSS) and logistic regression models were used to determine associations/predictors of Tobacco smoking, alcohol consumption and illicit drug use among school going adolescents

Results: Prevalence of alcohol use was 75.1 percent, illicit drug use 71.2 percent and Tobacco smoking 52 percent respectively. In multivariable analysis factors significantly associated with alcohol consumption were, males had increased odds of drinking than girls (OR=1.15, CI=0.60,2.22), adolescents living with single parents were more likely to drink than those living with both parents (OR=10.35, CI=4.81,22.27). Factors significantly associated with smoking were: introducer to smoking (OR=1.94, CI=1.07, 3.53). Factors associated with illicit drug use were adolescents at Chavuma secondary school had reduced odds of using drugs than those at Kalulushi secondary (OR=0.35, CI=0.22,0.62).

Conclusion: Our study underscores the high prevalence of substance use among secondary school going adolescents and recommend intersectoral collaboration between the Ministry of health, Education, Parents, Community members, church, pharmaceutical Bodies to intensify ant-substance use measures and equip adolescents in self-awareness skills to cope with stress.

Key Words: Tobacco smoking, alcohol, Adolescent, Kalulushi district, drug use, school.

DEDICATION

This study is dedicated to the Almighty God for giving me the strength and skill to complete my study.

To my beloved husband J.S.K for believing in me, his total love and encouragement is amazing.

To my beloved children Nasalifya Siame, Kenny James Siame for their support and prayers, for making my life meaningful and for enduring my absence from home.

ACKNOWLEDGEMENT

I give praise and worship to the almighty God for granting me this opportunity to be in school and reach this far in my academic aspirations. I fall short of words to express my sincere tribute of praise for this immeasurable grace rendered to me.

My heartfelt gratitude goes to Dr Cosmas.S. Zyambo my supervisor for patiently guiding me and dedicating his valuable time to make this study a success. I appreciate his professional advice, timely response and critical analysis.

I sincerely thank the University of Zambia, Biomedical Research Ethics Committee (UNZAREC) for giving me the opportunity to carry out the research. Am grateful to the National Health Research Authority for their timely response, District Education Board Secretary (DEBS) Kalulushi, Head teachers for both Kalulushi and Chavuma Secondary schools for allowing me to carry out the research at their institutions. The University of Zambia School of Public Health for providing an environment that was conducive for learning.

- My family especially Aunty Bina for her support.
- My classmates for making study easy and enjoyable.
- All those who assisted me in one way or another in making this study a reality such as Mr R.F for his guidance, encouragement and patience when times were bad.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immuno Deficiency Syndrome
CDC	Center for Disease Control
DALYs	Disability Adjusted Life Years
DEBS	District Education Board Secretary
DEC	Drug Enforcement Commission
GRZ	Government of the Republic of Zambia
HIV	Human Immuno Deficiency Virus
MOE	Ministry of Education
MOH	Ministry of Health
NHRA	National Health Research Authority
NHRC	National Health Research Center
PBT	Problem Behavior Theory
SEM	Social Ecological Model
SLT	Social Learning Theory
UN	United Nations
WHO	World Health Organization

CHAPTER ONE

1.0 Introduction

1.1 Background

Substance use is a common behavior practiced by school adolescents and it remains a prominent public health problem (Sadock et al, 2011). Defining adolescence may be challenging but World Health Organization (WHO) exemplifies adolescence as the developmental stage or period between 10 to 19 years. This time of life represents a great share of the foundation for future health, behavioral patterns and the adoption of health behaviors relating to substance use.

Globally, 450,000 people died as a result of drug use, of those deaths, 167,750 were directly associated with drug use disorders mainly overdose. The rest were indirectly attributable to drug use and included deaths related to Human Immune Virus (HIV) and hepatitis C acquired through unsafe injecting practices (World Health Organization WHO, 2016). 3.8 percent mortality and 4.6 percent of disability-adjusted life year's (DALYs) lost are attributed to alcohol use, daga, opioids, tobacco and use of other substances such as petrol and Benylin, Rehm et al. (2009) Who many were lost to daga, opioids and tobacco use.

Some 31 million people who use drugs suffer from drug use disorders, meaning that their drug use is harmful to the point where they may need treatment. Opioids continue to cause the most harm, accounting for 76 percent of deaths where drug use disorders are concerned.

In the United States, 63,632 people died from drug overdose in 2016, the highest number recorded and a 21 per cent increase from the previous year (World drug report, 2018). This was largely due to a rise in deaths associated with pharmaceutical opioids, including fentanyl and fentanyl analogues.

Substance use in sub-Saharan Africa is generally widespread among adolescents (Kimberly et al, 2016). Research suggests that early 12 to 14 years old to late 15 to 17 years old adolescence is a critical risk period for the initiation of substance use and that

substance use may peak among young people aged 18 to 25 years (World Drug Report, 2018).

The most used substances by adolescents are cannabis, alcohol, daga, petrol, prescription drugs such as benylin and methylated spirit. There is evidence from Western countries that the perceived easy availability of cannabis, coupled with perceptions of a low risk of harm, makes the drug among the most common substance whose use is initiated in adolescence

Among 13- to 15-year-old African students, current drinking rates range from approximately 10% to 60 percent World Health Organization (WHO, 2014). Africa has huge young and vulnerable population which has become the target market for the illicit drug industry Muoti (2014). This constitutes 56 percent of the population aged between 14-19 years who are secondary school students. In Ethiopia it is reported that 82 per cent of the street children in Addis Ababa use some kind of a drug (United Nations, 2013). According to the United Nations (UN) statistics 2013, 37,000 people in Africa die annually from diseases associated with drug abuse. It is estimated that there are 28 million drug users in Africa (United Nations, 2013).

An international conference on drug abuse in Kampala 2013 reported that adolescents were the most vulnerable to substance use, especially those in the period of early and late adolescence who are mostly unable to resist peer pressure and start experimenting with drugs in schools or even outside school.

Drug use among adolescents differs from country to country and depends on the social and economic circumstances of those involved (World drug report, 2018). Two contrasting settings illustrate the wide range of circumstances that drive drug use among young people. On the one hand, drugs are used in recreational settings to add excitement and enhance the experience. On the other hand, adolescents living in extreme conditions use drugs and alcohol to cope with their difficult circumstances. The typologies of drugs used in these two different settings are quite different. Drugs such as “ecstasy”, methamphetamine, cocaine, ketamine are used in high-income countries. Substances that are likely to be used in poor settings range from daga, Tobacco, alcohol, petrol and

methyated spirit. Adolescents tend to use substances in settings ranging from secondary schools, homes surrounding school premises, interschool sports festivals and concerts.

The path from initiation to harmful use of substances among adolescents is influenced by factors that are often out of their control and are multifaceted. Factors at the individual /intra personal level include behavioral, mental health, neurological developments and gene variations resulting from social influences. At interpersonal level parental, family functioning may predispose them to dysfunctional norms. At organizational level, schools' lack of monitoring, dormant protective policies and peer influence may subject adolescents to substance use. At societal level availability, access due to vicinity of bars and taverns around school environment may facilitate initiation through curiosity. Inadequate utilization of protective policies, socioeconomic and physical environment can render adolescents vulnerable to substance use at policy level. These factors vary between individuals and not all adolescents are equally vulnerable to substance use. No factor alone is sufficient to lead to the use of substances and, in many instances, these influences change over time. Overall, it is the critical combination of the risk factors that are present and the protective factors that are absent at a particular stage in a young person's life that makes the difference in their susceptibility to substance use. Early mental, behavioral health problems, poverty, lack of opportunities, isolation, lack of parental involvement and social support, negative peer influences and poorly equipped schools are more common among those who develop problems with substance use than among those who do not.

Research on substance use among adolescents and young adults suggests that chronic use of substances is associated with deficits in domains including physical health, cognitive functioning, educational achievement, psychology, as well as overall impairment in social competencies and relationships (World drug report, 2018). Physical health problems experienced by young substance users most obviously include increased risk of overdose, accidental injury such as motor vehicle accidents or falls, and attempted suicide. A large, national study of 856,385 people who were admitted for drug use disorders into publicly funded treatment facilities in the United States showed that 28 per cent of the respondents had psychiatric comorbidity (Krawczyketal, 2017). Regular substance use can also

profoundly impact neurodevelopment, which can interfere with academic performance and cognitive functioning during adolescence and lead to dysfunction in the social and employment realms later in life (Kim et al, 2012).

Studies that have included individuals who initiate substance use during adolescence show persistent deficits into adulthood, with reported cognitive decline 10 years later, even in those who had quit, but more so for those who continued to use drugs (Karel et al, 2011). Harmful use of substances influences all the people in an individual's life, as well as society more broadly through the associated costs of their social, physical and mental health problems.

The cumulative and interactive consequences of harmful drug use further undermine young people's socioeconomic standing, the quality of the parenting they provide, their ability to develop positively supportive relationships and their ability to maintain employment, which further reinforces their substance use. Results from the Global School-based Student Health Survey by Page and Hall (2009) revealed that students who had 20 to 30 drinks in the past 30 days were almost 20 times more likely to have had sex. The use of illicit substances at an early age may lead to adolescents committing delinquent acts under the influence such as stealing in order to raise money for such activities, decrease in academic performance since there is lack of concentration among the pupils and they even fail to do their homework. These adolescents are also at risk of unplanned sex and unwanted pregnancies in case of girls. There is increased risk of contracting Human Immune-deficiency Virus (HIV) and acquired immunodeficiency syndrome (AIDS), they also run the risk of being involved in accidents as well as suspension or expulsion from school, which would ultimately affect their future. There is also increased risk of bullying for those that may not have the need to indulge leading to psychological and post-traumatic stress.

In Zambia, Kangwa (2019) in their study on alcohol abuse in school going students reported that 86.6 percent of students used substances such as alcohol. They also found that youths were engaged in use of illicit drugs at an early age. Chibale et al, (2018) in their study of alcohol abuse in Kalulushi Zambia also reported that 79 percent of secondary school going students abused alcohol.

The Ministry of Education working with other stakeholders such the Drug Enforcement Commission DEC has come up with some measures to mitigate substance use among school going adolescents in Zambia. Some of which are, teachers supervising school events such as inter- house sports activities, district/ provincial sports activities so that these events are substance free. Formation of anti- alcohol/ drug clubs, which sensitize pupils on dangers of alcohol.

The Liquor licensing Act Government of the Republic of Zambia (GRZ, 2011) bars underage drinking of alcohol. The Ministry of Education MoE has also included in their curriculum topics on substance use and its effects. Despite these measures having been put in place to mitigate the problem of substance use at National, District and school level, substance use among adolescents around Kalulushi district secondary schools remains a concern to all.

1.2 Statement of the problem

Tobacco use, alcohol consumption and illicit drug use has not spared secondary school going adolescents in Kalulushi District. The extent of the problem has not been well established. This development has raised concern among teachers, parents/ guardians, stakeholders such as Drug enforcement Commission DEC and community members at large who do not only fear that this might put many adolescents at risk of poor academic performance, mental health problems, behavioral problems, but also contracting Human Immune deficiency Virus HIV and other sexually transmitted infections.

Menon et al (2016) in their study of Alcohol and Tobacco usage among students in a higher education institution in Lusaka Zambia suggested that the prevalence of Tobacco and alcohol use occurs all years. They concluded that it is prudent for institutions who are looking after the youth for extended periods of time should put measures in place to curb regular and heavy consumption of alcohol. Other studies have found that youths were engaged in use of illicit drugs at an early age. Chibale et al, (2018) in their study of alcohol abuse in Kalulushi Zambia found that 79 percent of secondary school going students abused alcohol. Secondary schools in Kalulushi district have established guidance and counseling departments, which deal with, among other things, drug and alcohol use issues. In addition, through the Institution of Learning program, DEC is

conducting awareness campaigns among school adolescents on the dangers of drugs and alcohol use. Despite these strategies being implemented at district level, it is evident that Kalulushi district is still experiencing substance use cases among secondary school students. Most studies already conducted in the district used individual factors as a predictor to substance use behavior while the behavior of a student may be influenced by a multitude of factors. In order to tackle and reduce substance use problems among adolescents in secondary schools, its prevalence, multitude of its determining factors and its consequences need to be established.

To our knowledge, there is no data on the overall prevalence and factors that contribute to Tobacco use, alcohol consumption and illicit drug use in secondary school going students in Kalulushi district of Zambia. Therefore, a study of this nature is important to determine prevalence and predictors of Tobacco use, alcohol consumption and illicit drug use among adolescents in secondary schools in Kalulushi District to help inform policy on the mitigation strategy of combating substance use.

1.3 Theoretic framework

This study was guided by the Problem Behavior Theory (PBT) (Jessor, 1977).

1.3.1 Problem Behavior Theory (PBT)

Jessor's Problem Behavior Theory is a cross-culturally validated model that explains problem behaviors among adolescents including substance use (Jessor et al.1977). Problem Behavior Theory was reorganized in recent years to describe adolescent health behavior in terms of risk and protective constructs at the individual, family, and community levels (Turbin et al.2006). In this model there are three domains of protection such as models, controls and support and three domains of risk model, opportunity and vulnerability account for the variability in adolescent health behaviors. The study used the Problem Behavior Theory to identify and examine factors associated with substance use among secondary school students in Kalulushi district because of its relevance to the question of interest and because it has been validated in sub-Saharan Africa (Ndugwa et al.2011). Understanding the common risk and protective factors associated with substance use among secondary school students is imperative to the design and implementation of effective public health interventions. Problem Behavior Theory was

originally proposed by Richard Jessor in 1977 as a way of predicting proneness to deviance (unconventionality) and suggests multiple variables that instigate or prevent problem behaviors. The balance between these variables predicts engagement in problem behavior. Variables which instigate deviance have been defined as risk factors, whereas those which prevent or reduce the likelihood of problematic behavior have been defined as protective factors. Problem behaviors are defined by age and societal norms. Problem behavior theory provides a framework for understanding risky behaviors such as substance use during adolescence.

It defines risky behaviors as anything that can interfere with successful psychological development and problem behavior as risky behaviors that elicit either formal or informal social responses designed to control them (Jessor and Jessor, 1977). These behaviors may cluster to form a risky behavior syndrome when they serve to form a common social or psychological developmental function such as individuation from parents, helping to achieve adult status or helping to gain acceptance from peers.

These behaviors may help an adolescent to cope with failure, boredom, social anxiety, unhappiness, rejection, social isolation, low self-esteem or lack of self-efficacy.

The theory consists three systems to contribute to problem behavior such as perceived environment system, personality system and behavior system. The theory posits that under perceived environment system, instigating factors such as peers that support the problem, parents that do not disapprove of a problem, minimal parental support and control over adolescents may contribute to problem behaviors such as substance use. Personality system include factors within the individual that can contribute to problem behavior and influence personality such as low self-esteem, low value of academic achievement, low religiosity, and high value of independence. Behavior system may include behaviors that contribute to problem behavior such as experimental use of substances.

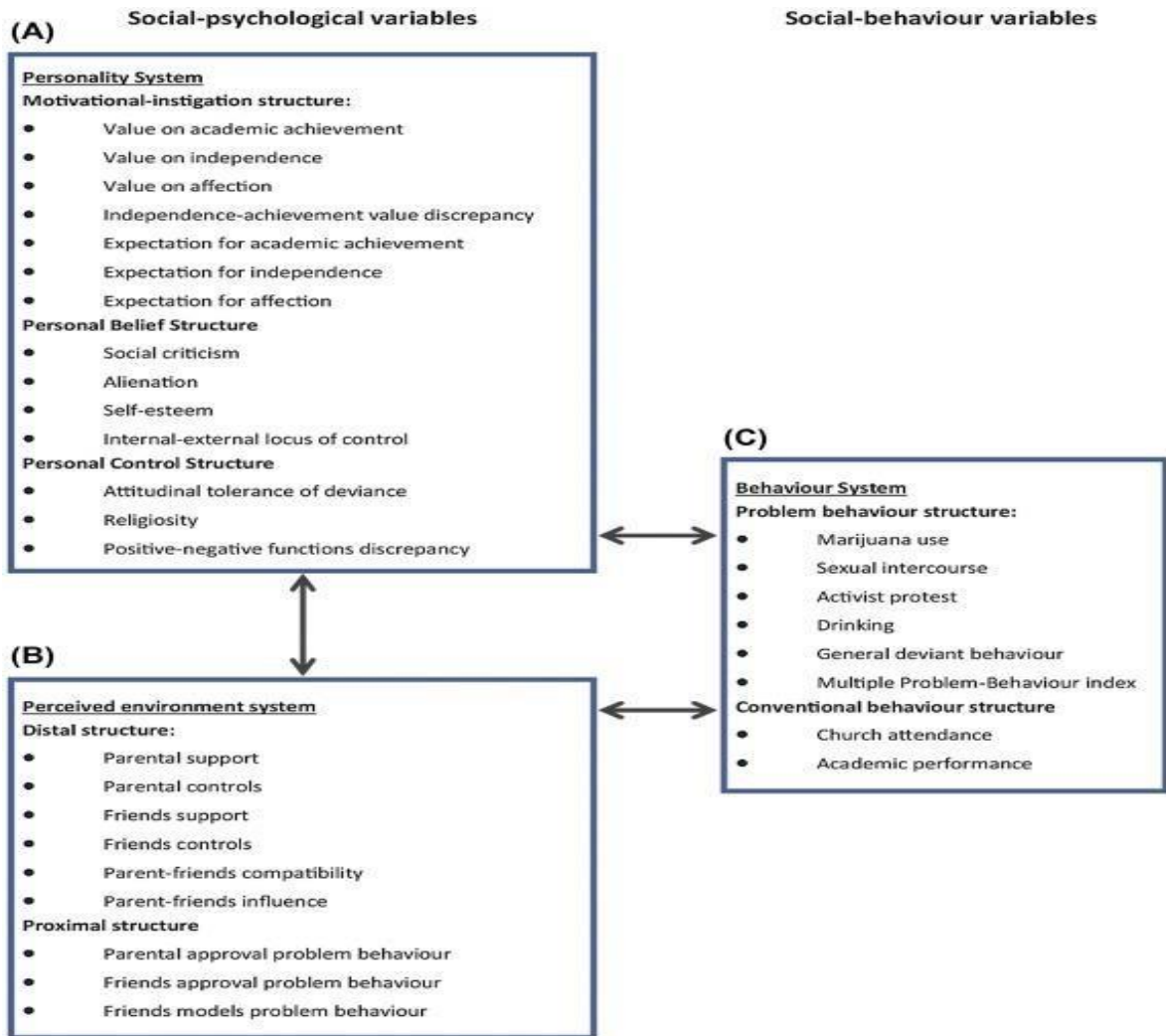


Figure 1: Problem Behavior Theory R. Jessor (1977) Mckeller K. Silience.E (2020). Current Research on Sexual Health and Teenagers (Retrieved February 11.21)

Problem behavior Theory relates to this study as some of its factors relating to substance use such as Environment system, personality and behavior are applicable to this study. Environmental system may contribute to adolescence substance use through distal and proximal exposure via parental permissiveness and friendship models. Personality factors such as impulsivity, poor coping skills and low academic value may predispose adolescents to substance use through one’s biological or own personality.

1.4 Conceptual Framework

This study focused on the relationship between respondents' exposure to substance use in terms of different multifaceted social domains such as Biological/intrapersonal, interpersonal, and social cultural influences. These were the independent variables (exposures), while Tobacco use, alcohol consumption and illicit drug use (substance use) was the dependent variable (outcome). These variables were borrowed from the Problem Behavior Theory.

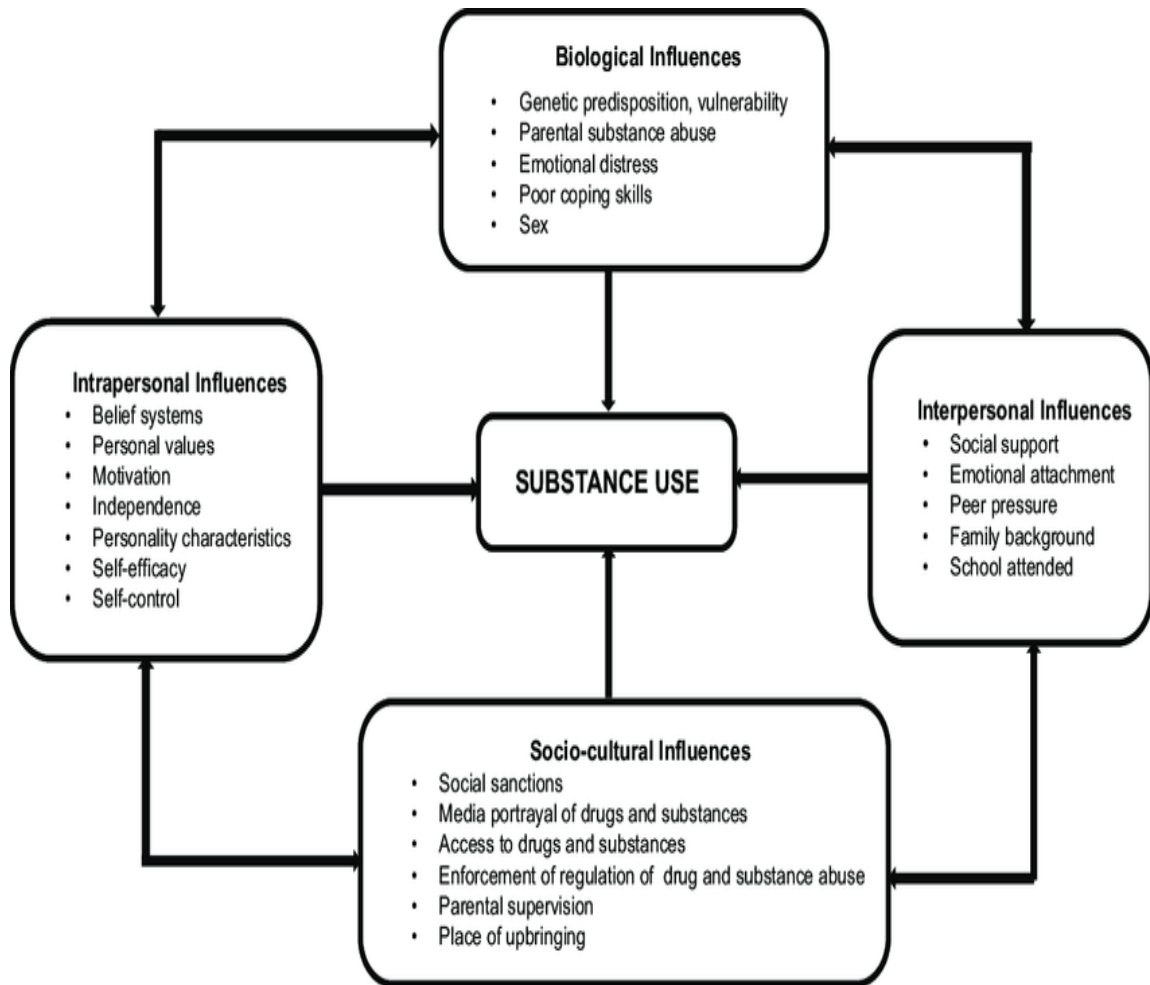


Figure 2: Conceptual Framework adopted from the Problem Behavior Theory (Jessor, 1977)

1.5 Factors influencing substance use in Adolescents

1.5.1 Biological Influence

While genes do not increase the risk of using or of developing harmful use of specific substances during adolescence, there is evidence that they do affect neurobiological systems and phenotypic traits that more directly influence pathways to or from substance use (World Drug Report 2018). These systems and traits fundamentally interact with stress exposures that, when they are repeated or if they are severe, have the potential to compromise the development of neural systems that underlie social, behavioral, cognitive and emotional functioning in profound and enduring ways. New social challenges, such as increased autonomous decision-making, that adolescents face coincides with complex changes in brain wiring and connectivity that take place throughout this time. These have implications for adaptive decision-making and the ability to self-regulate behavior and emotion (Marek et al, 2015). In effect, some degree of impulsivity, risk-taking and sensation-seeking is normative during adolescence. However, a heightened level of risk-taking may extend from a combination of social circumstances and non-normative neurodevelopmental immaturity or dysfunction. Substance use during adolescence may be as a result of immaturity of the prefrontal cortex, the part of the brain responsible for executive cognitive functions such as decision-making, impulse control and working memory, which is still under construction. This result in a greater tendency to sensation- and novelty-seeking behaviors such as substance use.

1.5.2 Intrapersonal influence

An array of personality variables has been explored in relation to substance use outcomes. Researchers have identified a number of personality factors associated with substance use and alcohol problems. Martin (2011) attributed personality traits to substance use among secondary school going children as being neuroticism, extraversion and impulsivity, while Donovan (1997) described personality traits as being risk takers, experimenters, sensation seekers, impulsive aggression and anxiety.

1.5.3 Inter personal influence

Parenting and the home environment exert profound influences on early child development in Multiple domains of functioning (World drug report, 2018). The strength

of parental influence on substance use, for example, cannot be underestimated. Parenting that is harsh, restrictive, inconsistent, hostile and/or high in conflict can often lead to negative behavioral outcomes in children such as substance use (Trucco, 2020). In households where parents use substances, there is a likelihood and increase in the availability of that substance to their child (Rusby et al., 2018). Parents who give permission to their child to take sips of alcohol may also convey a message of acceptance regarding the use of that substance to their child (Colder et al., 2018). There is also a strong association between adolescent substance use and contact with substance-using peers. Research suggests that other adolescents provide unique source of access to drugs, reinforcement and opportunity to use drugs. Adolescents tend to display similar behaviors, attitudes and personality traits to their friends. Another factor that may contribute to adolescent use of illicit substances may be attributed to the school environment. School connectedness not only reflects the degree to which students feel connected at school, but also comprises the value students place on educational goals and commitment towards participating in academic and school-based social activities (Li et al., 2011). High school connectedness is associated with lower rates of alcohol, tobacco, and drug use (Henry et al, 2015). Meanwhile, low school connectedness may be a model to substance use as way of escaping failure.

1.5.4 Social cultural influence

Social conditions in neighborhoods have major implications for risk of substance use as they shape social norms, enforce patterns of social control, influence perception of the risk of substance use and affect psychological and physiological stress responses (World drug report, 2018). One aspect of neighborhood influence is social cohesion, an indicator of attachment to and satisfaction with the neighborhood and its residents that involves trust and support for one another in a community. It has been suggested that high levels of social cohesion are associated with higher levels of substance use. The media is a powerful influence on social norms and other messages that are favorable to substance use (Emily et al, 2012). Adolescents in particular spend a great deal of time using the Internet, messaging services and social media, in particular on smartphones, as well as being entertained by television, movies and other media. Media portrayals of substance use as glamorous, fun and relaxing all contribute to the initiation and continued use of

psychoactive substances among adolescents. In essence, certain media messages can make substance use appear to be normative behavior and can alter attitudes about the safety of substance use. Social media has been repeatedly linked to the initiation of substance use (McCauley, 2017).

1.6 Purpose of the Study

The purpose of this study was to assess the prevalence and predictors of Tobacco use, alcohol consumption and illicit drug use among adolescents in Secondary schools in Kalulushi District of Zambia.

1.7 Objectives of the Study

1.7.1 Specific objectives of the study are to:

- i) Determine the prevalence and predictors of Tobacco use among Secondary school adolescents in Kalulushi District.
- ii) Determine the prevalence and predictors of alcohol consumption among Secondary school adolescents in Kalulushi District.
- iii) Determine the prevalence and predictors of illicit drug use among Secondary school adolescents in Kalulushi District.

1.8 Research Questions

- i) What is the prevalence and predictors of Tobacco use among secondary school adolescents in Kalulushi District?
- ii) What is the prevalence and predictors of alcohol consumption among secondary school adolescents in Kalulushi District?
- iii) What is the prevalence and predictors of illicit drug use among secondary school adolescents in Kalulushi District?

1.9 Significance of the study

This study will contribute a great deal to the body of knowledge with regard to Tobacco use, alcohol consumption and illicit drug use among secondary school adolescents not only in Kalulushi district but Zambia as a Nation. The establishment of associations will

help Ministry of Health facilities such as clinics in Kalulushi District in designing appropriate Health promotion Information to help empower adolescents, families and the community on the risk and protective factors of Tobacco use, alcohol consumption and illicit drug use in secondary schools. It is also expected to contribute to the advancement of knowledge on the predictors of Tobacco use, alcohol consumption and illicit drug use among students in secondary schools. The study will be of immediate benefit to the Ministry of Education (MOE) as it endeavors to better understanding on the current situation of Tobacco use, alcohol consumption and illicit drug use in secondary School adolescents. It will help develop and revisit substance use policies within secondary schools. Relating neighborhood characteristics to substance use risk is useful for public health program planning because it allows policymakers and programmers to understand how changing structural-level factors of the built environment may affect health risk behaviors among secondary school adolescents. Understanding predictors of substance use among adolescents will help facilitate multilevel interventions which will incorporate peers, families, and communities in planning and designing of health promotion interventions. Focusing on risk and protective factors will also help inform future programs addressing substance use initiation, specifically helping parents and communities understand how they may influence the use of substances among adolescents.

1.10 Definition of terms

1.10.1 Operational definition of terms

Adolescent: Person aged more than 10 years old still attending secondary school.

Alcohol: Intoxicating liquor

Alcohol use: Consumption of any intoxicating alcoholic beverages by a secondary school adolescent.

Substance: Any intoxicating fluid or solid that may alter the mood, behavior and attention of an adolescent such as Tobacco, alcohol, Benylin, daga, methylated spirit, petrol, cannabis, cocaine, heroin, opium and prescription drugs such as Pethidine and morphine.

Substance use: Use of any intoxicating fluid or solid that may alter the mood, behavior and attention of an adolescent such as Tobacco, alcohol, Benylin, daga, methylated spirit, petrol, cannabis, cocaine, heroin, opium and prescription drugs such as Pethidine and morphine by an adolescent.

Illicit drug use: Consumption of alcohol, daga, methylated spirit, petrol, cannabis, cocaine and prescription drugs such as Pethidine and morphine by adolescents in school.

School: Being secondary schools in Kalulushi District.

Tobacco: Several plants in the nicotiana genus that contains nicotine that when smoked and chewed produce addictive effects such as cigarettes, cigars.

Tobacco use: Smoking and or chewing of any tobacco containing products by secondary school adolescents.

Family: A group of people living together whether or not connected by blood

Guardian: An adult looking after a school going child

Environment: This is everything that embraces the physical, economic, social and cultural conditions that prevail in our world and the forces emanating from these that influence human development.

Personality: Individual differences in characteristic patterns of thinking, feeling and behaving.

Addiction: Having a physical and /or psychological dependence on a substance

Drug dependency: A physical and or a psychological need for a mood- altering Substance.

Drug: Is any substance that, when absorbed into the body of a living organism, alters normal bodily function.

Withdrawal: What someone who is addicted to drugs and alcohol experiences when they abruptly discontinue the use of drugs or alcohol.

Tranquilizer: A drug which is designed for the treatment of anxiety, fear, tension and psychological disorders to induce a calming effect.

Opiates: Being controlled prescription alkaloid compounds derived from the opium poppy plant given to patients to relieve severe pain.

Table 1: Variables cut off points, indicators and exposures

Variables	Indicator	Cut-off points
Outcome		
Alcohol use	No alcohol use	Students who did not admit to alcohol use, AUDIT C score of 0
	High Risk	Girls with AUDIT C score ≥ 3
	High Risk	Boys with AUDIT score ≥ 4
Tobacco use	Non smokers	Students who did not admit to Tobacco smoking (No)
	Previous smokers	Students who admitted to previous Tobacco smoking (Yes)
	Current Smokers	Students who admitted to current Tobacco smoking (Yes)
Illicit drug use	Not exposed	Students who did not admit to use of illicit drugs (No)
	Exposed	Students who admitted to illicit drug use (Yes)
Biological Intrapersonal Interpersonal Sociocultural influence	Low risk	Students who scored ≤ 9 on questions relating to biological make up, intrapersonal, interpersonal and sociocultural influence
	High risk	Students who scored ≥ 9 on questions relating to biological make up, intrapersonal, interpersonal and sociocultural influence

CHAPTER TWO

2.0 Literature Review

2.1 Introduction

This chapter is organized according to the following themes: Global overview of substance use and factors influencing adolescent's substance use such as: Biological/intrapersonal, interpersonal and social cultural influences.

2.2 Global Overview of substance use

Substance use among adolescents is an important public health problem (WHO, 2014). Data on global patterns of licit and illicit substance use among adolescents vary due in part to inadequacy of data in Africa and Asia (World Drug Report, 2013). Globally, 60 percent of street children report inordinate levels of lifetime substance use, including alcohol and marijuana (Embleton et al, 2013). Previous research has described substances commonly used by adolescents worldwide to include alcohol, tobacco, inhalants, marijuana, and narcotics (American Academy of Child Adolescent Psychiatry, 2013). Adebisi et al, (2008) found that adolescents in low- and middle-income countries often use socially acceptable and affordable substances such as alcohol, cigarettes and legal substances such as inhalants and cough syrup. These results are consistent with the World drug report 2018. Use of psychoactive substances by adolescents is associated with consequences such as mental health problems, drunk driving, violence, engagement in risky sexual behaviors, unanticipated pregnancy and sexually transmitted infections (Pluddemann, 2008).

In the United States, an estimated 47.0 million people aged 12 or older were past month cigarette smokers, including 27.3 million people who were daily cigarette smokers and 10.8 million daily smokers who smoked approximately a pack or more of cigarettes per day. 139.8 million Americans aged 12 or older were past month alcohol users, 67.1 million were binge drinkers in the past month, and 16.6 million were heavy drinkers in the past month. About 2.2 million adolescents aged 12 to 17 drank alcohol in the past month, and 1.2 million of these adolescents' binge drank in 2018. The substances with the largest number of recent past year initiates of use or misuse were alcohol 4.9 million new users, marijuana (3.1 million new users), prescription pain relievers 1.9 million new

misusers, and cigarettes 1.8 million new users. Although the number of marijuana initiates aged 12 or older in 2018 was higher than the numbers in 2002 to 2016, it was similar to that in 2017.

In Uruguay, the most used substance is, as in many countries, alcohol. 90% of the Uruguayans between 15 and 65 years have ever tried alcohol in their life (Lobke, 2018). This is the highest lifetime prevalence of alcohol in Latin America (Fernandez et al., 2017). The legal age for buying alcoholic beverages in Uruguay is 18 years World Health Organization, (2014) which is consistent with alcoholic beverage legal purchase for most countries. Most Research suggests that the highest proportion of first alcohol use is found in the age category of 12 to 13 years old with an average age of 12.8 years old (JND, 2014). As alcohol use in early adolescence predicts alcohol trajectories over the life course, an important public health issue lies in procrastinating the initiation of alcohol use (Liu, Keyes & Li, 2014). Fernandez (2017) indicated that the onset of alcohol use on young age is related with deviant behavior and increased risk of problematic use of the substance Drug use in Uruguay has been increasing since 2001 from 5.3% to 23.3% by 2016 in the general population (Drogas, 2016).

In China, a rise in injection drug use among youths correlates with increased rates of HIV among them. Several factors influence the vulnerability of adolescents to substance use. These can be intrapersonal, such as adolescents 'gender; interpersonal, such as conflict with family members and others in the community; and/or contextual including community structures and extant laws (Adesola et al, 2014). This collarets with the ecological model that postulate that both intra personal and interpersonal influences are a myriad of substance use in adolescents.

In Botswana, Gotsang (2017) in their research on perceptions of students on substance use in Botswana found that 17.4 percent adolescents admitted to having used substances, 75 percent were senior secondary school students and the average age of initiation was 14 years. The most commonly used substances were cocaine, marijuana and mandrax. The least used drugs were petrol, heroin and Artane. The sources of illicit substances were joints where people go to get drugs, school environment and streets around the schools. Meanwhile, Letamo (2016) in their cross-sectional study to estimate

the prevalence of substance use and correlates of multiple substance use among adolescents in Botswana reported 13.4 percent marijuana use by adolescents which correlates with Gotsang report. The majority were male compared to their female counterparts. According to this study marijuana may be commonly used for entertainment purposes because adolescents enjoy its effects (Letamo et al 2016). This result is consistent with other research showing that marijuana is the drug most likely to be used by adolescents in Europe and the USA (Parry et al 2004).

In Zambia, Zyambo et al (2011) Prevalence and Predictors of Smoking in a Mining Town in Kitwe, Zambia: A 2011 Population-Based Survey in their study on prevalence and predictors of smoking in Kitwe district revealed that 8.7 percent participants were tobacco smokers, with 18.1 percent males and 1.8 percent females as current smokers of any tobacco products. This study concluded that smoking is a risk factor for non-communicable diseases which include hypertension, cardiovascular diseases and cancer. They recommended health education and awareness campaign to the residents especially the miners at working places were urgently needed. This study also recommended regulation of smoking to be reinforced and taxes of tobacco products be revisited.

Rudatsikira (2015) in a study to determine cannabis use and its socio-demographic correlates among in-school adolescents in Zambia reported an overall prevalence of self-reported ever use of cannabis being at 37.2 percent, 34.5 percent among males and 39.5 percent among females. In this study males were 8 percent less likely to have ever smoked cannabis. Compared to adolescents aged 16 years or older, adolescents aged 14 years were 45 percent more likely, and those aged 15 years were 44 percent less likely to report having ever smoked cannabis. Other factors that were significantly associated with cannabis use were history of having engaged in sexual intercourse, alcohol use and having been bullied.

Adolescents who reported being supervised by parents during free time were less likely to have smoked cannabis. The study concluded a high prevalence of substance use among adolescents.

Mwakazanga et al (2016) in their study of prevalence of cigarette and marijuana smoking and its associated factors among secondary school going adolescents in Ndola revealed an overall prevalence of 13 percent of cigarette smoking and marijuana use. Their study reported that nonsmoking friends who were educated on dangers of smoking proved to be protective factor of cigarette and marijuana use, while having smokers at home and parents who consume alcohol were associated to marijuana use. This study concluded that both cigarette and marijuana smoking was prevalent among secondary school going adolescents in Zambia.

Chibale et al (2018) in their study of alcohol abuse among secondary school going children at Kalulushi secondary school in Kalulushi found that 77.9 percent of students abuse alcohol. The study established that marketing strategies, family and school environment are contributing a great deal to alcohol abuse among Secondary School pupils at Kalulushi Secondary School.

Kangwa (2019) in a study to identify the contributing factors to alcohol abuse among secondary school going pupils in Lusaka revealed that indeed school boys and girls are drinking alcohol and that usually they start drinking between the ages of 15-18 years (grade 10 to 11). The study findings on who drinks most between boys and girls were in contradiction with a good number of recent researches as they revealed that boys drink more than girls. Further the study revealed that usually pupils drink on special occasions and that they drink more than five (5) bottles of alcohol. On factors that contribute to alcohol abuse among school boys and girls, the study revealed having parents and family members that drink, lack of parental involvement, poor self-control, having friends that drink, peer pressure and stress and depression as the major contributing factors.

2.3.0 Factors Influencing student substance use

2.3.1 Biological /intrapersonal influence

The World drug report (2018) states that one pathway to harmful use of substances is believed to originate in a deviation or delay in neurological development that is thought to underlie the problem and risky behaviors that often precede substance use. Understanding the neurobiological contribution to the etiology of substance use involves characterizing

the brain maturation processes that occur during adolescence, such as reduced inhibitory control and increased reward sensitivity that are associated with substance use. Lipari et al (2017) reported that substance use and harmful use of substances are the result of a developmental process beginning in the prenatal period and lasting until a person is in their mid- to late twenties. Data from surveys on drug use indicate that initiation of substance use is most common in early to mid-adolescence and for the subgroup of users that escalate, substance use peaks during the transition into young adulthood. Marek et al (2015) found that new social challenges, such as increased autonomous decision-making that adolescents face coincide with complex changes in brain wiring and connectivity that take place throughout this time. These have implications for adaptive decision-making and the ability to self-regulate behavior and emotion. In effect, some degree of impulsivity, risk-taking and sensation-seeking is normative during adolescence. However, heightened level of risk-taking may extend from a combination of social circumstances and non-normative neurodevelopmental immaturity or dysfunction.

Casey (2008) stated that neurobiological development during adolescence occurs transitionally rather than as a single snapshot in time. Munakata and Kharitonova (2011) found that the prefrontal cortex, the part of the brain responsible for executive cognitive functions such as decision making, impulse control and working memory, is still under construction during adolescence. A central function of these executive cognitive functions is to shield long-term goals from temptations afforded by short-term benefits that often lead to negative consequences. The prefrontal “top-down” cognitive regulation over subcortical regions is somewhat functionally disconnected throughout adolescence. This translates into the natural tendency of adolescents to act on emotional stimuli, with little cognitive control.

Through both the natural course of development and environmental experience, connections between the cognitive regulation and emotional stimuli regions of the brain are strengthened, providing a mechanism for increasing top-down regulation of emotional brain systems. Stress is a major common denominator across the neurobiological, physiological, psychological and environmental domains implicated in susceptibility to substance use escalation. Stress refers to processes involving perception, appraisal and

response to harmful, threatening or challenging external events or conditions, known as “stressors”, such as poverty, prenatal exposures, child maltreatment, divorce and bereavement (Levine, et al., 2011). Numerous studies have demonstrated the associations between increasing levels of emotional and physiological stress and decreases in behavioral control, higher levels of impulsivity and high levels of maladaptive behaviors (Hartzinger, et al., 2007).

According to Elkins (2007) Particular personality traits have been associated with externalizing disorders, which have been consistently implicated in the use and harmful use of substances. These characteristics include heightened reward sensitivity, poor inhibitory control, aggression and novelty-seeking (Frank et al, 2007). Kreek et al (2005) also reported that variation in personality dimensions, particularly impulsivity and novelty-seeking, may contribute to the initiation of substance use, as well as the transition from initial to intermittent and then regular substance use, the transition from harmful use to dependence or addiction, and the propensity for repeated relapse after achieving abstinence. Aswad et al (2012) was also in agreement with earlier sentiments and indicated that Individuals with these traits tend to seek highly stimulating and risky situations and show less anxiety in anticipation of the consequences of their behavior.

Meanwhile, Belsky et al., (2007) posits that some youths are characterized by increased sensitivity to environmental contexts spanning the maladaptive to adaptive continuum based on their genetic makeup, while those without these genetic variants are unaffected. Brody and colleagues (2013) are also in conformity with genetic attributes as precipitating factors to substance use initiation and found that adolescents carrying genetic factors traditionally conceptualized as risk factors reported more alcohol use in the control condition. Yet, youth carrying these same genetic variants demonstrated the greatest reduction in alcohol use over time in the treatment condition.

Fowler et al, (2007) adds that other critical factors that relate to the impact of genetic effects on substance use include developmental period and stage of substance use. Socialization effects tend to have a stronger association on earlier stages of substance use that typically occurs during adolescence such as initiation. In contrast, genes tend to have a stronger association on later stages of use that typically arise in adulthood. For example,

a study examining alcohol initiation and progression to more severe alcohol use such as binge drinking among 11–19-year-old twins found that shared environmental influences accounted for most 65 percent of the variance in initiation compared to genetic factors 26 percent when controlling for age. In contrast, when examining severe alcohol use, less than half of the variance was due to shared environmental influences 47 percent and approximately one-third 35 percent was due to genetic effects (Fowler et al., 2007).

In another study by Rose et al., (2001) discovered that at age 14, genes accounted for close to 20 percent of the variance in alcohol use, compared to nearly 50 percent at age 18. Some researchers theorize that differences across stage of substance use and development may reflect differences in social worlds of youth compared to adults. During adolescence, parents tend to closely monitor and put restrictions on their child's social world. When youth transition into adulthood and have more freedom to shape their social world, genetic vulnerabilities maybe more likely to be expressed.

Trucco (2020) also postulates that neurobiological changes that occur during adolescence may also contribute to the etiology of adolescent substance use such as the dual systems model. The dual systems model posits that increased risk taking that occurs during the adolescent years, including substance use, can be attributed in part to the imbalance in developmental courses of two brain systems (Casey et al., 2008).The first reflects a rapidly developing socio emotional system located primarily in the striatum, which contributes to an adolescent's pursuit of rewarding, exciting, and novel experiences (Shulman et al., 2016).The second reflects a more gradually developing cognitive control system located primarily in the prefrontal cortex, which contributes to more judicious decision making and the restraint of potentially harmful impulses (Shulman et al., 2016).

Meanwhile Jolles et al (2011) is of a different opinion and indicated that frontal cortical immaturity may be too simplistic when understanding adolescents' decisions to engage in risky behavior and that a more nuanced perspective on adolescents' processing of social, cognitive, and affective information is necessary. There is growing evidence indicating that the cognitive control system during adolescence may not necessarily be immature, but rather more flexible compared to adulthood (Jolles et al., 2011). Johnson et al., (2009)

reported that the degree to which the cognitive control system is recruited during adolescence is largely a result of motivational salience, such as the value placed on performing the task or the presence of peers. This flexibility in making rapid adjustments with respect to the degree to which cognitive control processes are engaged may contribute to increased vulnerability towards potentially harmful incentives, such as substance use, but it may also contribute to adaptive motivations relevant to positive social development (Dahl, 2012).

2.3.2. Interpersonal influence

2.3.2.1 Parent Socialization Context

Trucco (2020) reports that parents are influential referents in adolescents' social worlds, affecting both adolescent substance use behavior directly, as well as friendship tie choices. According to Ladis et al. (2020) research examining the role of parental socialization on adolescent substance use has focused on two components such as parental control (demandingness) and parental warmth (responsiveness). Parental control reflects behaviors directed to the child intended to shape behavior viewed as acceptable by the parent, including setting explicit rules regarding adolescent behavior, supervision, and discipline.

In contrast, parental warmth reflects behavior directed towards the child that supports the message that they are loved, including involvement, praise, affection, and emotional availability (Ladis et al., 2020). Donaldson et al. (2016) revealed that both parental warmth and control have been demonstrated to play a protective role in reducing risk for substance use. There are four parenting styles such as: authoritative (high control, high warmth), authoritarian (high control, low warmth), permissive (low control, high warmth), and neglectful (low control, low warmth). These classifications of parenting style continue to be widely used in examining the role of parenting on adolescent substance use (Abar et al., 2015).

According to Colder et al. (2018) parental substance use, parental permission to use substances primarily alcohol use has been demonstrated to predict early onset of adolescent substance use.

Parents who give permission to their child to take sips of alcohol may also convey a message of acceptance regarding the use of that substance to their child (Colder et al., 2018). Colder et al. (2018) not only demonstrated that sipping and tasting alcohol with parental permission prior to age 13 years was associated with increased frequency and quantity of alcohol consumption and alcohol related problems in late adolescence, they also determined possible mechanisms contributing to this association. This result is consistent with Donovan and Molina, (2011) who also indicated that tasting alcohol under parental supervision during late childhood increased the likelihood of consuming a full drink by mid adolescence.

Early sipping and tasting alcohol with parental permission may lead to increased problematic alcohol use via its impact on the formation of youth cognitive appraisals of alcohol. Rusby et al., (2018) also found that, in households where parents use substances there is likely an increase in the availability of that substance to their child. Lippold et al. (2014) applied a propensity score analysis to examine maternal knowledge as a predictor of adolescent alcohol, cigarette, and other drug use during middle school. In propensity score analyses, a host of confounding variables that precede initiation of substance use can be accounted for to simulate random assignment and establish more robust causal associations between the predictor and outcome (Rubin, 2005). When controlling for 33 confounders, including other aspects of parenting such as monitoring, discipline, and supervision, maternal knowledge of youth activity predicted substance use initiation and attitudes towards substance use. These findings offer strong support for the role of parental knowledge on a youth's decision to engage in substance use.

In another study by Cleveland et al. (2012) who used sociometric data and social network analyses to determine whether parenting received by other members of an adolescent's friendship group leads to their own substance use behaviors. Results indicate that high levels of parental knowledge and low levels of inconsistent discipline as reported by an adolescent's friendship group predicted low rates of cigarette, marijuana, and alcohol use during mid-adolescence (Cleveland et al., 2012). Thus, parental knowledge is likely to have a broader effect than expected; high levels of parental monitoring protect against substance use behaviors within the family, as well as the larger friendship group.

Hemovich et al., (2011) in their study to investigate possible mechanisms through which parental knowledge reduces adolescent risk for substance use, found that high levels of parental knowledge may minimize adolescent exposure to deviant and substance-using peer groups. Furthermore, high levels of parental knowledge may be especially critical for girls for instance, Poulin and Denault, (2012) found that low parental knowledge in girls predicted greater involvement with male friends during mid-adolescence, which in turn predicted more problematic alcohol use during late adolescence. This is consistent with Springer (2007) who also reported that the effects of a chaotic home environment, ineffective parenting and lack of mutual attachment in particular have an impact on overall child outcomes.

This scenario may particularly affect girls, who tend to be more sensitive to family-centered and relational problems. This could heighten susceptibility among girls to stress and mental health issues, including early onset of substance use and harmful use, as well as other risky behaviors. Thus, parental knowledge may reduce exposure to negative peer influences that contribute to substance use initiation.

Jones et al., (2015) indicates that adolescents who engage in substance use may be especially reluctant to spend time with family members or disclose details about their activities, which results in less parental knowledge. In turn, parents of adolescents who use substances may disengage from effective parenting practices, such as acquiring knowledge about their adolescents' activities, due to frustration (Racz and McMahon, 2011).

This is consistent with Patterson's (1986) coercion theory, which posits a negative reinforcement mechanism whereby escalation in an adolescent's problem behavior may lead to parents becoming disenfranchised from parenting.

Chibale et al. (2018) also reported that stress due to hostile family environment such as broken home due to divorce may prompt substance use in some adolescents. Family detachment places the adolescent in the vulnerable position of experimenting with and being addicted to chemical substances (Hamilton et al. 2012). According to Segal et al.

(2009), divorce and marital problems have a negative impact on children. Adolescents who struggle to deal with the loss of the intact family are particularly affected, often leading to acting-out behaviors, including the misuse of substances. In reflecting on dysfunctional and blended families, Barnard (2015) and Dreyer (2012) note that adolescents within such families may be vulnerable to substance misuse as they lack love and care they need from their biological parents. However, this is not the case with all families, parents may feel that they have failed their adolescents and themselves, believing that family problems and divorce are the cause of their adolescent child's substance use disorder.

Mathibela and Skhosana (2019) add that parents of adolescents abusing substances may constantly worry about the well-being, safety, and whereabouts of their children. They may also experience additional strain due to the increased financial burden associated with their belongings being stolen by their substance abusing adolescent.

The parents may even unknowingly enable the adolescent to continue abusing substances by covering up for them, making excuses for their behavior, supplying them with money to buy more drugs, or even denying that they have a problem. In actual fact, some parents are physically abused by their adolescents when they require money to buy more substances (Oxford et al., 2010). When adolescents do not get the support they need from their parents, they may turn to their peers.

These results are consistent with the ecological systems theory that focuses on the individual and understanding them holistically with particular attention to how individuals are influenced by the environment they live in including the people they interact with.

2.3.2.2 Peer Socialization context

According to Gittens et al. (2013), from a developmental perspective, adolescence is a period in which youth spend less time with parents, levels of family involvement decrease, there is an emphasis on gaining autonomy from parents and the quality of parent-child communication is reduced. At the same time, adolescence is characterized by increased time spent with peers, heightened sensitivity to social reward, and engagement

in novel experiences that emphasize socializing with peers and conforming to perceived peer group standards (Leung et al., 2014).

Meanwhile, Trucco et al. (2011) reported that peers are believed to become increasingly more influential relative to parents during the transition from childhood to adolescence. Rowan (2016) added that friends' substance use and attitudes are robust predictors of adolescents' risk behaviors such as cigarette smoking, marijuana use and alcohol use. These results are consistent with Helms et al., (2014) who indicated that peer socialization is strongest in the context of close friendships, adolescents can be socialized by high status peers with whom they have less direct interpersonal contact outside of dyadic friendship contexts. In contrast, consistent with the principle of homophily, individuals are drawn to others that are similar to themselves, peer selection refers to an individual choosing to affiliate with individuals similar to themselves (Trucco, 2020). Not only do adolescents erroneously overestimate peers' engagement in health risk behavior, they also tend to mistakenly underestimate peers' engagement in adaptive behaviors, with the magnitude of these misperceptions amounting to large effect sizes.

For example, one study found that when asking popular teens directly about their substance use, they reported virtually no cigarette smoking or marijuana use in the prior month. Yet, peers perceived these same high-status teens as smoking up to three cigarettes per day and smoking marijuana up to nine times per month (Helms et al., 2014). These misperceptions in turn are believed to increase substance use behavior.

On the other hand, Trucco et al. (2017) reports that even though it is assumed that peers have both positive and negative effects on adolescent behavior, research has largely focused on negative effects as they relate to problem behaviors such as substance use. Prior work indicates that some adolescents may feel socialization pressure to engage in prosocial behaviors such as excelling in academics and avoiding drugs. For example, Haye et al (2013) demonstrated that friendships categorized by positive characteristics, such as support, engagement in school and academics, and involvement in religious activities, had a protective effect against substance use. This is consistent with the problem behavior theory that posits that high religiosity may be a protective factor to substance use.

Bezuidenhout and Joubert (2010) point out that adolescents have a powerful need to spend more time with their peers and less time with their parents. Adolescents highly value friends and socializing and eagerly desire to fit in with their peers, adolescents may end up engaging in dangerous activities. In support of this, Berk (2007) alludes to research that shows that adolescents who are insecure and feel incompetent are susceptible to peer pressure, frequently giving in to peer influences to fit in, and may consequently engage in substance misuse. Troubled parent-adolescent relationships contribute to some adolescents feeling that they are of no value to their parents. Losing hope, they end up socializing with deviant peer groups, increasing their risk of engaging in substance misuse.

Highlighting the impact of negative peer groups, Cottrell and Monk (2014) assert that peers can incite spiteful behavior towards their parents, especially in broken relationships, and that adolescents always have many reasons to be vindictive, vengeful and spiteful. Parents need to be actively involved in their adolescents' lives. This means, they should be cognizant of which friends their adolescents are socializing with, where they are hanging out, and what activities they are engaging in. This awareness will assist parents in guarding their adolescents against the dangers of substance misuse as well as teach them how to cope with peer pressure.

2.3.2.3 School connectedness and disengagement context

School connectedness not only reflects the degree to which students feel connected at school, but also comprises the value students place on educational goals and commitment towards participating in academic and school-based social activities (Li et al., 2011). Vogel et al., (2015) in their study indicate that high school connectedness is associated with lower rates of alcohol, tobacco, and drug use. For example, Li et al., (2011) in their study demonstrated that greater levels of school engagement both behavioral and emotional significantly predicted lower risk of substance use initiation through the use of discrete time survival analysis. The odds of initiating substance use were about one-third lower than the odds for a student whose behavioral school engagement was one point lower and 40% lower than the odds for someone whose emotional school engagement was one point lower. It is likely that adolescent students who are highly connected with

schools may form a common identity with other students and refrain from using substances as a way to avoid disappointing teachers and classmates (Vogel et al., 2015). In contrast, adolescents failing to develop strong connections within schools are at greater risk of developing antisocial attitudes and behavior (Henry and Thornberry, 2010). One indicator of poor school disengagement that has received attention as it relates to adolescent substance use is truancy for instance skipping school without a valid excuse). According to Henry and Thornberry, (2010) truancy is a strong predictor of substance use onset and involvement. One mechanism through which truancy is linked to increased substance use is through escalation in unsupervised, unstructured, and risky environments with peers that are afforded by not attending school.

In another study by Henry et al., (2012) school disengagement as a predictor of problematic substance use during adolescence and early adulthood was examined. A school disengagement warning index was operationalized as a sum of five binary risk indicators based on official school records where the sample was recruited. A score reflecting a lack of proficiency in one or more subjects based on standardized test scores, poor attendance as indicated by missing 20% or more of school days in a given school year, failing one or more core subjects, one or more school suspensions, and repeating a grade. In middle adolescence, school disengagement was positively associated with problem drug use, but not problem alcohol use.

Meanwhile, in late adolescence, school disengagement was positively associated with both problem drug use and problem alcohol use. In early adulthood, school disengagement was positively associated with problem drug use.

A curvilinear association was demonstrated for problem alcohol use in early adulthood, whereby the association demonstrated a downward trend across low levels of school disengagement compared to a steep incline at high levels of school disengagement (Henry et al., 2012). Thus, school disengagement represents an early warning sign for short-term and long-term risk for engagement in substance use. These results are consistent with the social ecological model that emphasizes different multifaceted variables such as school environment as indirect or direct risk factors to initiation of substance use.

Some adolescents may initiate substance use due to excess pocket money given by parents. Availability and affordability of illicit substances such as Benylin locally known as (Ifinyelele) and other substances like alcohol locally brewed around school grounds which is cheaper and easy to access may also act as a risk factor to adolescent substance initiation and use (Chibale et al. 2018).

2.3.3 Social Cultural influence

Turcker et al., (2013) reported that compared to individual factors and other socialization contexts, research investigating how neighborhood factors contribute to the etiology of adolescent substance use is more nascent. A greater understanding regarding the role of neighborhood socialization factors on substance use is critical given that adolescents increasingly value independence from the family unit and spend more time outside their homes. Trucco et al., (2014) makes an important distinction between two aspects of the neighborhood, which may differentially contribute to adolescent functioning, neighborhood structure and neighborhood social processes. Despite clear distinctions, there has been significant empirical support for the association between both structural and social neighborhood factors on adolescent substance use (Handley et al., 2015 and Tucker et al., 2013). Handley et al., (2015) also affirms that research conducted on neighborhood context tends to focus on either objective measure typically derived from census data such as socioeconomic status, poverty indicators or more subjective measures such as youth/parent report of neighborhood cohesion and safety.

Neighborhood structure encompasses socio demographic or compositional characteristics of the community for instance employment and poverty rates, racial composition, median income that are traditionally measured with objective data from census data based on the census tract in which the individual resides (Warner, 2016). Tucker et al., (2013) indicates that higher unemployment rates enhanced adolescent risk for marijuana use initiation. Similarly, neighborhood disadvantage was associated with more marijuana dependence symptoms, but only among maltreated youth (Handley et al., 2015).

Meanwhile Milam et al., (2016) demonstrated a positive association between alcohol outlet density and perceptions of alcohol, tobacco, and other drug availability, which in turn was associated with increased use of substances especially among boys. According

to Zimmerman and Farrell, (2017) there are several studies that have not found strong associations between neighborhood structural factors and adolescent substance use.

According to Feinstein (2012) the media is a powerful influence on social norms and other messages that are favorable to substance use. This result is consistent with Chibale et al (2018) in their study of alcohol abuse among secondary school pupils also found that alcohol marketing was significantly associated with adolescent substance use initiation. Adolescents in particular spend a great deal of time using the Internet, messaging services and social media, in particular on smartphones, as well as being entertained by television, movies and other media. Media portrayals of substance use as glamorous, fun and relaxing all contribute to the initiation and continued use of psychoactive substances among young people. In essence, certain media messages can make substance use appear to be normative behavior and can alter attitudes about the safety of substance use. Social media has been repeatedly linked to the initiation of substance use (Costello, 2017).

2.4 Conclusion

This chapter reviewed literature in order to gain an insight on different studies and their perspective in relation to adolescent substance use. Most studies indicated a significant association between adolescent substance use and interpersonal relationships such as parental warmth, control and support. Meanwhile, some studies indicated that substance use is initiated as a result of environmental influences such as modeling as well as availability and affordability of illicit substances within vicinity of school grounds.

CHAPTER THREE

3.1 Research Methodology

3.1 Introduction

This chapter explains how the study was carried out by describing the population, the procedure that was followed in the pilot and main study, the sample size, how participants were recruited and how data was collected and analyzed.

3.2 Research Design

This study used a cross sectional design in order to assess the prevalence and predictors of substance use among secondary school going students in Kalulushi district. Generation of prevalence from this study was important for planning of public health promotion interventions such as targeted messages to adolescents, their families and the community on the risk and protective factors of substance use among adolescents. The study used quantitative technique of data collection involving self-administered questionnaires to secondary school going adolescents.

3.3 Research Setting

The research was conducted in Kalulushi District on the Copperbelt Province of Zambia. Kalulushi is located fourteen (14) Kilometers west of Kitwe and has ten secondary schools: Kalulushi Trust, Chavuma, Kalulushi secondary school, Mitobo girls' school, Lubuto, Masamba, Kankoshi, St. Marcellin's, Chati and Third day private school. The research was conducted at two randomly selected secondary schools from the ten secondary schools in the district: Chavuma and Kalulushi secondary school due to Examination Council of Zambia (ECZ grade nine and twelve examinations) and COVID-19 regulations at the time of data collection. The schools were selected because of their proximity to bars and trading places such as markets. These schools are surrounded by 5 bars on the eastern side (Zambia clay compound), 10 bars to the western area (Patterson's shopping Centre) which may pose as hotspot for illicit substances and nine bars on the north-western side (Zebra shopping Centre). There are two markets that are conveniently located near these schools.

3.5 Target Population

The study used a target population of 2000 secondary school going adolescents from Chavuma and Kalulushi secondary school respectively from grade 8 to 12. The two schools were randomly selected from 10 secondary schools from Kalulushi District. From each school five grades were used: grade eight, nine, ten, eleven and twelve. These grades were used since they are the longest in school and know the way about of the school environment which may act as a hot spot for substance use. From the five grades, random sampling was used to select students from each class. The students from each class were assigned numbers which were used to select participants. Due to the Examination Council of Zambia (ECZ grade 9 and 12 Examinations) and Covid-19 regulations during the time of data collection, the study had 155 students from Chavuma secondary and 178 students from Kalulushi secondary school making a total sample size (n) 333 students.

3.6 Inclusion criteria

Secondary school going adolescents from Chavuma and Kalulushi secondary school from grade 8 to 12 whose parents consented to participate in the study and those that were available at the time of data collection were included in the study.

3.7 Exclusion criteria

Secondary school going students under investigation for substance use and those that were undergoing counseling for substance use were excluded from the study to avoid biasness. Students whose parents did not consent to their children's participation in the study were not included in the study due to ethical issues.

3.8 Sample Size

The study used a target population of 2000 Secondary school going adolescents from Chavuma and Kalulushi secondary School. Taro Yamane's (1967) method of sample size calculation was used. The sample size was calculated at 95% confidence level, with a 5% margin of error.

Formula

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n is the sample size

N is the population size (population under study; **2000**)

e is the margin of error (**0.05**)

Confidence level was set at **95%**

Therefore:

$$\begin{aligned} &= \frac{2000}{1 + (2000)(0.05)^2} \\ &= \frac{2000}{1 + (2000)(0.0025)} \\ &= \frac{2000}{6} \\ &= 333 \end{aligned}$$

n = 333 students

Therefore, the study sample size was **333 students**.

3.9 Sample Selection/student recruitment

Sample selection/student recruitment was done from a Target population of 2000 Secondary school going adolescents from Chavuma and Kalulushi secondary School from grade eight to twelve. The study used a sample size of (n) **333 students** calculated using Yamane's formula (1967) for simplified calculation of sample size.

From each school, five grades were selected: Eight, grade nine, ten, eleven and twelve. These grades were used since they were available and some were the longest in school and knew the way about of the school environment which may act as a hot spot for substance use. Permission was sort from District Education Board secretary (DEBS) and school heard/deputy heard teachers to conduct the study.

Back ground of the study

Participant information sheet and written consent forms with detailed explanation of the study back ground of substance use among secondary school adolescents were given to all students from grade eight, nine, eleven and twelve at both schools to take to their parents for signing since these are minors and most of them may be below 18 years which is the legal consent age in Zambia and may require addition support and protection from guardians and parents.

Purpose

Purpose of the study which was to determine the prevalence and predictors of Tobacco smoking alcohol consumption and illicit drug use among school going adolescents to help in planning public Health promotion and substance use prevention interventions among secondary school adolescents was given to all grade eight, nine, eleven and twelve students from both selected secondary schools to take to their parents for signing.

Study participation

An explanation that secondary school adolescents from grade eight, nine, ten, eleven and twelve either boy or girl whose parent had signed and given consent to participate in the study was given. Participants answered questions from the questionnaire only one day for thirty minutes during break/ lunch time to avoid interruption of normal class schedule and to adhere to COVID-19 regulations.

Risks and discomforts

The fact that this study was purely non-experimental no Tobacco, alcohol and drugs were administered to the students. The students were given a thorough explanation that no Tobacco, alcohol and drugs will be given to them in the course of the study to prevent anxiety and fear. Explanation of how participants will be involved and what was expected of them such as participants only answering questions from the questionnaire was sent to the parents for consent since these participants were minors to prevent exploitation. Explanation of possible risks of which this study had none was given to prevent possible harm to the students. Possible discomforts such as fear when answering self-administered questionnaires considering that Tobacco smoking, alcohol consumption and illicit drug use among adolescents may be a sensitive issue was dispelled through detailed explanation and that students were only required to give information that was comfortable to them and that no personal information given in the questionnaire will be communicated to parents, teachers to put them in trouble and that this information will only be used for academic purposes only.

Benefits from the study

Benefits to the participants, family, community and entire scientific world were explained to foster understanding by parents before giving permission to their children to participate in the study. An explanation that there was no direct financial benefit to the participants as this study was purely for academic purpose was given. The participants benefited by being empowered with information that will sharpen their negotiation skill, decision making with regard to substance use within family, school and the community now and in future. Non-smoking and non-alcohol consuming students benefited through reduction of bullying by substance users and helped to foster healthy student relationships within and outside school environment. Students that use substances benefited from health information on the risks of Tobacco, alcohol, drugs to the body organs before complications occur. Information from the study also benefited substance using adolescents to stay away from Tobacco, alcohol and drugs through awareness of risks and will help increase academic excellence. The study will help reduce delinquency around the community and homes and help reduce social stress for many parents and guardians.

The study will be beneficial to the family through fostering parental nurturing skills as well as enriching them with information that facilitate prevention and protection of adolescents within the family from substance use complications such as poor academic performance, diseases such as liver cirrhosis, cancer of the liver, increased chances of acquiring Sexually transmitted infections such as HIV/AIDS, unwanted pregnancy for girl children as well as contribution to reduction of maternal mortality rate through reduction of unsafe abortion in the Nation.

Costs for participation in the study

The Explanation that there was no cost attached for the students to participate in the study since this exercise was done during normal school hours was given to prevent anxiety.

Questions about participant rights

The investigator availed her number and those of academic supervisor from University of Zambia school of public Health and UNZAREC Chairpersons contact in case questions relating to the study arose.

Statement of Voluntariness

The parents and students were given explanation that participation in this study was on voluntary basis and that students were allowed to withdraw at any time without questioning or penalty.

Confidentiality

Confidentiality of participants was assured as all participant names were not included on the questionnaire and all students were assigned codes to ensure anonymity. An explanation was given that results of this research will only be used for academic purposes only and that no personal information will be revealed to either the school authorities or parents at any time.

After receiving written feedback from parents from each of the two schools, students from the five grades were randomly selected. The students from each class were assigned numbers using the class register to select participants. The study used 155 students from Chavuma secondary and 178 students from Kalulushi secondary school making a total sample size (n) 333 students.

3.10. Data Collection Tool

The study used two research instruments to collect data from secondary school adolescents. Drug use was measured by the modified World Health Organization (WHO) student drug use questionnaire (Smart et al. 1980). This instrument was developed by the World Health Organization in cooperation with the United Nations Fund for Drug Abuse Control. It was designed to aid in epidemiological data collection on drug abuse across different geographical regions of the world, and it is recommended for use among students such as the ones in the current study. The tool was beneficial to the current study because it sets out to measure the lifetime, 12-month and current use such as in the last 30 days of psychoactive substances. Items in the questionnaire consisted of demographic data and different types of psychoactive/illicit substances, such as Cannabis, cocaine, hallucinogens, opioids, and sedatives. In the current study, illicit drug use was defined as any admission of illicit drug use (Yes). Current, previous Tobacco smoking (yes), Risk and protective factors were measured using the same instrument.

Alcohol use was measured by the Alcohol use and Dependency Inventory Tool (AUDIT) (Saunders, 1993). AUDIT C is a WHO-developed screening tool and is cross-culturally validated in sub-Saharan Africa (Riva et al. 2018). The 10-item survey focuses on recent alcohol use, and includes questions regarding hazardous alcohol use and symptoms of alcohol dependency. In adults, an AUDIT score of 8 or greater indicates hazardous drinking habits and possible alcohol dependency. However, in adolescents a much lower cut-off score to identify problematic or hazardous alcohol use was used since multiple studies have suggested use of a lower cut off point in adolescents (Riva et al. 2018). In the current study AUDIT C scores were as follows: Non-drinkers (AUDIT score = zero), High Risk drinking in Girls (AUDIT score ≥ 3), and High-Risk drinking in boys (AUDIT score ≥ 4).

3.11. Data Collection Technique

The study used the World Health Organization modified student drug questionnaire and the modified Alcohol use and dependency Inventory (AUDIT-C) on the selected 333 students from Chavuma and Kalulushi secondary School. Data collection was done on a working day to avoid additional cost on students returning to school. The exercise was

also conducted during break/lunch time to prevent disturbance of the academic school schedule.

The purpose of the study was explained to the participants. Permission was sought from the Head teacher, parents and pupils to carry out the study through the use of pre signed consent and assent forms by students and their parents. Risks/discomforts, benefits and costs of participating in the study were explained. Confidentiality was maintained by ensuring that no names were written on the questionnaire, instead numbers were used. After enrolment, the participants were allowed to withdraw at any time without questioning.

After all ethical protocols such as confirmation of pre signed consent form for adolescents younger than eighteen years by parents and assent form signing were followed.

The principal investigator with two research assistants one of which has a Bachelor of Arts in Education with research experience and the other one with grade twelve certificate distributed the questionnaires to the students and read the instructions with them. Those that had problems with understanding English were helped by the research assistants by going through the questions together to prevent lapses during answering. The Participants were assured that it was not a test and therefore, they should not be worried of failure. Participants were instructed to indicate the given codes and not names on the questionnaire. The self-administered questionnaire was administered for a period of thirty (30) minutes. After completion, the self-administered questionnaires were collected and kept confidential by the chief investigator in preparation for analysis.

Support Plan for students after screening

The study used the Alcohol Identification and Brief Advice (IBA) as a guide to support non-smoking, non-alcohol consumers and non-drug user students and those at high risk of substance use. Alcohol Identification and Brief Advice is simple structured brief advice given to a person after completing a validated alcohol screening test such as AUDIT-C. It is a preventable approach aimed at identifying and providing brief advice to high-risk drinkers, in this case those that had an AUDIT-C score ≥ 3 for girls and AUDIT-C score of ≥ 4 for boys to help them lower risk levels. The tool sets out to help and prevent

alcohol related problems in adolescents before they start or even address them at an early stage. In this plan, students that are not smokers, alcohol users and non-drug users with AUDIT-Score of 0 were encouraged to continue not to smoke, drink alcohol or take drugs and congratulated. They were encouraged that now is the time to stay substance free since their body is still developing to protect them from future health problems.

Those that were found to be high risk were given feedback on their score, brief motivational interviewing was done in a private office with permission from the Guidance and counseling department to elicit a decision and commitment to change. Alcohol Identification and Brief Advice was given for about 5 to 10 minutes to help them lower the risk of Tobacco smoking, alcohol consumption and drug use. The student was given a follow up within a month of which effort to change should be made and reassessed at the next meeting.

At the next meeting, for those that did not show effort to change, the level of risk was reassessed, acknowledgement that change is difficult was made and that it is normal not to succeed on the first try and that reaching a goal is a learning process. They were praised for honesty and efforts and for any positive change. Relation of substance use to health; social and academic consequences were made to enhance motivation. Challenges and opportunities were addressed to help motivate the student to change. At the third meeting they were asked if the parents knew about their drinking and if so, they were asked to give permission to share recommendations with the parents. Consideration of age, degree of acute risk posed was assessed and 14 adolescents were left in the care of guidance and counselling teachers for continued care since they just needed continued support and follow up during academic activities.

3.12. Data management and Analysis

After collection, the self-administered questionnaires were sorted out and checked for consistency, completeness and accuracy. The responses from the questionnaires were categorized according to their similarity and then assigned codes. The data was organized and analyzed in percentages with the help of statistical package for Social Sciences (SPSS) software.

Logistic regression was run to establish relationship between independent variables such as Gender, age, guardianship, accessibility intrapersonal variables, social cultural variables and outcome variables alcohol use, Tobacco smoking and illicit drug use. In the logistic regression, the univariate analysis was performed and all those variables which were significant at univariate were added to the multiple logistic regression to control for confounders. All variables were fitted in the models and all those that were not statistically significant at 95% confidence level were removed using an investigator led step wise logistic regression. With the confidence level set at 95%, the P value was used to ascertain the degree of statistical significance by using the decision rule which rejects the null hypothesis if P value is equal or less than that of 0.05.

3.13. Reliability

Reliability was ensured by the use of open-ended questions in the questionnaire which provided an opportunity for respondents to add their own ideas to avoid biasness in answering questions.

3.14. Validity

Internal validity was ensured through the use of simple, concise, clearly constructed questions to avoid ambiguity. The questions were brief so that the respondents were not bored as this would affect their responses. The researcher ensured that the same questions were asked to each respondent in the same sequence.

External validity was upheld by making sure that the researcher used objectivity during data collection and analysis so that the study findings were a true reflection of the information given by respondents.

3.15. Pilot Study

The pilot study was conducted at Chavuma secondary school using 10% of the sample size (333). Therefore 33 students were used as the sample size in the pilot study. Simple random sampling was used to select the study units from each grade and class. The pilot study was conducted in order to test the credibility of the questionnaire in answering to the research objectives.

3.16. Ethical consideration

Ethical clearance was obtained from the University of Zambia Research Ethics Committee, (UNZAREC), study clearance from the National Health Research Authority (NHRA) was sought and granted. Written permission to conduct the study from Kalulushi District Educational Board Secretary (DEBS) was also sought. The researcher also called upon Chavuma and Kalulushi secondary School administration to seek permission to conduct the study at their institutions. During data collection, permission was sought from all participants by means of a written consent/assent. The completed questionnaires were kept under strict security to avoid unauthorized access to the information gathered. No names were used on the questionnaires to maintain anonymity and confidentiality.

CHAPTER FOUR

4.0 Results

Introduction

This chapter presents the results and discussions of quantitative data analysis of the study on Tobacco smoking, alcohol use and illicit drug use among secondary school going adolescents in Zambia: results from Kalulushi district. It is divided into two major sections. The first section describes the demographic characteristics of school going adolescents according to gender, alcohol and smoking status.

The second section of the chapter provides results of regression models according to alcohol, smoking and illicit drug use status. A total number of 333 secondary school adolescents were sampled from the target population of 2000 students. The results have been presented in tables and regression models.

Table 2: Demographic characteristics of secondary school adolescents according to gender

	Gender		
	Overall N (333)	Male n (152)	Female n (181)
Socio Demographic Information	N (%)	n (%)	n (%)
AGE			
10-14 years	191(57.3%)	79(41.4%)	112(58.6%)
15-19 years	142(42.6%)	73(51.4%)	69 (48.5%)
GRADE			
Grade eight	79 (23.7%)	42(53.2%)	37 (46.8%)
Grade nine	81 (24.3%)	25(30.9%)	56 (69.1%)
Grade ten	62 (18.6%)	24(38.7%)	38 (61.3%)
Grade eleven	60 (18%)	30 (50%)	30 (50%)
Grade twelve	51 (15.3%)	31(60.8%)	20 (39.2%)
FAMILY STRUCTURE			
Both parents	130 (39%)	61(46.9%)	69 (53.1%)
Single parent	135(40.5%)	64(47.4%)	71 (52.6%)
Other types of family	68 (20.4%)	27(39.7%)	41 (60.3%)

Table 2 indicates that out of the 333 adolescents that were recruited, 191 (57.3%) were between the age of ten to fourteen years. Out of these slightly above half 58.6% were female and 41.4% were male. Less than half 142 (42.6%) were between the age of fifteen to nineteen years with the majority being male 73 (51.4%). Less than half 81 (24.3%) of the adolescents were from grade nine with majority 56 (69.1%) being female. Slightly less than half 135 (49.5%) of the adolescents lived with single parents with 71 (52.6%) being female.

Table 3: Demographic characteristics of adolescents by smoking, drinking and illicit drug use status

Variable	Overall N	Smoking status		Drinking status		Illicit drug Use status	
		Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)
Gender: Male	152	93 (61.2)	59 (38.8)	121 (79.6)	31 (20.4)	105(69.1%)	47(30.9%)
Female	181	80 (44.2)	101 (55.8)	129 (71.3)	52 (28.7)	132(72.9%)	48(26.5%)
Age: 10 to 14	191	99 (51.8)	92 (48.2)	127 (66.5)	64 (33.5)	136(71.2%)	55(28.8%)
15 to 19	142	74 (52.1)	68 (47.9)	123 (86.6)	19 (13.4)	101(71.1%)	41(28.9%)
School: Kalulushi	178	95 (53.4)	83 (46.6)	138 (77.5)	40 (22.5)	144(80.9%)	34(19.1%)
Chavuma	155	78 (50.3)	77 (49.7)	112 (72.3)	43 (27.7)	93(60%)	62(40%)
Grade: Grade 8	79	37 (46.8)	42 (53.2)	49 (62.0)	30 (38.0)	50(63.3%)	29(37.7%)
Grade 9	81	35 (43.2)	46 (56.8)	46 (56.8)	35 (43.2)	54(66.7%)	27(33.3%)
Grade 10	62	31 (50.0)	31 (50.0)	54 (87.1)	8 (12.9)	44(71%)	18(27%)
Grade 11	60	36 (60.0)	24 (40.0)	50 (83.3)	10 (16.7)	49(81.7%)	11(18.3%)
Grade 12	51	34 (66.7)	17 (33.3)	51 (100)	0 (0)	40(78.4%)	11(21.6%)
People stay with: Both	130	63 (48.5)	67 (51.5)	76 (58.5)	54 (41.5)	95(73.1%)	35(26.9%)
Parents Single	135	75 (55.6)	60 (44.4)	115 (85.2)	20 (14.8)	89(65.9%)	46(34.1%)
parent Other	68	35 (51.5)	33 (48.5)	59 (86.8)	9 (13.2)	53(77.9%)	15(22.1%)
Bottles drunk: 1-2	162			113 (69.8)	49 (30.2)		
3-4	67			53 (79.1)	14 (20.9)	-	-
5-6	51	-	-	40 (78.4)	11 (21.6)		
7-9	24			20 (83.3)	4 (16.7)		
10+	29			24 (82.6)	5 (17.2)		
Injured due to alcohol: Yes	142	-	-	129 (90.4%)	13 (9.2%)	-	-
No	191			44 (23%)	147 (77%)		
Introducer: Myself	154	9 (16.7%)	145 (94.2)	104(67.5%)	46 (29.9)	110(71.4%)	4(2.6%)
Sibling	64	61(95.3%)	3(4.7%)	51 (79.7%)	6 (9.4%)	40(62.5%)	24(37.5%)
Parents	19	12(63.2%)	7 (92.2%)	13 (68.2%)	6 (31.6%)	5(26.3%)	14(73.7%)
Friends	92	88 (95.7%)	4 (4.3%)	79 (76.1%)	13(14.1%)	80(87%)	12(13%)
Neighbors	4	3 (75%)	1 (25%)	3(75%)	1 (25%)	2(50%)	2(50%)
Source: Friends	129	23 (17.8)	106 (82.2)	89 (69.0)	40 (31.0)	120(93%)	9(7%)
Bars	91	53 (93.0)	38 (47.8%)	70 (76.9)	21 (23.1)	30(33%)	61(67%)
Home	43	28 (65.1%)	15 (34.9%)	39 (90.7)	4 (9.3)	32(74.4%)	11(25.6%)
Others	70	69 (95.8)	1(1.4%)	52 (74.3)	18 (25.7)	55(78.6%)	15(21.4%)
Parents approval of alcohol use							
disapprove	197	-	-	146 (74.1)	51 (25.9)	-	-
Neither disapprove nor	40			30 (75.0)	10 (25.0)		
approve	47			37 (78.7)	10 (21.3)		
Sometimes approve	25			19 (76.0)	6 (24.0)		
Approve	24			18 (75.0)	6 (25.0)		
Accessibility: Difficult	130	59 (45.4)	71 (54.6)	102 (73.9)	28 (26.1)	126(96.9%)	4(3.1%)
Easy	78	37 (77.1)	41 (22.9)	44 (75.7)	34 (24.3)	29(37.2%)	49(62.8%)
Very easy	125	77 (55.4)	48(44.6)	104 (76.0)	21 (24.0)	82(65.6%)	43(34.4%)
Friends smoking None	136	69 (50.7)	67 (49.3)				
Some	109	55 (50.5)	54 (49.5)	-	-	-	-
Most	88	49 (55.7)	39 (44.3)				

Table 3 illustrates that the study recruited participants aged from 10 years to 19 years and these were school going adolescents. In the descriptive statistics, the study has revealed that most of the participants were female representing 54.4% (181). The table can also show that more than half of the participants (57.4%) were aged between 10 years to 14 years as compared to the age range 15 years to 19 years. A lot of these pupils came from Kalulushi secondary school (53.5%) and the rest were from Chavuma secondary school (46.5%). It can also be observed from the table that most of the pupils who smoked and drunk beer were grade twelve (12). The statistics indicate that of the 51 grade twelves who were interviewed, 66.7% of them were current smokers and all of them (100%) drink alcohol. Most 73.9% reported being injured due to drinking. Overall, 95.7% were introduced to smoking by friends. More than half 55.4% reported easy access to Tobacco, while 76% had easy access to alcohol.

Table 4: Reasons for substance use among secondary school adolescents according to gender

	Gender		
	Overall N (333)	Male n (152)	Female n (181)
	N (%)	n (%)	n (%)
BIOLOGICAL/INTRAPERSONAL VARIABLES			
Personal characteristics			
Impulsivity	52 (15.6%)	25(48.1%)	27 (51.9%)
Extroversion	32 (9.6%)	11(34.4%)	21 (65.6%)
Emotional stress	58 (17.4%)	27(46.6%)	31 (53.4%)
Poor copying skills	25 (7.5%)	10 (40%)	15 (60%)
Curiosity/experimentation	21 (6.3%)	10(47.6%)	11 (52.4%)
INTERPERSONAL VARIABLES			
Lack of parental supervision	28 (8.4%)	13(46.4%)	15 (53.6%)
Having parents and family Members that use substances	15 (4.5%)	7 (46.7%)	8 (53.3%)
Having parents that are Harsh discipliners	21 (6.3%)	10(47.6%)	11 (52.4%)
Being given more than enough pocket money	64 (19.2%)	32 (50%)	32 (50%)
Unstable family such as divorce and separation	51 (15.3%)	21(41.2%)	30 (58.8%)
Study is easy when under the influence of substances	24 (7.2%)	10(41.7%)	14 (58.3%)
Peer pressure	112(33.6%)	51(45.5%)	61 (54.5%)
SOCIAL CULTURAL VARIABLES			
Substances are easily accessible	37 (11.1%)	14(37.8%)	23 (62.2%)
Substances are cheap	59 (17.7%)	28(47.5%)	31 (52.5%)
Substance use portrayal on social media is good	39 (11.7%)	17(43.6%)	22 (56.4%)
Substance use school rules are not strict	41 (12.3%)	19(43.3%)	22 (53.7%)
Bar owners not strict on alcohol sell age limit	37 (11.1%)	14(37.8%)	23 (62.2%)
Substances seem very cool when advertised	119(35.7%)	55(46.2%)	64 (53.8%)

Table 4 shows that at personal level many 58(17.4%) used substances due to emotional stress and out of these, slightly more than half 31(53.4%) were female. At interpersonal level Less than half 112(33.6%) of adolescents used substances due to peer pressure of which more than half 61(54.5%) were female and the other half 51(45.5%) male. At community level, less than half 119(35.7%) used substances due to advertisement with more than half 64(53.8%) of these being female.

Table 5: Substance use prevalence

	Gender		
	Overall N (333)	Male n (152)	Female n (181)
	N (%)	n (%)	n (%)
ALCOHOL USE			
Alcohol use No	83(24.9%)	31 (37.3%)	52 (62.7%)
Alcohol use Yes	250 (75.1%)	121(48%)	129 (51.6%)
AUDIT-C SCORE GIRLS			
AUDIT C SCORE ≥ 3	6(2.4%)	-	6(2.4%)
AUDIT-C SCORE BOYS			
AUDIT C SCORE ≥ 4	8 (3.2%)	8(3.2%)	-
TOBACCO USE			
Nonsmokers (No)	160 (48.0%)	59 (36.9%)	101 (63.1%)
Smokers (yes)	173 (52%)	93 (53.8%)	80 (46.2%)
ILLCIT DRUG USE			
Illicit drug use (Yes)	237(71.2%)	105(44.3%)	132(55.7%)
Illicit drug use (No)	96 (28.8%)	47 (49%)	49 (51%)
COCAIN (YES)	40 (12.1%)	21 (52.5%)	19 (47.5%)
CANABBIS (YES)	185(55.6%)	88 (47.6%)	97 (52.4%)
GLUE (YES)	130(39.0%)	50 (38.5%)	80 (61.5%)
PETROL (YES)	146 (43.8%)	75(51.4%)	71 (48.6%)
METHYLATED SPIRIT (YES)	25 (7.51%)	12 (48%)	13 (52%)
OPIATES (YES)	7 (2.1)	3 (42.9%)	4 (57.1%)
BENYLLIN (YES)	235(70.6%)	111(47.2%)	124(52.8%)
HEROIN (YES)	7(2.1%)	3(42.9%)	4(57.1%)
DIAZEPAM/VALIUM (YES)	6(1.8%)	4(66.7%)	2(33.3%)

Table 5 demonstrate that out of the 333 adolescents, majority 250(75.1%) consumed alcohol with more than half 129(51.6%) being female. Out of the adolescents that consumed alcohol 6(2.4%) girls had an AUDIT-C SCORE of ≥ 3 indicating hazardous drinking. Meanwhile, 8(3.2%) of boys had an AUDIT-C SCORE of ≥ 4 indicating hazardous drinking. Slightly above half 173(52% smoked Tobacco with majority

93(53.8%) being male. Majority of adolescents 237(71.2%) used illicit drugs with more of these being female. The most used illicit drug was Benylin 235(70.6%) with more girls 124(52.8%) being users.

Table 6: Factors associated with alcohol drinking using logistic regression

		Unadjusted estimates			Adjusted estimates		
Variable		OR	CI	P-value	OR	CI	P-value
Gender:	Female	REF			REF		
	Male	1.57	(0.95, 2.61)	0.081	1.15	(0.60, 2.22)	0.661
Age group:	10 to 14	REF			REF		
	15 to 19	3.26	(1.85, 5.76)	<0.001	1.79	(0.88, 3.66)	0.106
Grade:	Grade 8	REF			REF		
	Grade 9	0.80	(0.43, 1.51)	0.500	0.89	(0.40, 1.98)	0.781
	Grade 10	4.13	(1.73, 9.86)	0.001	6.48	(2.36, 17.82)	<0.001*
	Grade 11&12	3.16	(1.25, 6.20)	0.007	6.18	(1.17, 10.65)	<0.001*
Person stays with:							
both parents		REF			REF		
Single parent		4.08	(2.27, 7.36)	<0.001	10.35	(4.81, 22.27)	<0.001*
Other		4.65	(2.01, 11.20)	<0.001	9.86	(3.78, 25.76)	<0.001*
Number of Beers:	1	REF			REF		
	2	3.22	(1.48, 6.99)	0.003	0.68	(0.59, 0.79)	<0.001*
	3	1.64	(0.84, 3.22)	0.147	1.07	(0.87, 1.32)	0.519
	4	1.9	(0.85, 4.24)	0.117	1.11	(0.43, 2.90)	0.826
	5+	2.11	(0.84, 5.28)	0.110	0.82	(0.65, 1.03)	0.087

Note: *Variables statistically significant at 95% CI, CI-Confidence interval, OR: Odds ratios

The results from the best fit model are given in table 6 above. From the best fit model, the results indicate that males had increased odds of drinking as compared to females (OR=1.15, CI=0.60,2.22), this was not statistically significant p-value=0.661. This increase can be as low as 0.60 to as high as 2.22 from the population where the sample was drawn. We cannot rule out chance finding.

For the grade of the pupils, grade 11 and 12 had an increased odd of drinking compared to grade 8s (OR=6.35, CI=1.17-11.65). This finding is statistically significant, p-value <0.001. The study has also found that pupils who stayed with a single parent had an increased odd of drinking compared to pupils who stayed with both parents (OR=10.35, CI=4.81, 22.27). This finding was statistically significant with p-value<0.001. Similarly, pupils who stayed with other guardians had increased odds of drinking alcohol as compared to pupils who stayed with both parents (OR=9.86, CI=3.78, 25.76). This finding was statistically significant with p-value<0.001.

Regarding the number of bottles drunk, the logistic regression indicates that those who drunk 2 bottles had increased odds of drinking beer compared to those who took 1 bottle (OR=0.68, CI=0.59,0.79). This finding is statistically significant p-value<0.001.

Table 7: Modelling smoking status of adolescents using logistic regression

Variable	Unadjusted estimates			Adjusted estimates		
	OR	CI	P-value	OR	CI	P-value
Gender: Female	REF			REF		
Male	1.57	(0.95, 2.61)	<0.081	4.41	(0.52, 37.13)	0.172
Age first smoked:	59.46	(17.81, 198.49)	<0.001	22.21	(6.00, 82.28)	<0.001
Introducer:	4.03	(3.12, 5.21)	<0.001	1.94	(1.07, 3.53)	0.034
Places where get cigarettes:	13.45	(7.40, 24.44)	<0.001	5.63	(1.97, 16.06)	0.001*

Note: *statistically significant at 0.05, OR: odds ratio, CI: confidence interval

The findings in the smoking outcome were that the males had increased odds of smoking as compared to the females (OR=4.41, CI=0.52, 37.13). This finding was not significant as the p-value=0.172 is greater than the cut-off points 0.05. A unit increase in age they first smoked had an increase in the odds of an adolescent smoking (OR=22.21, CI=6.00, 82.28). This finding is statistically significant with p-value<0.001. A unit increase in the introducer (from myself, sibling, parents, friends, neighbors) increased the odds of smoking (OR=1.94, CI=1.07, 3.53). This increase was statistically significant with p-value=0.034.

A unit increase in the place where the cigarettes are obtained increased the odds of smoking (OR=5.63, CI=1.97,16.06). This finding is statistically significant with p-value <0.001.

Table 8: Modelling illicit drug use of adolescents using logistic regression

Variable		Unadjusted estimates			Adjusted estimates		
		OR	CI	P-value	OR	CI	P-value
Gender:	Female	REF			REF		
	Male	0.83	(0.52, 1.33)	0.440	0.74	(0.45, 1.24)	0.253
Age:	10-14	REF			REF		
	15-19	1.00	(0.62, 1.61)	0.988	0.91	(0.53, 1.59)	0.748
School:	Kalulushi	REF			REF		
	Chavuma	0.35	(0.22, 0.58)	<0.001	0.37	(0.22, 0.61)	<0.001
Grade:	G8	REF			REF		
	G9	1.16	(0.60, 2.22)	0.655	1.06	(0.54, 2.09)	0.867
	G10	1.42	(0.69, 2.89)	0.338	1.43	(0.68, 2.98)	0.344
	G11	2.58	(1.16, 5.74)	0.020	2.40	(1.06, 5.44)	0.036
	G12	2.11	(0.94, 4.74)	0.071	2.13	(0.87, 5.19)	0.096

Findings from the illicit substance abuse indicate that pupils who were at Chavuma had a reduced odd (OR=0.35, CI 0.22-0.62) of being involved in these illicit substance abuse compared to the pupils who were at Kalulushi secondary school. These findings were statistically significant with p-value < 0.001. Other results that was very significant was the grade of the pupils. It was observed that Grade 11s compared to G8s had increased odds of being involved in illicit behavior (OR=2.58, CI=1.16, 5.14). This finding was statistically significant, p-value=0.020.

Grade 12s also had increased odds (OR=2.11, CI=0.94, 4.74) of being involved in these activities, however this could have been through chance finding as the result is not statistically significant, p-value=0.071. The same applies to other variables indicated in Table 8.

CHAPTER FIVE

5.0. Discussion of findings

The purpose of this study was to assess the prevalence and predictors of Tobacco use, alcohol consumption and illicit drug use among secondary school adolescents in Kalulushi district of Zambia.

5.1. Demographic characteristics of secondary school adolescents by smoking, drinking and illicit drug use status

Substance use status with regard to the basic attributes of the secondary school adolescents such as, gender, age, type of school attended, grade, guardianship, bottles of alcohol taken, source of substance and accessibility were determined.

With regard to gender, out of the 333 adolescents that participated in the study, slightly above half (181) 54.4 percent were female while (152) 45.6 percent were male. The difference in gender composition may be attributed to the efforts by Forum for African Women Educationalist of Zambia (FAWEZA) to promote education for the girl child in order to achieve education for all by 2015 (Zimba, 2011). Out of the 152 boys, 61.2 percent reported smoking Tobacco products, 79.6 percent drink alcohol, 69.1 percent use illicit drugs. Meanwhile, 44.2 percent girls reported smoking, 71.3 percent drink alcohol, and 72.9 percent take illicit drugs. In this study it is evident that more boys smoke cigarettes and drink alcohol than girls. In contrast more girls take illicit drugs than boys.

Results of the present study are consistent with Zyambo et al (2011) who also reported more male smokers than female current smokers of any Tobacco product. Our results are also in agreement with Adesola et al (2014) who reported male gender as a predictor of current smoking and alcohol use. Kangwa et al (2019) also reported more boys drinking than girls.

In contrast, Chibale et al (2018) reported more girls drinking alcohol than boys.

The differences in results in these studies may be attributed to different study locations and study designs.

This calls for more supportive interventions with regard to male adolescents during school time and at home to halt this behavior. More causal studies are also needed to determine the significant disparities in gender with regard to adolescent substance use.

Above half 57.3 percent of the adolescents were between the ages of ten to fourteen years comprising 58.6 percent female and 41.4 percent male. Meanwhile 42.6 percent were between the age group of fifteen to nineteen years. Slightly above half 51.8 percent of those between ten to fourteen years smoked cigarettes, 66.5 percent reported drinking and 71.2 percent used illicit drugs. Majority 86.6 percent of those within fifteen to nineteen reported drinking, 52.1 percent smoke and 28.9 percent take illicit drugs.

This study shows that adolescents within ten to fourteen years took more illicit drugs than those between fifteen and nineteen years.

Meanwhile those within the age group of fifteen to nineteen years are more alcohol drinkers than those between ten to fourteen years. These results further highlight that adolescent initiate illicit drug use as early as ten years and alcohol intake as early as fifteen years which can lead to significant damage and long-term effects on body organs such as the lungs leading to lung cancer, liver leading to liver cirrhosis and brain tissue leading to mental health disorders.

The results of the present study are not consistent with most previous studies and indicate that adolescents in Zambia initiate substance use at a very early age and therefore, highlight the importance of alcohol and drug use prevention interventions that target younger adolescents and consensus with the community and families where these young ones come from to help support and regulate behavior before it escalates to complications that are more expensive to the family and the country at large.

Majority 53.4 percent of adolescents who smoked cigarettes were from Kalulushi secondary school as compared to Chavuma secondary 50.3 percent. Furthermore, most 77.5 percent of adolescents from Kalulushi secondary drink alcohol and 80.9 percent take illicit drugs. Results of the present study shows that adolescents at Kalulushi

secondary school smoke cigarettes, drink alcohol and take illicit drugs more than those at Chavuma secondary school.

Our results are consistent with Chibale et al (2018) who reported 77.9 percent prevalence of alcohol use among students at Kalulushi secondary school.

The most plausible explanation to this may be the fact that Chavuma secondary school is a school of excellence and therefore, students are more regulated by school staff and also due to the high pass mark expectation from Chavuma secondary school, most students would want to dedicate their time to academic work for fear of failure and being sent away which acts as a protective factor from substance use.

This calls for more follow up and continuous support of students learning in non-excellence schools to protect them from behaviors such as substance use.

Majority of adolescents who participated in the study were from grade nine 24.3 percent with majority of these 69.1 percent being female. Most 66.7 percent of adolescents who smoked were from Grade twelve, followed by Grade eleven 60 percent, Grade ten 50 percent, Grade eight 46.8 percent and finally Grade nine 43.2 percent. Our study revealed that Grade twelve adolescents used more alcohol and smoked Tobacco more than any other Grade in both schools. The most plausible explanation to this could be that Grade twelve and eleven adolescents are older and know most surrounding hotspots for drinking and smoking.

Results of the present study are consistent with Chibale et al (2018) who had more grade elevens in their study of alcohol abuse. Our results are not consistent with most previous studies with regard to grade and substance use. Guo et al. (2016) in their study in China had opposing results where grade eight represented 19.7 percent of alcohol drinkers. Letamo et al, (2016) reported junior secondary school adolescents using more alcohol than senior secondary school adolescents. Furthermore, Desimone and Wolaver (2005) in their study of drinking and academic performance in high school also found a negative relationship between substance use and grade of a student. The differences in results between these studies could be due to the use of different study designs and different geographical locations.

5.2. Prevalence of alcohol use among secondary school going adolescents

Alcohol was the most used among secondary school adolescents with a prevalence of 75.1 percent with more male drinkers at 79.6 percent than female 71.3 percent current drinkers. Meanwhile 3.2 percent boys took alcohol to dangerous levels in this study with an AUDIT-C-SCORE ≥ 4 than 2.4 percent of girls who had an AUDIT-C-SCORE ≥ 3 .

This result indicate that adolescents take alcohol to dangerous levels that can harm their Health and lead to long term consequences such as Liver Cirrhosis, alcohol use disorder and mental Health disorders. Dangerous drinking among adolescents may also lead to poor decision making such as unprotected sexual intercourse as a result of lack of safer sex negotiation especially for girls leading to Sexually Transmitted Infections such as HIV/AIDS, unwanted pregnancies/unsafe abortion consequently increasing the maternal mortality rate which Zambia is fighting to bring down.

Most 67.5 percent when asked who introduced them to alcohol reported having introduced themselves to alcohol, meaning intrapersonal influence within one self can play a part in initiation of alcohol use. This is consistent with the Problem Behavior Theory Jessor (1977) under personality system that explain elements within an individual acting as instigating factors to initiation of problem behavior.

Intrapersonal influence was followed by those that were introduced by friends 76.1 percent, 79 percent by siblings meaning that the home environment is also a factor in alcohol initiation, 68.2 percent were introduced by their parents. When asked whether directly or indirectly, reported indirect parental introduction through modelling and imitation which is also consistent with the Problem Behavior Theory Jessor (1977) under Environmental system where one learns behavior through family and peer expectation model.

Majority 90.7 percent of adolescents reported the home as a source of alcohol, 76.9 percent from bars surrounding the schools, 74.3 percent from other sources such as Barber shops and 69 percent from friends at school.

5.3 Factors associated with alcohol use among secondary school going adolescents

Our study has established that Grade 11 and 12 had increased odds of drinking compared to grade 8 (OR= 6.35,CI=1.17-11.65) and this was statistically significant P-Value < 0.001. This study has also established that adolescents who stayed with single parents had an increased odd of drinking compared to those that lived with both parents (OR=10.35,CI=4.81,22.27),this was also statistically significant with P-Value < 0.001. Similarly, those that lived with other guardians had increased odds of drinking than those that lived with both parents (OR=9.86,CI=3.78,25.76). This finding was also statistically significant at <0. 001. Furthermore, adolescents who drunk 2 bottles of alcohol had increased odds of drinking compared to those that took 1 bottle (OR=0.68, CI=0.59,0.79), this finding was statistically significant with P- Value <0.001.

Our findings are consistent with most studies that have linked adolescent drinking to being looked after by non-biological parents. One plausible explanation to this is the fact that non-biological parents may not have close attachment with these adolescents; hence fail to correct unacceptable behavior such as drinking. Trucco (2020) also affirms that parents are influential referents in adolescents' social worlds, affecting both adolescent substance use behavior directly, as well as friendship tie choices. According to Ladis et al. (2020) research examining the role of parental socialization on adolescent substance use has focused on two components such as parental control (demandingness) and parental warmth (responsiveness). Parental control reflects behaviors directed to the child intended to shape behavior viewed as acceptable by the parent, including setting explicit rules regarding adolescent behavior, supervision, and discipline. Our results are also in line with Flischer et al .(2003) who associated not being looked after by both parents to alcohol abuse. Similarly, Kask et al. (2012) in Czech Republic in their study on effects of family factors on intense alcohol use among European adolescents found out that adolescents who came from dual parent households were less likely to be intense alcohol users than those from single parent households. Further, Flewilling et al. (1990) also affirms that children from disrupted families are at higher risk of initiating the use of controlled substances. Kioko (2005) also agrees that children who are neglected by parents are more likely to indulge in alcoholism. Such students lack advice from their parents on social life including drug

and alcohol abuse. These adolescents are easy prey for alcohol use since parents are hardly available to guide and correct behavior.

This calls for schools and parent/guardian engagement during Parent Teachers Association meetings to engage the non-biological parents to be more attached to these adolescents that they keep in their homes for them to have a sense of belonging and attachment.

5.4 Prevalence of illicit drug use among Secondary school going adolescents

Illicit drug use was the second most common behavior with a much higher prevalence than other previous studies among secondary school going adolescents. The prevalence of drug use was at 71.2 percent with majority 55.7 percent female users as compared to 44.3 percent male users. The most common drug used was Benylin 70.6 percent which was mostly used by girls 52.8 percent than males 47.2 percent. This was followed by Cannabis 55.6 percent and most girls 52.4 percent used the drug than boys 47.6 percent. The third used drug was petrol with more male 51.4 percent than girls 48.6 percent. Glue was next at 39 percent with most users being female 61.5 percent compared to males 38.5 percent. Girls reported using glue because it smelled good, it was cheap and available in any nearby grocery store. Cocaine was at 12.1 percent with males 52.5 percent as the majority users than girls 47.5 percent. Most girls did not like cocaine because it was expensive and difficult to access. 7.5 percent adolescents reported having used methylated spirit before with more than half 52 percent female users than males 48 percent. The least used drug was Valium at 1.8 percent with more male users 66.7 percent than female. When asked about the source of these drugs, most adolescents reported Bars surrounding the school, friends, Siblings, Barbershops, and school mates who come with them from home.

5.5 Factors associated with Illicit drug use among secondary school going adolescents

Our study has established that being a learner at Chavuma secondary school reduced the odds of illicit drug use involvement by (OR=0.35, CI=0.22,0.62) than being at Kalulushi Secondary school. This was statistically significant with P-Value <0. 001. This may be due to Chavuma secondary school being a school of excellence and

students being more academically oriented than Kalulushi Secondary school. Students at schools of excellence are also more regulated due to the high expectations that are placed on them as far as pass mark is concerned. More studies are needed to establish variation in illicit drug use involvement between schools of excellence and non-excellence schools.

The study also established that Grade 11 adolescents had (OR=2.58, CI=1.16,5.74) increased odds of being involved in illicit drug use than Grade 8. This result was also statistically significant with P-Value <0. 020. One plausible explanation may be that grade 11 students are older and have no major examination to worry about, hence resort to use of illicit drugs for entertainment.

Our results have also indicated that Benylin, Cannabis and Petrol are the most used drugs due to lower price, and easy accessibility by adolescents. The study has raised this as an issue of concern that needs to be dealt with before the situation escalates into much worse circumstances.

Another issue of concern to the secondary schools, parents and the community is that the study has revealed that female adolescents use more illicit drugs than males and this can lead to a lot of undesirable consequences within the community if left unattended. Consented effort is needed between the ministry of Health, education, school management, the church, community members and parents to enhance support and raise self-awareness among female adolescents in schools to curb the vice.

5.6 Prevalence of Tobacco smoking among secondary school adolescents

The prevalence of smoking was high and was at 52 percent with majority 53.8 percent smokers being male compared to 46.2 percent female smokers. Majority 95 percent of adolescents reported getting cigarettes from sources within the school environment, 93 percent from bars, 65 percent from home, 17.8 percent from friends. When asked if cigarettes were easy to access, 55.4 percent reported were very easy to get. Cigarette smoking was more prevalent among the age group of 15-19 years 52.1 percent than 10-14 years age group 51.8 percent. Grade 11 adolescents smoked more cigarettes 60 percent compared to Grade 8 46.8 percent.

Results of the present study are consistent with Letamo (2016) who also reported a lower prevalence of smoking among younger adolescents between 10-12 years than older ones between 16-19 years. They also reported a lower prevalence in lower secondary school than upper secondary school.

5.7 Factors associated with Tobacco smoking among secondary school adolescents

Our study has established that male adolescent had (OR=4.41, CI=0.52,37.13) increased odds of smoking as compared to female adolescents. The observed difference in smoking behavior between boys and girls may not be surprising given the social context in Zambia where social norms may be more accepting of male smoking than females. This result is consistent with Siziya et al (2007) who also reported that males were significantly more likely to be smokers than females. Furthermore Ayalu (2012) also reported sex of students being associated to smoking, in their study, males had increased odds of smoking than females. They attributed this to the fact that females are more socially restricted than males. Furthermore, Siddiqua (2018) in their study of Tobacco smoking among expatriate and National adolescents in United Arab Emirates also reported that being male increased the odds of smoking.

In contrast, Joffer et al. (2014) in their study of predictors of smoking among Swedish adolescents established a significant association between smoking and female sex. The difference in results of these studies could be attributed to different study designs and geographical locations.

A unit increase in age adolescents first smoked had an increase in the odds of them smoking (OR=22.21, CI=6.00, 82.28). This finding was statistically significant with p-value<0.001. The result is consistent with Al-Zalabani & Kasim (2015) in their study of prevalence and predictors of adolescent cigarette smoking in Madinah Saudi Arabia who reported that the risk of smoking was found to increase with increasing age of an adolescent. Furthermore, Fagbamigbe (2020) in their study of age at the onset of Tobacco smoking in South Africa also reported early age of smoking onset to be associated with likelihood of regular smoking.

Introducer of cigarette smoking (from myself, sibling, parents, friends, neighbors) increased the odds of smoking by (OR=1.94, CI=1.07,3.53) P- Value 0.034. This

finding is consistent with Robie (2020) in their study of prevalence of cigarette smoking and associated factors among adolescents in Ethiopia who reported that having a smoking parent or friend was associated with smoking. Consistent with the Problem Behavior Theory by Jessor (1977), perceived environmental system such as family and peer approval of problem behavior act as an instigating factor to initiation of behavioral problems such as substance use in an adolescent. Parents and peers who smoke in front of an adolescent act as models fostering the impression that smoking is normal.

The source of Cigarettes also increased the odds of smoking (OR=5.63, CI=1.97,16.06). This was statistically significant with P-Value < 0. 001.If the source of Tobacco products is so easily accessible, it helps to foster a feeling of ease by adolescents when purchasing the product and may act as an instigating factor to smoking among adolescents. This calls for local Authority attention to the sources of smoking by adolescents to curb the vice.

5.8 Reasons for substance use among secondary school going adolescents

We should have gotten reasons for Tobacco smoking, alcohol use and illicit drug use independently but we combined the reasons which could bias our results as we do realize that the reasons could be different. We have however included this as one of the limitations of the study.

Personal level

Substance use is a social problem that is multifaceted at personal, interpersonal, community and societal level. In our study, most 17.4 percent of adolescents used substances at a personal level due to emotional stress and majority of these 53.4 percent were girls.

One plausible explanation to this may be that girls tend to bottle up feelings than boys and tend to think that use of substances may help relieve the stress. This is consistent with Booker etal (2004) who reported that school and family related stress has been associated with an elevated intension to start smoking among adolescents who did not smoke due to parental job loss and increased school problems. Stress may not affect

initiation directly but might lead to risk taking, poor decision making, lack of self-control or belief that substances may relieve the stress Byrne et al. (1995). The results of the present study are also in agreement with Gotsang et al (2017) who in their study found stress as the major reason for substance use among adolescents in Botswana.

Stress was followed by impulsivity 15.6 percent as a way of having fun with friends, extroversion 9.6 percent during socialization with other peers as a way to fit into groups. 7.5 percent used substances due to poor coping skills and out these 60 percent were female and 40 percent were male. 6.3 percent of adolescents used substances due to curiosity, experimentation. Majority of these, 52.4 percent were female and 47.6 percent male. The fact that adolescent's resort to alcohol and other substances to alleviate stress suggest that there is inadequate knowledge and awareness about the consequences of substance use and weakness in the support systems for addressing the challenges adolescents face. Adolescents should be made aware that the solution to stress and other social challenges cannot be found in substance use but from being able to deal with the challenges by taking advantage of existing support systems in the community.

This calls for intensification of adolescent health programs in schools such as those dealing with stress and social coping mechanisms.

Interpersonal level

At interpersonal level 33.6 percent of adolescents reported using substances due to peer pressure of which majority of these were female 54.5 percent and 45.5 percent male. This was followed by 19.2 percent reporting being given more than enough pocket money which facilitate purchase of substances as a reason for use of substances. 15.3 percent reported coming from unstable families such as divorced parents, separation as a reason for substance use. 7.2 percent reported that study was easy when under the influence of substances, 6.3 percent hard parents that were harsh discipliners and adolescents took these substances to get back at their parents and most of these 52.4 percent were female and 47.6 percent were male. 4.5 percent of adolescents used substances as a result of living with parents and family members that use substances due to imitation.

Results of the present study highlighted peer pressure as the main reason for adolescent substance use. These results are consistent with Rowan (2016) who reported that friends' substance use and attitudes are robust predictors of adolescents' risk behaviors such as cigarette smoking, marijuana use and alcohol use. The results are also consistent with Helms et al., (2014) who indicated that peer socialization is strongest in the context of close friendships, adolescents can be socialized by high status peers with whom they have less direct interpersonal contact outside of dyadic friendship contexts. In contrast, consistent with the principle of homophily, individuals are drawn to others that are similar to themselves, peer selection refers to an individual choosing to affiliate with individuals similar to themselves (Trucco, 2020).

In contrast, Haye et al (2013) demonstrated that friendships categorized by positive characteristics, such as support, engagement in school and academics, and involvement in religious activities, had a protective effect against substance use. This is consistent with the problem behavior theory that posits that high religiosity may be a protective factor to substance use.

On the other hand, highlighting the impact of negative peer groups, Cottrell and Monk (2014) assert that peers can incite spiteful behavior towards their parents, especially in broken relationships, and that adolescents always have many reasons to be vindictive, vengeful and spiteful. Parents need to be actively involved in their adolescents' lives.

This means, they should be cognizant of which friends their adolescents are socializing with, where they are hanging out, and what activities they are engaging in. This awareness will assist parents in guarding their adolescents against the dangers of substance misuse as well as teach them how to cope with peer pressure.

Drug and alcohol programming that target parents could also educate them about the importance of supporting their children's success at school and being available and willing to openly discuss their children's problems. Improvements in the counseling services provided at school might also help adolescents learn how to better cope with these stresses.

Social cultural level

At social cultural level, many 35.7 percent adolescents reported use of substances due to advertisement and most of these 53.8 percent were female and 46.2 percent were male. 17.7 percent reported taking substances because they were cheap, 12.3 percent reported that the school rules were not strict while 11.1 percent gave bar owners not being strict on alcohol selling age as their reason for taking alcohol. 11.1 percent reported substances being easily accessible as a reason for using them.

Results of the present study are consistent with some studies done in Zambia. Siziya et al. (2007), who in their study of predictors of cigarette smoking in rural Zambia reported pro-tobacco advertisements being associated with smoking in adolescents. Furthermore, Chibale et al (2018) also found a significant association between alcohol marketing and alcohol abuse among school adolescents. A study done in Zambia by Swahn et al. (2011), also found that one of the marketing strategies of providing free alcohol to youths, appears to be very effective in influencing drinking behaviors and alcohol problems among youths.

One plausible explanation to this may be that adolescents spend a great deal of time using the internet, messaging services and social media and may perceive media portrayal of substances as fun, relaxing and trendy. Adolescents may initiate use of substances as a way of imitating the glamorous portrayal of substances on social media consistent with the social learning theory that posits that children learn through imitation of others in the social domain.

Our study also found that more than half 53.8 percent girls were more likely to take substances due to advertisement than boys.

In contrast, Milam et al (2016) demonstrated a positive association between substance use advertisement and boys in the United States of America. Variation in these study results may be attributed to differences in study geographical locations and study designs.

5.8.1 Strength/ Limitations

The study was one of the first to establish prevalence and predictors of Tobacco use, alcohol use and illicit drug use at once, most previous studies have concentrated only on one behavior. Our study has added to the body of knowledge by generating prevalence and predictors of Tobacco use, alcohol use and illicit drug use which will be used as baseline for other studies in the same area. Due to the cross-sectional nature of the design, the factors that have been identified as associated with Tobacco use, alcohol use and illicit drug use cannot be described in causative terms. Deeper research needs to be undertaken to establish causal relationships. Determination of causal relationships between the three behaviors as to which behavior leads to the other also need to be undertaken. The reasons for Tobacco use, alcohol use and illicit drug use should have been collected independently but were combined which can bias the results as reasons for indulging in each of these behaviors can be different. More research is needed to establish individual reasons for the use of these substances. In addition, the study only recruited secondary school adolescents from Kalulushi district due to COVID-19 restrictions, therefore, the findings may not be representative of adolescents outside Kalulushi district especially those in rural setting since living and learning conditions may not be similar.

5.8.2 Implications

The results of this study have highlighted high levels of substance use that is worrisome among secondary school adolescents in Kalulushi district. If not checked, the problem may negatively impact on the social economic, psychological and physiological wellbeing of the abusers and their families. Such adolescents may end up committing delinquent acts such as stealing in order to raise money for purchase of substances, decrease in academic performance since there is lack of concentration, they are also at risk of unplanned sex and unwanted pregnancies/unsafe abortion increasing maternal mortality in case of girls, increased risk of contracting STIs such as HIV and AIDS. These adolescents may also be at risk of chronic conditions such as cancer of the lungs, Liver Cirrhosis as well as mental health disorders. Substance use may also increase bullying leading to depression and low academic performance as well as disinterest in

school activities, accidental injuries and consequently put adolescents at risk of being suspended or expelled from school which would ultimately affect their future.

5.8.3 Conclusion

The high prevalence of smoking, alcohol use and illicit drug use in Our findings have highlighted that there is evidence of substance use among secondary school adolescents in Kalulushi district which needs immediate attention. Although a number of factors may be attributed to this finding, grade of an adolescent, single parenting, introducer and sources of substances were found to be significantly associated to substance use among secondary School adolescents. This means that achieving substance use abstinence among school adolescents require team effort by all stake holders involved who are the Ministry of education/Health, Secondary school management teams, parents, DEC, community members and the adolescents themselves. Emphasis should be placed on utilization of services offered by the DEC, religious leaders, together with the continued support given to the adolescents by the parents as well as school authorities. In addition, Health education through ministry of health workers during school health services on effects of substance use should be intensified. Reinforcement of by laws regarding drug and alcohol selling places in order to curb substance use among school adolescents should also be revisited.

5.8.4 Recommendations

Government

- ✓ The Ministry of Health to strengthen Adolescent/ Youth friendly Corners to enhance peer education among adolescents themselves on the dangers of substance use and offer counselling services with regard to stress.
- ✓ Ministry of Health through local clinics to foster introduction of Adolescent Health focal persons who will be mandated to help advocacy/ design and provide supportive counselling services to adolescents in schools on dangers of substance use.
- ✓ Pharmaceutical regulations on the sale of drugs in local chemists such as Benylin and other codeine containing drugs to be restricted on prescription to adults only.

- ✓ The Local Authority (Municipal Council) should ensure that all law enforcing officers are restricted from taking bribes from bar owners and Barber shop owners who sell alcohol and other substances to adolescents.
- ✓ The government through the Zambia Revenue Authority (ZRA) needs to increase exercise duty to make alcohol expensive therefore inaccessible to the adolescents.
- ✓ The local authority should reduce density of alcohol retail outlets around school premises and restrict alcohol advertisements bill boards around school premises.
- ✓ The local authority should restrict selling of alcohol in undesignated places such as homes which easily grant alcohol access to adolescents

Drug Enforcement Commission (DEC)

- ✓ Drug Enforcement Commission to strengthen sensitization measures in the community on the negative effects of substance use.
- ✓ The Drug Enforcement Commission to strengthen mentorship and follow up on substance use prevention measures in secondary Schools.
- ✓ The Drug Enforcement Commission in collaboration with Zambia Information and Technology Authority (ZICTA) to devise a mobile application software combining comic with caution depicting the worst effects of substance use. Encourage mobile users to download it so that they develop a mental picture of how they would end up if they do not minimize their indulgence in substance.

School Management Teams

- ✓ Secondary school Management teams to provide rehabilitative and educative facilities as opposed to punitive measures to victims of substance use.
- ✓ Schools to equip adolescents with life skills especially the non-examination grades on how to resist peer pressure and how to cope with stressful situations without indulging in substance use.
- ✓ Ensure that parents and caregivers have access to drug abuse information, support materials and related documents to reduce poor modelling by parents and guardians.

- ✓ Teachers in the guidance and counseling departments to be given refresher courses with a focus on counseling experimenters of substances and also on how to detect early signs of substance use.
- ✓ Secondary schools to make adolescents in non-examination classes such as grade 10 and 11 busy through administration of more homework.
- ✓ School adolescents to be encouraged to take up extracurricular activities such as sports to avoid boredom.
- ✓ To consider buying breathalyzers for random checkups among school adolescents to act as a protective measure.
- ✓ School management teams through Parent Teachers Association (PTA) meetings to help parents with adolescents to regulate the amount of pocket money given to adolescents which acts as motivation for purchase of substances.

Secondary school adolescents

- ✓ Adolescents need to take up extracurricular and other outdoor activities to deter them from indulging in substance use.
- ✓ Adolescents to be empowered with self-awareness strategies which will help in avoiding peer pressure with regard to substance use.

Parents/ Community members

- ✓ Families to make a personal decision to fight substance through community policing approach of “development in the community, by the community and for the community”.
- ✓ Single parents and guardians to adolescents to be more supportive to adolescents by creating a more concrete and firm relationship with adolescents in the home.
- ✓ Every community member should have a moral responsibility of ensuring that substances are kept away from adolescents until they become adults.
- ✓ The Church to come out strongly and establish supportive and stigma free programs for adolescents and families that are directly or indirectly affected by substance use.
- ✓ The media to take up an active role in dissemination of Anti substance use information to the public to help increase awareness among community members.

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APPENDICES

APPENDIX I



THE UNIVERSITY OF ZAMBIA

BIOMEDICAL RESEARCH ETHICS COMMITTEE

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INFORMED CONSENT TEMPLATE FOR INTENDING RESEARCHERS

**Title of the proposed study: TOBACCO USE, ALCOHOL CONSUMPTION AND
ILICIT DRUG USE AMONG SCHOOL GOING ADOLESCENTS IN ZAMBIA:
RESULTS FROM KALULUSHI DISTRICT.**

Investigators:

Principal investigator: Bautister Chileshe 0966-922736

Supervisor: Doctor Comas Zyambo: 0970530106

University of Zambia School of public Health

UNZA main Campus

Lusaka.

Background and rationale for the study:

Substance use is a common behavior practiced by school adolescents and it remains a prominent public health problem (Sadock et al, 2011). Defining adolescence may be challenging but World Health Organization (WHO) exemplifies adolescence as the developmental stage or period between 10 to 19 years. This time of life represents a great share of the foundation for future health, behavioral patterns and the adoption of health behaviors relating to substance use.

Globally, 450,000 people died as a result of drug use, of those deaths, 167,750 were directly associated with drug use disorders mainly overdose. The rest were indirectly attributable to drug use and included deaths related to Human Immune Virus (HIV) and hepatitis C acquired through unsafe injecting practices (World Health Organization WHO (2016)). 3.8% mortality and 4.6% of disability-adjusted life year's (DALYs) lost are attributed to alcohol use, daga, opioids, tobacco and use of other substances such as petrol and Benylin, Rehm et al. (2009) Who many were lost to daga, opioids and tobacco use.

Adolescents tend to use substances in settings ranging from secondary schools, homes surrounding school premises, interschool sports festivals and concerts. Substances that are likely to be used in poor settings such as Zambia range from daga, Tobacco, alcohol, petrol and methylated spirit. Substance use among adolescents and young adults is associated with deficits in domains including physical health, cognitive functioning, educational achievement, psychology, as well as overall impairment in social competencies and relationships (World drug report, 2018). Physical health problems experienced by young substance users most obviously include increased risk of overdose, accidental injury such as motor vehicle accidents or falls, and attempted suicide. Alcohol consumption has been shown to increase the risk of HIV/AIDS by increasing the risk of transmission resulting from an increased risk of unprotected sex. Harmful alcohol use is a strong risk factor for the development of tuberculosis due to immune suppression and cancer development in the oropharynx, larynx, esophagus, liver, colon, rectum (WHO, 2017). Harms from drinking occur not only to the drinker, but also to those around him or her to others in the family or household, to relatives and friends, and to those encountered

on the street such as bullying of other students around school environment. It leads to reduced attention span in classroom setting and poor academic performance.

This study is aimed at determining the prevalence and predictors of Tobacco smoking, alcohol consumption and Illicit drug use among secondary school going adolescents in Kalulushi district.

The study results will be used in the planning and design of health promotion interventions as well as empowering adolescents with negotiation skill as far as substance use is concerned. It will help develop and revisit substance use policies within secondary schools. Non-alcohol consuming and non smokers will benefit through reduction of bullying by substance participating students and help foster healthy student relationships within and outside school environment. Students that smoke, consume alcohol and drug users will benefit from health information on the risks of substances to the body organs before complications occur. Information from the study will also benefit adolescents who use substances to stay away from substances through awareness of risks and will help increase academic excellence. The study will help reduce delinquency around the community and homes and help reduce social stress for many parents and guardians.

Purpose:

The purpose of this study is to determine the prevalence and predictors of Tobacco smoking, alcohol consumption and illicit drug use among adolescents in Secondary schools in Kalulushi District of Zambia.

You/your child is being asked to participate in the study to help generate information in identification of the factors that lead to adolescent substance use. The study is non-experimental and will not involve administration of Tobacco, alcohol and drugs to students at any time. The participants will only be given a questionnaire to answer for 30 minutes at lunch time to avoid disruption of normal class schedule.

Procedures:

After seeking permission from the Head teacher, participants who/ whose parents will consent to participate in the study will be taken to one classroom at lunch time. Verification of parental consent will be done then instructions on the questionnaire will be read to them by the principal investigator and 2 research assistants to help them understand the questions. Translation will be done for those that cannot understand English well. Participants will be instructed not to write their name on the questionnaire but an assigned code will be given to provide confidentiality. Participants will be informed that they are free to withdraw from answering the questions without questioning or penalty. They will be given 30 minutes to answer the questions by ticking the correct response. After completion, the questionnaires will be collected from them, they will be thanked and released. The filled in questionnaires will be kept confidential by the principal investigator under lock and key.

Who will participate in the study?

Only grade nine, eleven and twelve secondary school adolescents whose parents have signed consent for their child and those eighteen years and above who are able to consent will be allowed to participate in the study. The study will have 28 students from grade nine, eleven and twelve of which fourteen will be boys and fourteen girls to allow for gender representation. The study will have 83 students from Kalulushi Trust School, 83 students from Kalulushi Basic School, 83 from Chavuma secondary and 84 students from Kalulushi secondary school making a total sample size (n) 333 students. The participants will be expected to participate in the study only one day for thirty minutes during lunch time.

Risks/Discomforts:

There will be no risk for participating in this study since the study is not experimental and will not require any administration of Tobacco, alcohol and drugs to participants. You are not required to indicate your name on the questionnaire for confidentiality purposes. Answering the questionnaire will not put you in trouble as the information will only be used for academic purposes and will not be shared with school authorities, parents or guardians and even your class mate will not know your responses to the questions.

Benefits:

There will be no direct financial benefit to the participants as this study is purely for academic purpose. Participation will benefit you by empowering you with information that will sharpen your negotiation skill, decision making with regard to alcohol consumption within family, school and the community. Non- smokers, alcohol consuming students will benefit through reduction of bullying by substance participating students and help foster healthy student relationships within and outside school environment. Students that smoke, consume alcohol will benefit from health information on the risks of substances to the body organs before complications occur. Information from the study will also benefit alcohol consuming adolescents to stay away from alcohol through awareness of risks and will help increase academic excellence.

The study will help reduce delinquency around the community and homes and help reduce social stress for many parents and guardians. The establishment of associations will help Ministry of Health facilities such as clinics in Kalulushi District in designing appropriate Health promotion Information to help empower adolescents, families and the community on the risk and protective factors of Tobacco smoking, alcohol consumption and illicit drug use in secondary schools.

Alternatives:

Participation in this study is voluntary and you have the right to withdraw at any time without questioning or penalty.

Cost:

You will not pay anything for participating in this study and there will be no transport costs since the questionnaire will be answered during normal school time at lunch time.

Compensation for participation in the study:

There will be no form of compensation and no anticipated injuries for participation since the study is non-experimental.

Reimbursement:

Participation in this study will not cost you anything and there will be no refund on transport since answering of questionnaire will be done around school premises.

Questions:

In case of any questions relating to the study, please contact the Researcher: Bautister Chileshe on 0966-922736 or the Student Academic Supervisor: Doctor Zyambo Cosmas University of Zambia School of Public Health UNZA main Campus Lusaka on 0970-530106.

Statement of voluntariness:

Participation in this study will be voluntary and you should join on your own free will without being coerced or influenced and in case you decide to withdraw from the study, you will be allowed to do so without questioning, punishment or penalty.

Confidentiality:

The results of this study will be kept strictly confidential, and used only for research purposes. My identity will be concealed in as far as the law allows. My name will not appear anywhere on the coded forms with the information. Paper and computer records will be kept under lock and key and with password protection respectively.

The interviewer has discussed this information with me and offered to answer my questions. For any further questions, I may contact the Chairperson, UNZABREC on the following details Tel: +260977925304.

STATEMENT OF CONSENT/ASSENT

..... has described to me what is going to be done, the risks, the benefits involved and my rights regarding this study. I understand that my decision to participate in this study will not alter my usual medical care. In the use of this information, my identity will be concealed. I am aware that I may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

Name..... Signature of participant Age.....

Date (DD/MM/YY)

Name of Witness..... Signature of Witness.....

Date (DD/MM/YY)

Name.....Signature of parent or guardian for minors

Date (DD/MM/YY)

Name..... Signature of Interviewer

Date (DD/MM/YY)

APPENDIX II

CHILD ASSENT FORM TOBACCO USE, ALCOHOL CONSUPTION AND ILICIT DRUG USE AMONG SCHOOL GOING ADOLESCENTS IN ZAMBIA: RESULTS FROM KALULUSHI DISTRICT

My name is **Bautister Chileshe** from the University of Zambia School of public Health.

I am trying to learn about:

TOBACCO USE, ALCOHOL CONSUPTION AND ILICIT DRUG USE AMONG SCHOOL GOING ADOLESCENTS IN ZAMBIA: RESULTS FROM KALULUSHI DISTRICT

Because i would like to know the number of secondary school students and the factors from within the school, home, friends and community that make them smoke tobacco, drink alcohol and use drugs. I would like you to be in my study to help me understand this topic.

If you decide you want to be in my study, you will be given a questionnaire which is a paper containing questions about alcohol for you to answer. You will answer these questions by ticking the option which you will think is correct in thirty minutes at lunch time in your class to avoid disturbing your class time. This will not be a test and you will not write your name on the paper but I will give you a number so that people do not know that the paper was answered by you. I will help you read the instructions to make sure that you have understood the questions. After you have finished writing, I will get the answered paper and keep it safe so that other people do not see what you have written. I will not share your answers with your teachers, parents or anyone else and the information will only be used to help me understand this topic.

Risks and Benefits

Answering these questions will not put you in trouble with your school, teachers, parents and friends because they will not know what you have answered. You will not be given any alcohol to drink but just answering questions on alcohol. You will not be given money but you will learn a lot on the benefits of not taking alcohol and the risks of taking alcohol on your body and on your studies at school. Your participation will even help your school to improve on prevention of alcohol intake by students around the school to protect all the students from bullying, injuries from fights, failing examinations and tests.

Your participation will even help clinics in Kalulushi district to come up with good information to help teach all students to protect them from effects of alcohol.

Your contribution will also help parents, aunties/uncles to know how to look after their children and how to protect them from drinking alcohol and will even help them to stop worrying and concentrate on their work.

Confidentiality

Other people will not know if you are in my study. I will put things I learn about you together with things I learn about other children, adolescents, so no one can tell what things came from you. When I tell other people about my research, I will not use your name, so no one can tell who I am talking about.

Voluntariness

Your parents or guardian have to say it's OK for you to be in the study. After they decide, you get to choose if you want to do it too. If you don't want to be in the study, no one will be mad at you. If you want to be in the study now and change your mind later, that's OK. You can stop at any time and you will not be asked to give reasons or punished.

My telephone number is **0966-922736**. You can call me if you have questions about the study or if you decide you don't want to be in the study any more.

I will give you a copy of this form in case you want to ask questions later.

Agreement by Child

I have decided to be in the study even though I know that I don't have to do it. Bautister Chileshe has answered all my questions.

Signature of Study Participant

Date

Signature of Researcher

Date

APPENDIX III

MODIFIED STUDENT DRUG USE QUESTIONNAIRE (Originally developed by the World Health Organization WHO in cooperation with the United Nations Fund for Drug Abuse Control: Smart et al.1980)

Date.....

INSTRUCTIONS

This is not a test, there are no right or wrong answers, please answer all the questions.

- a. For each question pick the answer that best suites you and **Tick** ✓ the appropriate answer (response).
- b. Make sure all the questions are answered
- c. All participants are free to withdraw at any time they feel like without giving any reasons for doing so.
- d. Please ask for a consent form before proceeding with the interview.

SECTION A: DEMOGRAPHIC DATA

CODING

Yes	No
1	2

1. Gender

(a) Female

(b) Male

2. Age

CODING

10 to 12	13 to 15	16 to 18	Above 19
1	2	3	4

(a) 10-12 years

(b) 13-15 years

(c) 16-18 years

(d) above 19 years

3. What is the name of your school?

..... Secondary school

4. Which grade are you in?

CODING

G 8	9	10	11	12
1	2	3	4	5

(a) Grade 8

(b) Grade 9

(c) Grade 10

(d) Grade 11

(e) Grade 12

5. Whom do you stay with?

CODING

Both parents	Single parent	Others
1	2	3

(a) Both parents

(b) Single parent

(c) Others (specify)

6 Do you drink alcohol or have you tested any alcoholic beverages before (**This could be any alcoholic beverages such as bottled beer, siders, wine, chibuku, katata, kachasu. imbote**)

CODING

No	Yes
0	1

(a) No

(b) Yes

SECTION B

**THIS SECTION CONTAINS QUESTIONS ON ALCOHOL USE FROM THE
WORLD HEALTH ORGANISATION (WHO) AUDIT C SCREENING TOOL**

AUDIT— C QUESTIONS

1. How many times do you have a drink containing alcohol? (Beer, wine, siders, chibuku, Katata, Kantobo, Katubi)

SCORING

0	1	2	3	4
Never	Monthly Or less	2 —4 Times Per month	2 —3 Times Per month	4+ Times Per week

(a) Never

(b) Monthly or less

(c) 2 — 4 times per month

(d) 2 — 3 times per month

(e) 4+ times per week

2. How many bottles of alcohol do you drink on a **typical (a day that you are enjoying yourself)** day when you are drinking?

SCORING

0	1	2	3	4
1-2	3-4	5-6	7-9	10+

- (a) 1 - 2
- (b) 3 - 4
- (c) 5 - 6
- (d) 7 - 9
- (e) 10+

3. How many times have you had 6 or more bottles of beer in female or 8 or more bottles in male on a single occasion (day) in the last year?

SCORING

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

- (a) Never
- (b) Less than monthly
- (c) Monthly
- (d) Weekly
- (e) Daily or almost daily

AUDIT QUESTIONS

4. How many times during the last year have you found that you were not able to stop drinking once you had started?

SCORING

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

(a) Never

(b) Less than monthly

(c) Monthly

(d) Weekly

(e) Daily or almost daily

5. How many times during the last year have you failed to do what was normally expected from you because of your drinking? **(This could be failure to go to school, write homework, study for a test or examination, go to church)**

SCORING

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

(a) Never

(b) Less than monthly

(c) Monthly

(d) Weekly

(e) Daily or almost daily

6. How many times during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session? (**This could mean taking beer to stop a hung over after yesterday's drinking before going to school**)

SCORING

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

(a) Never

(b) Less than monthly

(c) Monthly

(d) Weekly

(e) Daily or almost daily

7. How many times during the last year have you had a feeling of guilt or remorse (**regretting**) after drinking?

SCORING

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

(a) Never

(b) Less than monthly

(c) Monthly

(d) Weekly

(e) Daily or almost daily

8. How many times during the last year have you been unable to remember what happened the night before because you had been drinking?

SCORING

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

(a) Never

(b) Less than monthly

(c) Monthly

(d) Weekly

(e) Daily or almost daily

9. Have you or somebody else been injured as a result of your drinking? (**This can be injury as a result of having a fight, falling from a bicycle, driving and causing an accident because you were drunk, bullying another student, throwing stones at people**)

SCORING

0	1	2	3
No	-	Yes, but not in the last year	Yes, during the last year

(a) No

(b) -

(c) Yes, but not in the last year

(d) Yes, during the last year

10. Has a relative or friend, doctor or other health worker been worried about your drinking or suggested that you cut down? (**This includes a friend at school, teachers at school, father, mother or another relative warning you to stop drinking**)

SCORING

0	1	2	3	4
No	-	Yes, but not in the last year	-	Yes, during the last year

(a) No

(b) -

(c) Yes, but not in the last year

(d)

(e) Yes, during the last year

RISK FACTORS OF ALCOHOL USE

THE FOLLOWING QUESTIONS ASSESS THE RISK FACTORS OF ALCOHOL USE

IN SECONDARY SCHOOL ADOLESCENTS

SOURCE: SURVEY OF PERSONAL AND SOCIAL DEVELOPMENT (INSTITUTE OF BEHAVIORAL SCIENCE) UNIVERSITY OF COLORADO (JESSOR ETAL.2003)

11. How old were you when you first tasted beer, wine, home brewed alcohol?

.....

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

(a) 10 years or less

(b) 11 to 12 years

(c) 13 to 14 years

(d) 15 to 16 years

(e) 17 to 18 years

(f) 19 years or more

Who introduced you to alcohol? (Who taught you to drink alcohol)

CODING

My self	My sibling	My parents	My friends	My neighbors
0	1	2	3	4

(a) My self

(b) My siblings

(c) My parents

(d) My friends

(e) My neighbors

12. From which of the following places do you get alcohol from if you drink?

CODING

FRIENDS	BARS	HOMES	OTHERS
1	2	3	4

(a) Friends

(b) Bars

(c) Homes

(d) Other places specify

13. In the past month, how many times did the following things happen because of your drinking?

CODING

Trouble With parents	ProblemsDoing School work	Trouble With police	Had sex Without protection	Did Something You later regretted
1	2	3	4	5

(a) You got in trouble with your parents

(b) You had problems doing school work

(c) You got into trouble with the police

(d) You had sex without protection (use of condom)

(e) You did something that you later regretted

14. Which of the following would you say are the **reasons for your drinking** or if **you don't drink**, how important might these reasons be for you to start drinking?

CODING

Part of being On your own	Helps you relax	Gives Sense Of belonging	It's fun	Help Stay Away From Confusion From home	Alcohol Is easy To get	Alcohol Is cheap
1	2	3	4	5	6	7

- (a) Its part of being on your own
- (b) Helps you to relax when you are stressed
- (c) Helps you to feel a sense of belonging to a group of peers
- (d) Its fun
- (e) Helps you stay away from confusion from home
- (f) Alcohol is easy to get
- (g) Alcohol is cheap

15. How do your parents feel about your drinking?

CODING

Strongly disapprove	They disapprove	They neither approve Or disapprove	Sometime s approve	They approve
1	2	3	4	5

- (a) Strongly disapprove
- (b) They disapprove
- (c) They neither approve nor disapprove
- (d) Sometimes approve
- (e) They approve

16. If you wanted to buy beer, wine, home brewed liquor, how easy would it be to get it from a bar?

Difficult	Fairly easy	Very easy
0	1	2

(a) Difficult

(b) Fairly easy

(c) Very easy

17. Has anyone in your family had any alcohol problems?

CODING

None	Grandparents	Aunty/Uncle	Siblings	Mother	Father
0	1	2	3	4	5

(a) None

(b) Grand parents

(c) Aunty/Uncle

(d) Siblings

(e) Mother

(f) Father

TOBBACO SMOKING

THE FOLLOWING QUESTIONS ASSESS TOBBACO SMOKING IN SECONDARY SCHOOL GOING STUDENTS

SOURCE: THE WORLD HEALTH ORGANISATION STUDENT DRUG SURVEY (Smart etal.1980)

THE SURVEY OF PERSONAL AND SOCIAL DEVELOPMENT (INSTITUTE OF BEHAVIORAL SCIENCE) UNIVERSITY OF COLORADO (JESSOR ETAL.2003)

1. Have you ever smoked, chewed or sniffed any tobacco products such as cigarettes, cigar, pipe?

(d) Yes

(e) No

Yes	No
2	1

2. Have you smoked, chewed or sniffed a tobacco product in the last 12 months (1 year)?

CODING

(a) Yes

(b) No

Yes	No
2	1

3. Have you smoked, chewed or sniffed a tobacco product in the last 30 days (1 month)?

CODING

(a) Yes

(b) No

Yes	No
2	1

4. How old were you when you first smoked, chewed or sniffed tobacco products?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

- (a) 10 years or less
- (b) 11 to 12 years
- (c) 13 to 14 years
- (d) 15 to 16 years
- (e) 17 to 18 years
- (f) 19 years or more

5. Which of the following factors would you say are the reasons for your smoking?

CODING

Part of being On your own	Helps you relax	Gives Sense Of belonging	It's fun	Help Stay Away From Confusion From home	Alcohol Is easy To get	Alcohol Is cheap
1	2	3	4	5	6	7

- (a) Its part of being on your own
- (b) Helps you to relax when you are stressed
- (c) Helps you to feel a sense of belonging to a group of peers
- (d) Its fun
- (e) Helps you stay away from confusion from home
- (f) Its part of what people do when they drink
- (g) Other people such as my friends and family members' smoke

6. How old were you when you first chewed or smoked Tobacco?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

- (a) 10 years or less
- (b) 11 to 12 years
- (c) 13 to 14 years
- (d) 15 to 16 years
- (e) 17 to 18 years
- (f) 19 years or more

7. Who introduced you to Tobacco smoking?

CODING

My self	My sibling	My parents	My friends	My neighbors
0	1	2	3	4

- (a) My self
- (b) My siblings
- (c) My parents
- (d) My friends
- (e) My neighbors

8. From which of the following people places do you get Cigarettes from?

CODING

FRIENDS	BARS	HOMES	SCHOOL ENVIRONMENT
1	2	3	4

(a) Friends

(b) Bars

(c) Homes

(d) School environment

9. How do your parents feel about your smoking?

CODING

Strongly disapprove	They disapprove	They neither approve Or disapprove	Sometimes approve	They approve
1	2	3	4	5

(a) Strongly disapprove

(b) They disapprove

(c) They neither approve nor disapprove

(d) Sometimes approve

(e) They approve

10. If you wanted Cigarettes, how easy would it be to get them?

Difficult	Fairly easy	Very easy
0	1	2

(a) Difficult

(b) Fairly easy

(c) Very easy

11. Does anyone in your family smoke cigarettes now?

CODING

None	Grandparents	Aunty/Uncle	Siblings	Mother	Father
0	1	2	3	4	5

- (a) None
- (b) Grand parents
- (c) Aunty/Uncle
- (d) Siblings
- (e) Mother
- (f) Father

12. Do any of your friends at your school smoke cigarettes now?

SCORING

None of them	Some of them	Most of them	Almost all Of them
0	1	2	3

- (a)None of them
- (b)Some of them
- (c)Most of them
- (d)Almost all of them

ILLCIT DRUG USE

THE FOLLOWING QUESTIONS ASSESSING ILLICIT DRUG USE WERE SOURCED FROM THE WORLD HEALTH ORGANISATION STUDENT DRUG SURVEY (Smart etal.1980)

1. Have you ever taken any cannabis (marijuana, pot ganja, hashish, bhang)?

CODING

Yes	No
2	1

(a) Yes

(b) No

2. Have you ever taken any cannabis (marijuana, pot ganja, hashish, bhang) in the last 12 months (1 year)?

CODING

Yes	No
2	1

(a) Yes

(b) No

3. Have you ever taken any cannabis (marijuana, pot ganja, hashish, bhang) in the last 30 days (1 month)?

CODING

Yes	No
2	1

(a) Yes

(b) No

4. How old were you when you first took cannabis?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

(a) 10 years or less

(b) 11 to 12 years

(c) 13 to 14 years

(d) 15 to 16 years

(e) 17 to 18 years

(f) 19 years or more

5. Have you ever taken any cocaine?

CODING

Yes	No
2	1

(a) Yes

(b) No

6. Have you taken cocaine in the last 12 months (1 year)?

CODING

Yes	No
2	1

(a) Yes

(b) No

7. Have you taken cocaine in the last 30 days (1 month)?

CODING

Yes	No
2	1

(a) Yes

(b) No

8. How old were you when you first took cocaine?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

(a) 10 years or less

(b) 11 to 12 years

(c) 13 to 14 years

(d) 15 to 16 years

(e) 17 to 18 years

(f) 19 years or more

9. Have you ever sniffed, inhaled substances such as (Glue, petrol, methylated spirit or any gases) to get high?

CODING

Yes	No
2	1

(a) Yes

(b) No

10. Have you ever sniffed, inhaled substances such as (Glue, petrol, methylated spirit or any gases) to get high in the last 12 months (1 year)?

CODING

Yes	No
2	1

(a) Yes

(b) No

11. Have sniffed, inhaled substances such as (Glue, petrol, methylated spirit or any gases) to get high in the last 30 days (1 month)?

CODING

Yes	No
2	1

(a) Yes

(b) No

12. How old were you when you first sniffed, inhaled substances such as (Glue, petrol, methylated spirit or any gases) to get high?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

(a) 10 years or less

(b) 11 to 12 years

(c) 13 to 14 years

(d) 15 to 16 years

(e) 17 to 18 years

(f) 19 years or more

13. Have you ever sniffed or inhaled any substances or gases other than glue, petrol, methylated spirit recently? Write the name of the substance.....

14. Have you ever taken any tranquilizers such as Valium (Diazepam) without the Doctor's prescription?

CODING

Yes	No
2	1

(a) Yes

(b) No

15. Have you ever taken any tranquilizers such as Valium (Diazepam) without the Doctor's prescription in the last 12 months (1 year)?

CODING

Yes	No
2	1

(a) Yes

(b) No

16. Have you ever taken any tranquilizers such as Valium (Diazepam) without the Doctor's prescription in the last 30 days (1 month)?

CODING

Yes	No
2	1

(a) Yes

(b) No

17. How old were you when you first took a tranquilizer such as Valium (Diazepam) without the Doctor's prescription?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

- (a) 10 years or less
- (b) 11 to 12 years
- (c) 13 to 14 years
- (d) 15 to 16 years
- (e) 17 to 18 years
- (f) 19 years or more

18. If you have taken any other tranquilizer other than Valium (Diazepam) recently, write the name of the tranquilizer.....

19. Have ever taken opium or any opiates such as (Morphine, Pethidine to get high without the Doctor's prescription?

CODING

Yes	No
2	1

- (a) Yes
- (b) No

20. Have ever taken opium or any opiates such as (Morphine, Pethidine) to get high without the Doctor's prescription in the last 12 months (1 year)?

CODING

Yes	No
1	2

- (a) Yes
- (b) No

21. Have ever taken opium or any opiates such as (Morphine, Pethidine) to get high without the Doctor's prescription in the last 30 days (1 month)?

CODING

Yes	No
1	2

(a) Yes

(b) No

22. How old were you when you first took opiates such as (Morphine, Pethidine) to get high without the Doctor's prescription?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

(a) 10 years or less

(b) 11 to 12 years

(c) 13 to 14 years

(d) 15 to 16 years

(e) 17 to 18 years

(f) 19 years or more

23. If you have taken an opiate recently without the Doctor's prescription write the name of the opiate you took.....

24. Have you ever taken substances such as heroin to get high without the Doctor's prescription?

CODING

Yes	No
2	1

(a) Yes

(b) No

25. Have you ever taken substances such as heroin to get high without the Doctor's prescription in the last 12 months?

CODING

Yes	No
1	2

(a) Yes

(b) No

26. Have you ever taken substances such as heroin to get high without the Doctor's prescription in the last 30 days (1 month)?

CODING

Yes	No
1	2

(a) Yes

(b) No

27. How old were you when you first took heroin to get high without the Doctor's prescription?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

(a) 10 years or less

(b) 11 to 12 years

(c) 13 to 14 years

(d) 15 to 16 years

(e) 17 to 18 years

(f) 19 years or more

28. Have you ever taken any drugs used for relief of cough such as Benylin to get high without the Doctor's prescription?

CODING

Yes	No
2	1

(a) Yes

(b) No

29. Have you ever taken any drugs used for relief of cough such as Benylin to get high without the Doctor's prescription in the last 12 months (1 year)?

CODING

Yes	No
1	2

(a) Yes

(b) No

30. Have you ever taken any drugs used for relief of cough such as Benylin to get high without the Doctor's prescription in the last 30 days (1 month)?

CODING

Yes	No
2	1

(a) Yes

(b) No

31. How old were you when you first took Benylin to get high without the Doctor's prescription?

CODING

10 years or less	11 to 12	13 to 14	15 to 16	17 to 18	19 or more
1	2	3	4	5	6

- (a) 10 years or less
- (b) 11 to 12 years
- (c) 13 to 14 years
- (d) 15 to 16 years
- (e) 17 to 18 years
- (f) 19 years or more

32. Which of the following Risk factors do you think contribute to substance use among secondary school going adolescents?

CODING

FAMILY AND FRIENDS THAT USE SUBSTANCES	LACK OF PARENTAL SUPERVISION	STRICT PARENTS	HARSH DISCIPLINERS	EXCESSIVE POCKET MONEY	UNSTABLE FAMILY	TO HELP STUDY	EXCEPTANCE BY FRIENDS
1	2	3	4	5	6	7	8

- (a) Having parents and family members that use substances
- (b) Lack of parental supervision
- (c) Having parents that are not strict
- (d) Having parents that are harsh displiners
- (e) Being given more than enough pocket money
- (f) Unstable families
- (g) Study is easy when you are under the influence of substances
- (h) Peer pressure

33. Which of the following social cultural factors do you think contribute to substance use among secondary school going students?

CODING

Substances Are cheap /Available	Substances Are cool When advertised	Seeing adults drinking	Social media Watching Videos of People drinking	Not having Strict rules In school	Bar owners not regulated By authorities
1	2	3	4	5	6

- (a) Substances around the school / my area are cheap and available
- (b) Substances seem very cool when advertised
- (c) Seeing Adults in the school surrounding that are drunk
- (d) Being on social media and reading or watching videos on substances
- (e) The school rules on substance use not being strict
- (f) Having substance sellers such as bar owners that are not regulated by authorities

34. Which effects of substance use do you know?

.....

35. Which of the following measures have been put in place at your school to prevent substance use among students?

CODING

Guidance and counseling	Teachers talking About dangers of Substance use during lessons	Anti-substance use clubs	Disciplinary rules Against substance use
1	2	3	4

- (a) Guidance and counseling services
- (b) Teachers talking about dangers of substance use in class
- (c) Formation of Ant substance use clubs
- (d) Disciplinary rules against substance use

36. What measures would you suggest should be put in place to reduce substance use in your school?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Thank you for your participation

APPENDIX IV

The Director,
Kalulushi District Education Board Secretary,
P.O Box 260171,
Kalulushi.
Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO CONDUCT AND COLLECT RESEARCH DATA FROM YOUR INSTITUTIONS

Reference is made to the above subject.

I am a second-year student doing my master of public Health at the University of Zambia School of public Health.

It is required of me to carry out a research project in partial fulfillment of the requirements for the award of the Master of public Health.

My proposed study is: **TOBACCO USE, ALCOHOL CONSUMPTION AND ILLICIT DRUG USE AMONG SECONDARY SCHOOL ADOLESCENTS IN ZAMBIA: RESULTS FROM KALULUSHI DISTRICT**

I am therefore seeking permission to conduct and collect data from 4 secondary schools in Kalulushi district with regards to my study. The schools being Kalulushi Trust, Kalulushi basic, Chavuma and Kalulushi secondary school respectively.

This study will however not provide any material or monetary benefits to the students. Data shall be collected by means of a questionnaire and shall be used for academic purposes only and shall be treated as confidential.

Your approval of this application will be highly appreciated.

Yours Faithfully,
Chileshe Bautister

APPENDIX V



**THE UNIVERSITY OF ZAMBIA
SCHOOL OF PUBLIC HEALTH
COMMUNITY AND FAMILY MEDICINE
OFFICE OF THE HOD**

Telephone: 252641,

P.O. BOX 50110,

Fax: + 260-1-250753,

Lusaka, Zambia.

22nd June, 2021

Kalulushi District Health Medical Director,
Kalulushi District,
Kalulushi.

RE: Permission for Bautister Chileshe – 19001409 to conduct a study from secondary schools

=====

Reference is made to the above-mentioned subject.

The University of Zambia School of public health is hereby seeking permission for a Master of Science in Public Health (MPH) student to conduct an academic study from Kalulushi basic school, Chavuma secondary, Kalulushi trust and Kalulushi secondary school. The study will be looking at **Tobacco use, alcohol consumption and illicit drug use among secondary school going adolescents in Zambia: Results from Kalulushi district.**

This is in partial fulfillment of the Masters of Science in Public Health Degree Program at the University of Zambia.

Your assistance will be highly appreciated in this regard. Sincerely,

Dr. Cosmas Zyambo Sianantu

HEAD OF DEPARTMENT

APPENDIX VI



**THE UNIVERSITY OF ZAMBIA
SCHOOL OF PUBLIC HEALTH
COMMUNITY AND FAMILY MEDICINE
OFFICE OF THE HOD**

Telephone: 252641,
Fax: + 260-1-250753,

P.O. BOX 50110,
Lusaka, Zambia.



*Permission Granted
to conduct
study when schools
open. RSD SF*

22nd June 2021

The District Education Board Secretary (DEBS),
Kalulushi District,
P.O Box 260171,
Kalulushi.

**RE: Permission for Bautister Chileshe - 19001409 to conduct a study from
secondary schools**

Reference is made to the above-mentioned subject.

The University Of Zambia School of public health is hereby seeking permission for a Master of Science in Public Health (MPH) student to conduct an academic study from Kalulushi basic school, Chavuma secondary, Kalulushi trust and Kalulushi secondary school. The study will be looking at **Tobacco use, alcohol consumption and illicit drug use among secondary school going adolescents in Zambia: Results from Kalulushi district.**

This is in partial fulfillment of the Masters of Science in Public Health Degree Program at the University of Zambia.

Your assistance will be highly appreciated in this regard.

Sincerely,

Dr. Cosmas Zyambo Sianantu

HEAD OF DEPARTMENT

APPENDIX VII

All Correspondence should be addressed

*To the District Education Board Secretary
Telephone: 02411913*



In reply please quote

NO.

REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION
KALULUSHI DISTRICT EDUCATION BOARD

OFFICE OF THE DEBS
P.O. BOX 260171
KALULUSHI

Tuesday, 20th July, 2021.

The Headteacher

- Kalulushi Primary School
 - Chavuma Secondary School
 - Kalulushi Trust
 - Kalulushi Secondary School
- KALULUSHI

RE: PERMISSION FOR BAUTISTER CHILESHE – 19001409 TO CONDUCT A STUDY FROM SECONDARY SCHOOLS.

Reference is made to the above subject matter.

This serves to inform you that permission has been granted for the above named student who is at University of Zambia.

Kind assist the student with the information she requires for the research Project.


Kaonga P.
DISTRICT EDUCATION BOARD SECRETARY
KALULUSHI

APPENDIX VIII

COVER LETTER

Bautister Chileshe,

House Number 11 Kafukula Street,

Kalulushi.

Zambia.

The Director,

National Health Research Authority (NHRA),

Pediatric Center,

Lusaka.

Dear Sir/Madam,

**REF: TOBACCO USE, ALCOHOL CONSUMPTION AND ILLICIT DRUG USE
AMONG SECONDARY SCHOOL ADOLESCENTS IN ZAMBIA: RESULTS
FROM KALULUSHI DISTRICT**

With reference to the above, i wish to apply for the above research topic to be approved by your committee. Iam a second-year student pursuing my Master of Public Health at the University of Zambia. As partial fulfillment of the Master's program, iam expected to carry out a research project in any area of public Health Concern. The study objectives are to assess the prevalence and establish predictors of Tobacco use, alcohol consumption and illicit drug use among secondary school adolescents in Kalulushi district.

Your consideration to my application will be highly appreciated.

Yours faithfully,

Chileshe Bautister.

APPENDIX IX

Letter to the Research Ethics Committee

The University of Zambia,

School of Public Health,

Lusaka.

The Chairperson, Biomedical Research Ethics Committee,

University of Zambia,

P.O Box 50110,

Lusaka.

Dear Sir/Madam,

**REF: TOBACCO USE, ALCOHOL CONSUMPTION AND ILLICIT DRUG USE
AMONG SECONDARY SCHOOL ADOLESCENTS IN ZAMBIA: RESULTS
FROM KALULUSHI DISTRICT**

With reference to the above, i wish to apply for the above research topic to be approved by your committee. Iam a second-year student pursuing my Master of Public Health at the University of Zambia. As partial fulfillment of the Master's program, iam expected to carry out a research project in any area of public Health Concern. The study objectives are to assess the prevalence and establish predictors of Tobacco use, alcohol consumption and illicit drug use among secondary school adolescents in Kalulushi district.

Your consideration to my application will be highly appreciated

Yours faithfully,

Chileshe Bautister.

APPENDIX X



UNIVERSITY OF ZAMBIA BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: +260 977925304
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: +260-1-250753
Federal Assurance No. FWA00000338

Ridgeway Campus
P.O. Box 50110
Lusaka, Zambia
E-mail: unzarec@unza.zm
IRB00001131 of IORG0000774

13th October 2021

Your REF. No. 1867-2021

Mrs Bautister Siame Chileshe,
University of Zambia,
School of Public Health,
PO Box 50110,
Lusaka.

Dear Mrs. Chileshe,

**RE: TOBACCO SMOKING, ALCOHOL CONSUMPTION AND ILLICIT DRUG USE
AMONG SECONDARY SCHOOL ADOLESCENTS IN ZAMBIA: RESULTS
FROM KALULUSHI DISTRICT (REF. NO. 1867-2021)**

The above-mentioned research proposal was presented to the Biomedical Research Ethics Committee on 7th September, 2021. The proposal is **approved**. The approval is based on the following documents that were submitted for review:

- a) **Study proposal**
- b) **Questionnaires**
- c) **Participant Consent Form**

APPROVAL NUMBER

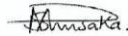
: REF. 1867-2021

This number should be used on all correspondence, consent forms and documents as appropriate.

- **APPROVAL DATE** : 13th October 2021
- **TYPE OF APPROVAL** : Standard
- **EXPIRATION DATE OF APPROVAL** : 12th October 2022
After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the UNZABREC Offices should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING:** All SAEs and any other serious challenges/problems having to do with participant welfare, participant safety and study integrity must be reported to UNZABREC within 3 working days using standard forms obtainable from UNZABREC.
- **MODIFICATIONS:** Prior UNZABREC approval using standard forms obtainable from the UNZABREC Offices is required before implementing any changes in the Protocol (including changes in the consent documents).

- **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the UNZABREC using standard forms obtainable from the UNZABREC Offices.
- **NHRA:** You are advised to obtain final study clearance and approval to conduct research in Zambia from the National Health Research Authority (NHRA) before commencing the research project.
- **QUESTIONS:** Please contact the UNZABREC on Telephone No. +260977925304 or by e-mail on unzarec@unza.zm.
- **OTHER:** Please be reminded to send in copies of your research findings/results for our records. You are also required to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study. Use the online portal: unza.rhinno.net for further submissions.

Yours sincerely,



Sody Mweetwa Munsaka, BSc., MSc., PhD
CHAIRPERSON
Tel: +260977925304
E-mail: s.munsaka@unza.zm

APPENDIX XI



NATIONAL HEALTH RESEARCH AUTHORITY
Paediatric Centre of Excellence, University Teaching Hospital, P.O. Box 30075, LUSAKA
Chalala Office Lot No. 18961/M, Off Kasama Road, P.O. Box 30075, LUSAKA
Tell: +260211 250309 | Email: znhrasec@nhra.org.zm | www.nhra.org.zm

Ref No: NHRA00003/28/10/2021

Date: 28th October, 2021

The Principal Investigator,
Mrs Bautister Siame Chileshe,
University of Zambia
Lusaka, Zambia.

Dear Mrs Chileshe,

Re: Request for Authority to Conduct Research

The National Health Research Authority is in receipt of your request for authority to conduct research titled **“Tobacco Smoking, Alcohol Consumption and Illicit Drug Use Among Secondary School Adolescents in Zambia: Results from Kalulushi District”**.

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to NHRA quarterly from the date of commencement of the study;
3. The final study report is cleared by the NHRA before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours sincerely,

Prof. Godfrey Biemba
Director/CEO
National Health Research Authority

APPENDIX XII



THE UNIVERSITY OF ZAMBIA SCHOOL OF PUBLIC HEALTH COMMUNITY AND FAMILY MEDICINE

Telephone: 252641,

P.O. BOX
50110, Fax:
+ 260-1-
250753,
Lusaka,
Zambia.

14th June, 2022,
The Dean Postgraduate studies,
Institute of Distance Education
(IDE), Lusaka.

RE: Certification/Approval of dissertation for examination-Bautister Chileshe – 19001409

Reference is made to the above-mentioned subject.

The University Of Zambia School Of Public Health has certified that, the dissertation of **Bautister Chileshe** Master of Science in Public Health (MPH) student is complete and ready for examination by the Board of examiners. This is in partial fulfillment of the Masters of Science in Public Health Degree Program at the University of Zambia.

The study was looking at **Tobacco use, alcohol consumption and illicit drug use among secondary school going adolescents in Zambia: Results from Kalulushi district.**

Supervisors Name

DATE: 18/06/2022

Dr. COSMAS ZYAAMBO



APPENDIX XIII

THE UNIVERSITY OF ZAMBIA
P.O. Box 32379, LUSAKA - ZAMBIA

RECEIPT No. 1783120
DATE 14/07/2021

RECEIVED WITH THANKS FROM BANISTER CHIKESHE

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KWACHA
DOLLAR

PARTICULARS	Code No.	PENCE NGWEE CENTS	AMOUNT
<u>UNIVERSITY OF ZAMBIA</u> <u>SCHOOL OF MEDICINE</u> <u>OF P.G. RESEARCH PROFESSOR</u> <u>UNIVERSITY OF ZAMBIA</u> <u>SCHOOL OF MEDICINE</u>			<u>1 000 = 00</u>
CASH / CHEQUE NO			
TOTAL K			<u>1 000 = 00</u>

14 JUL 2021

UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

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