FACTORS INFLUENCING PSYCHOACTIVE SUBSTANCE USE, PUBLIC HEALTH AND SOCIAL CONSEQUENCES AMONG ADOLESCENTS IN UGANDA

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by
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TABLE OF CONTENTS

LIST OF ACRONYMS

AFOD	Alliance Forum for Development
AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
DALYs	Disability-adjusted Life Years
DSM	Diagnostic and Statistical Manual of Mental Disorder
GDP	Gross Domestic Product
GBV	Gender Based Violence
HCIV	Health Centre Four
HCIII	Health Centre Three
HCII	Health Centre Two
HDI	Human Development Index
HDP	Health Development Partners
HIV	Human Immunodeficiency Virus
ICD	International Classification of Diseases
LMIC	Low and Middle Income Countries
MhGAP	Mental Health Gap Action Program
NCD	Non-communicable Diseases
NTC	Netherlands Global Health and Tropical Medicine Course
OECD	Organization for Economic Co-operation and Development
PSU	Psychoactive Substance Use
PSUD	Psychoactive Substance Use Disorder
SUD	Substance Use Disorder
TB	Tuberculosis
UBOS	Uganda Bureau of Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHO	World Health Organization

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GLOSSARY

***Adolescent*:** According to WHO, adolescent is an individual in the 10-19 years age group(1)(2).

***Burden of disease**:* According to WHO, is the impact of a health problem as measured by financial cost, mortality and morbidity(3).

Gross Domestic Product: According to OECD, is the measure of total income earned from countries production(4).

***Life expectancy**:* An estimate of the average age that members of a particular population group will live before their death(5).

***Protective factors**:* Factors, conditions within the individual, family, school or community that increase the likelihood of positive health behaviors and discourage behaviors that might lead to negative health outcomes(6).

***Psychoactive substances**:* According to Global Journal of medicine and Public Health, is a drug when taken by a person that affects the brain and body functionality in terms of mood, cognition and perception(7).

Risk factor: Is an attribute, characteristics or exposure that increases likelihood occurrence or development of a condition (6)(8).

***Substance Use Disorder*:** According to the International Classification of Diseases (ICD 11), is complex condition in which there is uncontrolled use of a substance despite harmful consequences(9).

***Universal Primary Education**:* According to UNESCO, refers to the enrolment of all school-age children,6 to 14 years in primary school(10).

***Universal Secondary Education**:* The provision of compulsory post-primary education for young persons between 10 to 18 years that generally, leads to secondary school certification(11).

ABSTRACT

Background: Psychoactive substances use among adolescents in Uganda is alarming. Although psychoactive substances are broad in category and type, the study focused on alcohol, tobacco, and marijuana which are the three commonly used by the adolescents in Uganda. The objective was to examine the influencing factors of the above psychoactive substance use, public health, and social consequences among adolescents in Uganda and to recommend appropriate prevention strategies.

Methodology: This was a literature review that employed mixed approaches of literature search and in-depth review for previous studies in Uganda and other countries. The analytical framework used was the conceptual causal model of alcohol consumption and health outcomes adapted from Rehm et al, 2010 and Blas et al,2010 modified to include tobacco and marijuana besides alcohol.

Findings: In reference to the existing literatures reviewed**;** Peer influence, massive advertisement, economic status, legislation and regulation framework, environmental context, familiar factors, and gender are the main influencing factors for psychoactive substance use among the adolescents in Uganda**.** NCDs such as Cancer, diabetes, hypertension, and mental health disorders were long term impacts identified, whereas risk of HIV infection and injuries are associated short term health consequences with psychoactive substance use. The main social consequences include poverty, absenteeism and dropping out of school for school going adolescents and low adherence to ART treatment for HIV/AIDS patients. The integrated community prevention model is the most effective prevention strategy Uganda can use to address the escalating challenges of adolescent psychoactive substance use.

Conclusion and Recommendations: The main influencing factors of PSU, its associated public health impacts and social consequences remain the most significant and acceptable by both the individual adolescents and society. The main recommendations include; to adopt and implement community prevention intervention model of psychoactive substance use, inclusion of health education into broader community mobilization activities for substance use prevention, policy review and swift on alcohol, tobacco, and marijuana production, distribution, and consumption to be undertaken, tailored digital platform for social media awareness and campaign.

Key words: psychoactive substance use, adolescents, public health and social consequences, intervention strategy, Uganda

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INTRODUCTION

I am a Public Health Specialist, I hold a Bachelor of Science in Health Services Management, Diploma in Medical Entomology and Parasitology and Master of Science in Public Health.

I have 15 years experienceworking in health programming, research, and disease control in LMICs and where I have been taking center stage in disease control, health systems building and managing emerging heath issues in both development and humanitarian setting in Uganda and at an international level.

Over the last 6 years of development and humanitarian health responses in both South Sudan and Uganda, I have learned several lessons in regard to factors driving success of program interventions. I developed motivation on deeper understanding of psychoactive substance use among adolescents during AFOD's implementation of HIV/AIDS program, despite all progressive successes achieved in intervention pillars of identification, referral to care, treatment and management of HIV/AIDS patients, we were not realizing our intervention outcomes of improving treatment outcomes, we realized that there is low adherence level by HIV/AIDS patient to treatment among adolescents despite achieving over 95% access to ART, a quick follow up was made and community observation identified psychoactive substance use as a main reason for the low adherence to treatment especially among adolescents.

It was therefore against the above background that, I developed a passion to understand in depth and breadth the common influencing factors of psychoactive substance use among adolescents which is identified as a major barrier to treatment outcomes for HIV/AIDS in our program, this would further help in recommending effective preventive strategies to authorities in addressing the problem at program, sub-national and national levels.

CHAPTER ONE:

1.1 Background information

1.1.1 Demographic data

The area covered by Uganda is 241,038 square kilometers (12). Uganda has a population of 34.6 million people as of the 2014 census report, the population density is 173 persons per square kilometers, the average life expectancy of Ugandans is 63.3. Men have a lower life expectancy of 62.3 as compared to 64.3 for women. 60% of the population are under the age of 35, of which 51% are females. The fertility rate is 5.8 as of 2014, a drop from 7.1 in 1991. The annual growth rate stands at 3.03% and it's estimated that by 2020, the population of Uganda would be 42.4 million, this population is 72% rural and 28% urban, refer to summary details in appendix 1,2,3 and 4. Religion in Uganda is diverse, Christian Catholics are the biggest religion comprising of 40%, Anglicans 32% and Moslems make 14% of the population (13)(14). Uganda's current population has close to 9 million adolescents, which is one fourth of the entire country's population. Adolescents are faced with various life challenges, many of them experience poverty, HIV/AIDS, teenage pregnancies, early marriage, GBV, substance use, low secondary school enrolment and attendances (15).

1.1.2 Economic Overview

The growth of Uganda's economy has been a steady average of 5.5% over the past decade which is below the 8% target for the vision 2040. The Gross Domestic Product (GDP) per capita is $661 as of 2018 translating to a total of $28 billion, the biggest contribution to the GDP comes from the service sector which contributes up to 50.3% of the total GDP. In the service sector, agriculture contributes 23.5% and industry 18.4%. Over the past few years, Information and Communication technology has considerably grown with GDP share of 6.5%.

The average per capita income was $788 in 2014, up from $665 in 2010, but this growth has hardly produced economic stability due to many factors, such as inflation and depreciation in exchanges. Uganda's current debt stands at $9.66 billion as of Financial Year (FY) 2015/16 up from $2.86 billion in FY 2008/2009(16), the current debt as to GDP is 26.14% and is expected to reach 42% in 2019/2020. The current inflation of Uganda is 16% leading to increase in commodity prices especially on agricultural products, yet the purchase power parity of the common Ugandans is low. However, Uganda remains in the category of low human development with a score of 0.483 and it was ranked 163rd position as per the UNDP Human Development Index. In 2012, 65% of the population lived on less than $3.10 per day, which is below the international accepted standard in 2011 (17), For adolescents the situation is worse as most adolescents in Uganda, about 38.5% aged 10-19 belong to poorest wealth quantile, and 10.9% of them are household heads especially the males aged 10-24 years and yet majority of them have no formal education (18) refer to appendix V for summary details.

1.1.3 Political environment

There is relative political stability in Uganda for close to four decades presided over by President Yoweri Kaguta Museveni, albeit, the first half of the four decades were characterized by internal conflicts posed by the Lord Resistance Army (LRA), between 1990 to 2000 in Northern Uganda and the Allied Democratic Force (ADF) between 1995-2013.

Uganda continued to experience regional insecurity threats especially from South Sudan, Burundi and Democratic Republic of Congo which led to continuous influx of refugees in Uganda from these countries, and the presence of these refugees is causing internal insecurity and constraining the already overwhelmed social services infrastructure and delivery system of Uganda (12).

Elections through adult suffrage are regularly organized nationally every after 5 years, however, the population has over time lost trust in the electoral process as the president appoints the Electoral Commission, and yet he presents as presidential candidate at every election. This puts question on the neutrality of the commission. There is clear separation of power among the different arms of government according to the functions vested on them, but they often influence control over each other which compromises transparency and integrity of those in authority (17).

Over time, participation of young people in elections and politicking has become evident as about 50% of registered voters in every cycle of 5 years election comprises of the young population below 30 years. Elections in Uganda are highly monetized and because majority of the young

people are redundant and non-productive, they are often persuaded into politicking as a form of employment, their interests are often misunderstood, they are driven by excitement which often leads them into anti-social activities such as substance use and violence hence resulting into massive deaths in every election cycle (19).

1.1.4 Education and literacy

The literacy level among the Ugandan population is 72%. It is lower among women, as only 68% are literate in comparison to 77% among men. The literacy rate is disproportionately distributed which is 91% in urban areas and 85% in rural areas(2). In 1997, Uganda introduced Universal Primary Education (UPE) which led to considerable increase in enrolment in schools, in the financial year 2015/16, the total enrolment increased to 8,264,317 from only 3,068,625 in 1997, this translates into 169% increase in total enrolment. Despite the increase in enrolment, over the years, 42% of children aged 6 – 12 years have never attended school as they were considered too young to go to school by their parents and 12% of children between 6-24 years who would have been in school did not have formal education, and 50% of them are in Karamoja region which is the poorest region in Uganda (13).

The gender proportion in enrolment at lower primary level was 50% boys and 50% girls which is a progressive indicator in promoting girl child education. On the analysis of performance trend of Uganda's Education, the Net enrolment Rate (NER) is expected to reach 94.8% by 2020. What is required to be improved in the education sector of Uganda is quality issues. Notwithstanding the tremendous improvement in enrolment, the dropout rate at upper primary is still high. There is low progress to secondary education as the average retention at the upper primary is 34%, for girls it is 32.9% and boys 33.1% and completion rate is 61.5%. It is furthermore noted that the learning environment is not inclusive thereby limiting the participation of children l living with disability in education as 32% of these school age children are out of school(14).

1.1.5 Health systems Indicators

Communicable diseases remain the main cause of Disability-adjusted life years (DALYs) in Uganda with HIV/AIDS, Malaria and Lower Respiratory Infections (RTI)in the top three, however there is reported significant rise in Non-Communicable Diseases (NCDs)(15).

The wave of epidemiological transition was observed over the last one decade with NCDs becoming a major health and socio-economic burden, these are mainly due to lifestyle, improvement in life expectancy. Ministry of health 2014 survey indicated high prevalence of hypertension at 24%, diabetes at 3.4% with tobacco use at 11%, alcohol use at 5.8% as highly associated risk factors(16).Late detection of some of the NCDs such as hypertension, diabetes, and cancer among the population have been attributed to complications in a later stage leading to severe chronic conditions such as stroke, kidney failures and blindness. Over the years, globally WHO underscore the contribution of mental health disorders, and Psychoactive substance uses to the diseases burden, Psychoactive substance use has further significantly contributed to road traffic accident leading to injuries and death among young population especially adolescents in Uganda and these exert pressure on already constrained health services delivery in the country(17).

Uganda has a decentralized health care service delivery system, health care decision making is at district level under the leadership of District Health Officer (DHO), each district has general hospital, county level HCIV, subcounty level health Centre III, HCIIs at parish level and community support structure known as Village Health Teams (VHTs). Public and private not-for-profit health care facilities mainly owned and managed by faith based and nongovernmental organization provides the majority of health care services in the country most especially for the rural population, there are considerable staffing gaps that exist at all levels of public health care facilities , most important is the limited or in most cases lack of special grade physicians to respond to management and care of NCDs, majority of workforce at public health facilities are nurses, midwives and non-physician clinicians(18)

Uganda has only two national referral hospitals which manages NCDs at specialty level, Mulago National Referral Hospital for cancer, cardiovascular diseases and diabetes, whereas Butabika national referral hospital is specialized for mental health and disorder management(19)(20).There is limited clinical intervention at all levels of health care delivery systems to address the ever-rising rates of NCDs, however, there is community sensitization on NCDs and their risk factors, most of the common NCDs such as diabetes, mental disorders, cancer, and hypertension are managed at tertial level located in urban areas where the services remain quite inaccessible to

majority rural population who needs them, NCD management and service provision at lower health facilities remain below 34%. Mental health problem triggered by various factors such as substance use is a going concern in Uganda with adolescent mental health posing considerable threat to the country health care systems, the ministry of health therefore considered implementation of WHO initiative of Mental Health Gap Action Program (MhGAP) to increase access and prevention of common mental and substance use disorders(15)(21). Refer to appendix VI and VII for some details.

CHAPTER TWO

2.1 PROBLEM STATEMENT

There are number of psychoactive substances when taken by a person that affects the brain and body functionality in terms of mood, cognition and perception, and these includes; alcohol, tobacco, marijuana sometimes referred to as cannabis, heroin, amphetamine, ecstasy, cocaine, morphine, codeines, ketamine and many others(22)(23). However, the review will focus on three main psychoactive substances; alcohol, tobacco and marijuana which are common.

Globally, 2.3 billion people consume alcohol, 1.3 billion smoke tobacco and 80% are in LMICs, whereas 158.8 million use marijuana which represents 3.8% of the world population. 57% of the population use marijuana before the age of 15 years(24),(25),(26),(27).

In Uganda, a study conducted in schools of Kampala and Wakiso on drug and substance use revealed that between 60% to 71% of adolescents used illicit drugs with alcohol and marijuana taking the biggest percentages (22). According to WHO, tobacco smoking in adults stands at 12.9% in men and 0.6% among females(25), and the Global Youth Tobacco survey revealed 17.6% tobacco smoking among young people aged 13-15 years, the young male smoking rate stands at 19.3% and female adolescents at 15.8%. Among adolescents students, the rate is 10.9%(28). Currently about 2.6 million people in Uganda use marijuana and of which 10% are young people aged 19-24 year(29).

There are number of risk factors that predispose most of the adolescents to use of psychoactive substances, and among which the commonly identified are; poverty, malnutrition, conflict especially politically driven, vulnerability of a person and habitation environment (30)

The use of these three main psychoactive substances, either single or in combination are identified as risk factors to main NCDs such as cardiovascular and respiratory disease, cancer and mental health conditions(24),(25),(26),(27).Of the three main psychoactive substances, alcohol is the greatest contributor of premature deaths and disability among the productive age group of 15 to 49 years (27), poverty and premature deaths, affect productivity of the young productive age, depletes household income, and puts a heavy burden on health care costs on individuals and families. These are the main health and socio-economic burdens contributed by these substances. In addition, smoking during pregnancy and among adolescents has a lifelong health impact on the babies and adolescents (24),(25),(26). Adolescents who use marijuana develop long-term effects like impaired thinking, memory, learning and prolonged use may lead to permanent damaged (30).

The burden of NCDs and mental health is anticipated to increase in next decade in sub-Saharan Africa with the increase of psychoactive substance use on rise due to rapid population growth. Particularly, untreated mental disorders put a heavy social burden since there is increase in suffering, social exclusion and vulnerability on the household and communities hence influencing the functioning of social fabrics of the community. It doubles the individual risk of mental and physical health, disability and death. Further effect is seen in accidents and suicides, unemployment for youths who drop out of school, criminal behaviours, sexual violence, and high risk of HIV infections, also the larger part of the household income is spent on treatment of SUD (36).

The surge in the Psychoactive substances use among adolescents is a growing concern of the public and social issues (31). Adolescence is critical stage where the brain motivation and rewarding processing is developing hence making it a critical period for addictions to substance, and people who use psychoactive substance at an older age started using during the adolescent stage(32). The level of adolescent substance use in Uganda is 33%(15), yet its population is young with 55% under the age of 35 years(12), this is a big threat to country's socio and economic development as this group of the population form the economic and development back bone of the country.

Uganda currently uses legislations to limit adolescents from access and knowledge of these substances, some of these regulations include; high taxation on alcohol and tobacco inform of cigarettes(24), highly regulated marijuana production for medical use only and regulation of mass media in running adverts pertaining these substances. However, these laws and regulations are obsolete compounded by weak enforcement. Additionally, the health systems structure does not

adequately support management of associated risk factors of psychoactive substance use within the health systems(15).

2.2 JUSTIFICATION

Adolescent substance use, combined average for the three main substances (alcohol, tobacco and marijuana in Uganda is 33%%(15), yet its population is young with 55% under the age of 35 years(13), this is a big threat to country's socio and economic development as this group of the population form the economic and development backbone of the country. Substance use in the young population presents severe lifelong negative health, social and economic consequences (36). However, in immediate and short short-term basis, lifelong negative consequences among adolescents are often ignored by adolescents themselves and duty bearers in Uganda.

Although several studies were explored on influencing factors, public health and social consequences of psychoactive substances use among adolescents in Uganda, majority of these studies were character and substance specific, regional or school localized. There is lack of aggregated data evidence at a national level on the influencing factors of psychoactive substance use among adolescents for the three commonly used substances such as alcohol, tobacco, and marijuana to inform policy shift and program re-direction. The current interventions to address influencing factors, risk factors and the associated public health and social consequence are being guided by policies which are outdated and inadequate to respond to the current realities.

This literature review therefore will examine, collate, and generate national level generalized evidence-based data of influencing factors, public health, and social consequences of psychoactive substance use among adolescents in Uganda. The findings will inform national wide evidence to support policy swift in designing best suited strategies and program re-direction for feasible local solutions to address the problem.

2.3 RESEARCH QUESTIONS

1. What are the influencing factors of psychoactive substance use among adolescents in Uganda?
2. What are the public health and social consequences of psychoactive substance use among adolescents in Uganda?
3. What good practices in other countries can be replicated to support good intervention for psychoactive substance use among adolescents in Uganda?
4. What interventions need to be undertaken to address the problem of psychoactive substance use among adolescents in Uganda?

2.4 OBJECTIVES

2.4.1 BROAD OBJECTIVE

To examine the influencing factors of psychoactive substance use, public health, and social consequences among adolescents in Uganda and to recommend appropriate preventive strategies to line Ministries of Health and Ministry of Education and Sports in addressing the influencing factors of psychoactive substance use and its health and social consequences.

2.4.2 SPECIFIC OBJECTIVES

- To identify the influencing factors of psychoactive substance use among adolescents in Uganda
- To examine the public health and social consequences of Psychoactive substance use among adolescents in Uganda
- To document good practices in other countries in supporting appropriate intervention on substance use among adolescents in Uganda
- To recommend appropriate intervention strategies to Ministry of Health and Ministry of Education and sports in addressing the problem of psychoactive substance use among adolescents in Uganda.

2.5 METHODOLOGY

This paper is a review of literature for studies previously conducted on the influencing factors of psychoactive substance use, its public health, and social consequences among adolescents in Uganda, peer reviewed, and grey literatures findings were collated and analyzed.

2.5.1 SEARCH STRATEGY

This literature review was conducted to examine the influencing factors of Psychoactive substance use, public health, and social consequences among adolescents in Uganda.PubMed, VU library, science direct, Google scholar, government surveys, institutional and NGO reports, National and international guidelines, conferences, and media articles were used to identify relevant literature, the key words in the search include; Psychoactive substance use, Adolescents, age, gender, family, socio-economic, volume, context, culture, production and regulations, public health impact and social consequences and Uganda. Only relevant literature in English were included to the search terms, literature between 2000 to 2019 were included to allow a wider search and to provide better understanding around influencing factors of psychoactive substance use, its public health, and social consequences. Articles deemed relevant were first assessed by title and abstract for full review for inclusion in this review, more relevant articles were followed usingthe snowball approach to find articles for further inclusion. The outcome of this review was to identify influencing factors of psychoactive substance use, public and social consequences, documented lessons from the best prevention strategies from which recommendations are drawn.

Table 1: Search table

Specific objective	Sources	Key words
• To identify the influencing factors of Psychoactive substance use among adolescents in secondary school in Uganda	Published peer reviewed articles and grey literature from; Google scholar, Google, PubMed, VU library, Science direct, Government survey and institutional reports, NGO reports, National and international guidelines, Conference reports, Media articles.	• Psychoactive substance use • Age • Gender • Family • culture • Socio-economic status • production distribution and consumption regulations • Adolescents • Uganda
• To examine the public health and social consequences of Psychoactive substance use among secondary school adolescents in Uganda		• volume, • context, • public health impact • social consequences • Adolescent • Uganda
• To document good practices in other countries in supporting appropriate intervention on psychoactive substance use among school going adolescents in Uganda		• Intervention strategy • Adolescents • Uganda
• To recommend appropriate intervention strategies to Ministry of Health, ministry of education and Ministry of youth and child development in addressing the problem of Psychoactive substance use among adolescents in secondary schools in Uganda.		• Psychoactive substance use • Age • Gender • Family • culture • Socio-economic status • production distribution and consumption regulations • volume • context • public health impact • social consequences • Intervention strategy • Adolescents

		• Uganda and other countries

2.5.2 ANALYTICAL FRAMEWORK

The analytical framework used is "Conceptual causal model of alcohol consumption and health outcomes adapted from Rehm et al, 2010 and Blas et al,2010 to explain the influencing factors for Psychoactive substance uses, public and socio consequences among secondary school adolescents(33).This model was further modified to include tobacco and marijuana beside alcohol as commonly used psychoactive substances by adolescents in Uganda.

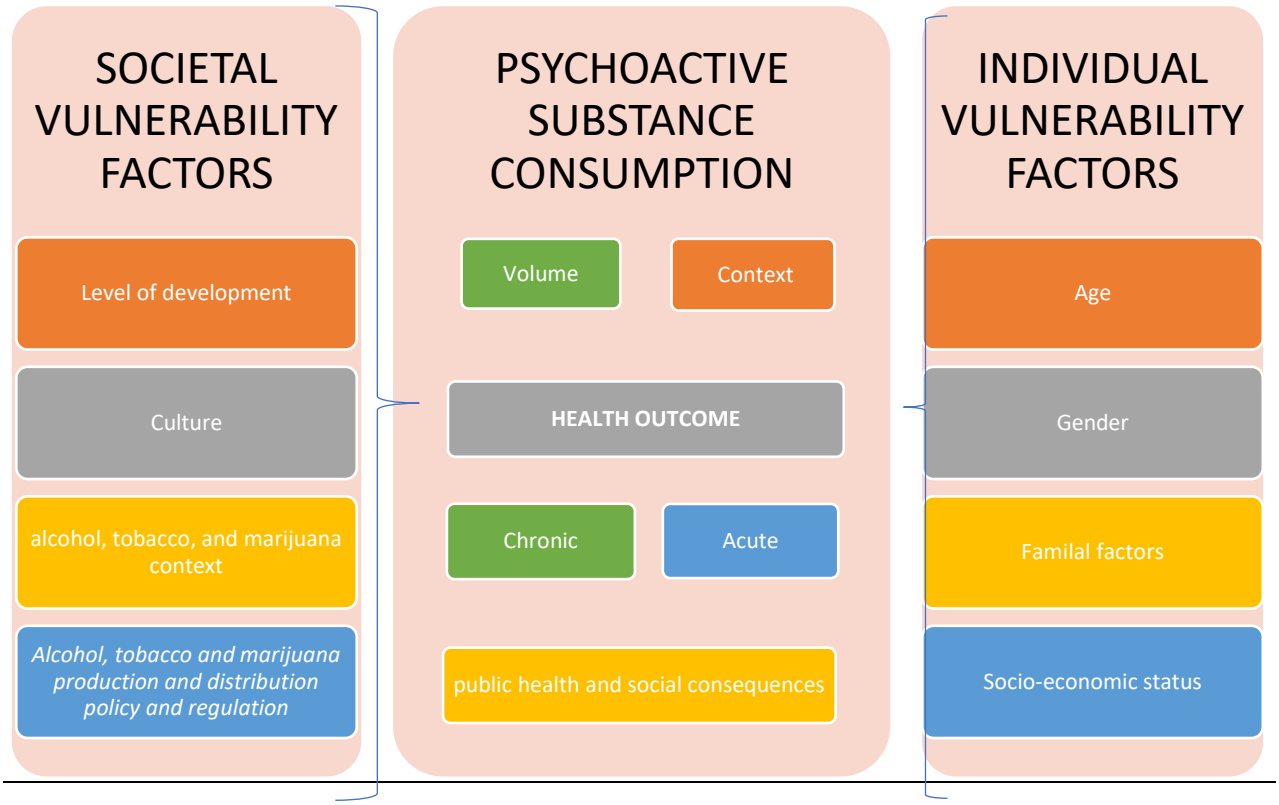
Specific modifications on the model includes;

- Alcohol consumption was modified to psychoactive substance consumption
- Drinking context was modified to alcohol, tobacco, and marijuana context.
- Alcohol Production, distribution regulation was modified to alcohol, tobacco and marijuana production and distribution regulations under societal factors
- Mortality by cause, socioeconomic consequences and harm to others was modified to public health and social consequences under psychoactive substance consumption.

The model demonstrates how factors of Psychoactive substance use, related death and disability are interrelated, the health outcomes and socioeconomic consequences interactions are categorized and discussed in the sequence below.

- **Individual vulnerability factors** which focus on age, gender, family, and economic factors that influence psychoactive substance use.
- **Societal vulnerability factors** which focuses on the level of development, culture, drinking context, production and distribution regulations factors that influences psychoactive substance use.
- **Psychoactive substance consumption** that mainly focuses on burden associated with psychoactive substance in volume, context, public health, and social consequences to adolescents.

Fig.1: Conceptual causal model of alcohol consumption and health outcomes modified.



Adapted from Rehm et al., 2010 and Blas et al., 2010:

2.5.3 LIMITATION OF STUDY

- As literature in English were considered, literature in other languages for example in French and Spanish were excluded, this had limitation on the scope of the search.
- Literature search was limited from the period of 2000 to 2019, excluding the older versions of the literature which may have had better insight of the topic although not relevant in the current context, hence limiting the scope of the search.
- A number of useful hands-on grey literatures on psychoactive substances use among adolescents in Uganda were not included as some of the research articles were not peer reviewed and unpublished which limits generalized plausibility application especially in recommending country wide effective interventions arising from the findings.
- Limited literature on comparing the influencing factors and magnitude of Psychoactive substance use in urban and rural adolescents, which affected generalization of some of the influencing factors as some were deemed to be specific to locations.

CHAPTER THREE

3.0FINDINGS

In this chapter, the influencing factors for Psychoactive substance use among adolescents, health and social consequences were reviewed. In my finding, several influencing factors have been identified and analyzed according to the modified causal model of alcohol consumption and health outcomes. The presentations were organized in objective format reflecting individual vulnerability factors, societal vulnerability factors and psychoactive substance consumption which influences the psychoactive substance use, related health and social impacts among adolescents(34)

About 231 potentially relevant title of articles were identified, 116 full text were reviewed and only 81 were found to be relevant in responding to the stated objectives of the review as presented below.

3.1: Factors influencing psychoactive substance use among adolescents in Uganda

To categorize and analyze the factors influencing psychoactive substance use among adolescents in Uganda, the two broad categories of individual and societal vulnerability factors as per the modified conceptual causal model of alcohol consumption and health outcome were used.

3.1.1 Individual vulnerability factors.

3.1.1.1Age

The age at which psychoactive substance use is initiated has great association with its trend of use, initiation at early years of adolescents leads to use disorder at late adolescent years and higher lifetime, because the younger an individual starts substance use, the more likely that psychoactive substance use and related disorders develop at late adolescent years, this is evidenced by the study in Uganda on substance use and psychological competence among adolescents in secondary school. The study revealed that, 90% of adolescent students with current Psychoactive substance use is traced back on early initiation before the age of 15 years(35). This finding is further supported by a report by Lukwiya (2000) in Jinja district who reported the mean age of initiation being 13.4 years, the same report by Nambi et al (2001) from the districts of Masaka, Kampala, Arua, Mbale, Lira and Mbarara stated that the age at initiation average was just at 9 years (41).

Adolescent students in Uganda get exposed to alcohol and other substances mostly at 13 years, this is because of development changes that trigger adolescents to use alcohol and other substances, high school students transitioning to college experience freedom therefore leading to opportunities for use of alcohol(36),(15).

For marijuana use, a study by School of Public Health Makerere University indicated that, 12% of adolescent students aged 10 to 24 years use Marijuana, the prevalence is high among students aged 14-29 than aged 10-14 years, this is because boys in this age category of 14-29 are exposed as they develop self-confidence to take decisions on their own(29).

The review did not find any study on the relationship between age and initiation of tobacco smoking in Uganda, however related studies in Africa revealed that, initiation of tobacco smoking at the age of 7 years and below is mainly through second hand smoking and has relative association of 0.7% to 9.6% of adolescents smoking of age between 10 to 11 years in Ghana and 12 to 13 years in Cote d'Ivoire (37).

3.1.1.2Gender

WHO global school-based students health survey indicated that, there is proportionate gender association with substance use, the overall substance use among adolescent aged 13 to 15 years was 7.5% in female and 9.4% in males, the use of alcohol among male adolescents was 16.6% and 13.9% among female adolescents. There is also significant gender difference in tobacco smoking among students, smoking among male adolescents stands at 6.2% in comparison to female adolescent at 2.6% in ages 13 to 15 years(38)(39). This finding revealed significant association of gender as a factor of substance use.

In Uganda, a study by School of Psychology Makerere University, revealed that, 60% of adolescent students in secondary schools use psychoactive substances, alcohol use was found higher than marijuana and tobacco and more adolescent boys use substances than adolescent girls, it was

reported that 10.6% and 8% use marijuana, 13.4% and 11.5% use cigarettes for male and females respectively, most male adolescents gave confidence building to face their female counter parts as the main reason for the use(40).

The Gender perspective consumption study among public secondary schools in Uganda revealed that alcohol use among adolescent students follow adults pattern, male adolescents use alcohol more frequently and are less abstainers than females, the cultural and community views and perceptions have bearing on gender and alcohol use, drinking by women is viewed as un acceptable behaviour and practice in the community which often has a positive abstinence influence on their alcohol use(41). A study on gender influence on alcohol use among adolescents in slums of Kampala and Bushenyi equally found that, male students consume frequent and high volume alcohol than females(42),(43).

A study by GENACIS, an international organization of gender, alcohol and culture studies revealed that, adolescent males drink more than adolescent women, 40.1% males drink alcohol in comparison to 23.5% females, 36.4% females were found to be abstaining as compared to only 13.5% for males. Furthermore, women were found to drink less frequently than male adolescents as only 6.5% females were frequent drinkers compared to 22.9% male drinkers. It was further revealed that gender association with alcohol use is enforced by environment in which the adolescents live, women in urban slum areas have considerable high amount of alcohol consumption as most of them work in bars which is an additional compounding factor for use(44).

A study by Makerere University school of Public Health on drug use by adolescents in Uganda revealed that, gender was identified clearly as one of the influencing factors of substance use among school adolescents. Substance use among males is higher compared to females, although it was established that both female and male children reported higher consumption of marijuana, alcohol and tobacco, male adolescents students have relatively higher consumption because of social norms which ordinarily support males rather than females in Uganda and Africa at large (29), this finding was supported by a similar study in US which revealed that marijuana and other substance use, such as alcohol and tobacco was higher among grade 10 male students than females(45).

3.1.1.3Familiar factor

In a family, siblings have influence on a use of psychoactive substances, a prevalence study of substance use among secondary students in Kabarole district reported that, adolescent students whose siblings use substance were highly associated with use rather than those whose sibling were non-users. Among the adolescent students surveyed, 60.6% who use alcohol had their siblings drink in contrast to 20.7% whose siblings are non-drinkers. Whereas 53.7% tobacco smoking adolescent students had their siblings smoke, only 24.2% who smoke don't have smoking siblings. Additionally, 47.1% adolescent students who use alcohol had their parents use alcohol as well as opposed to 21.7% who drink but had non-drinking parents(46).

Parental monitoring was found to be significant as both a positive and negative enabler to adolescent psychoactive substance use according to global youth tobacco report in Uganda(28), a study revealed that, 21.3% of adolescent students who use psychoactive substance had close parental monitoring as compared to 48.8% with no or limited parental monitoring, therefore parental relation with a child at home can protect or trigger use of substance by adolescents, inclusion of parents in any preventive strategy shall yield a high outcome (46). Additionally, parents who belong to a certain religion/faith have great influence on their adolescent children, adolescents who belong to non-religious families were found 2.7 times more likely to use alcohol than adolescents who belong to a religious family, whereas those belonging to a Christian faith family are more likely to use alcohol than those in an Islamic faith family(41).

3.1.1.4 Socio-economic status

A Multi country survey including Uganda revealed that poor people drink less often(32), although affordability of alcohol has increased drinking patterns among school going adolescents that lead to use disorder(47).A study by School of Psychology Makerere University in secondary schools reported that, among the five regions of Uganda, the northern region had high prevalence of substance use among students and eastern region had the least substance use, the low use was

attributed to high poverty and low purchasing power making affordability difficult for most adolescents of this region as they could not pay to acquire the substances they need(40).

According to a study on the prevalence and predictors of substance abuse among secondary students in Kabarole district Western Uganda, pocket money was greatly associated with leading to substance use, it found that students with economically stable parents and had adequate pocket money, were heavy users of substance rather than those from parents with a weak economic background(46), from this study it is clear that the ability to buy increases access and use among adolescents.

3.1.2 Societal vulnerability factors

3.1.2.1Level of development

On review of several literatures, to link level of development to psychoactive substance use, there was no significant literature that links substance use among adolescents to level of development in Uganda. However, a study in South America revealed that there is significant relationship between the level of development and substance use, it was revealed that countries with higher human Development Index reported higher consumption of alcohol, cigarette smoking and marijuana compared to those with low Human Development Index(48).

3.1.2.2Culture

Culture has influence on psychoactive substance use by adolescents. Psychoactive substance use among university students in Kampala are influenced by social determinants such as spirituality and faith, a qualitative study revealed that adolescent students who practice Catholicism and the Islamic faith are more likely to present with Psychoactive substance use than those of the born-again faith (49).

3.1.2.3Alcohol, tobacco and marijuana use context

A study on tobacco use among high school students in Kampala-Uganda found that, 19% of students aged between 15-19 smoked cigarettes, this was largely due to heavy advertisement of tobacco products, this influences them to start using tobacco (39). There is higher use of alcohol, cigarettes and marijuana among secondary school students than primary pupils, a study on substance use in both secondary and primary school revealed that substance use starts at primary school and the habit gets carried over by pupils to secondary schools leading to high disorders at late adolescence (31). Knowledge about the substance has influence on its use, tobacco use among high school students in Kampala is high, a study revealed that 75.8% had seen pro-tobacco messages at sports events, in newspapers and magazines. And 70.8% of the students were offered free cigarettes by tobacco companies and 15.7% had branded items that carry tobacco logos (39).

Massive advertisement by alcohol and tobacco companies stimulates demand and use, these companies spend heavily on advertisements to develop their market network and end up luring adolescents into use, especially in LMICs (50). In Uganda, alcohol is heavily advertised and can be accessed anytime and anywhere, there are no specific rules imposed on alcohol sell outlets as well as electronic media channels where children are restricted to get access to the adverts (51). The limitation in restriction increases the availability of alcohol and tobacco to adolescents, moreover alcohol companies in Uganda freely sponsor large entertainment and sports events, this encourages the youth especially the school going adolescents to drink and smoke since they see their role models being associated with big alcohol and tobacco brands (53).

Furthermore, in a study among adolescents living in slums of Kampala Uganda, alcohol marketing exposure was identified as an influencing factor because 62.1% of youths were reported to be using alcohol. 26% had received alcohol marketing materials or were offered free drinks by alcohol companies, there is a strong link between being offered a free drink and alcohol use (34).

Additionally, the habitation environment of adolescents, their social clubs and activities has great influence on substance use. Adolescent students in boarding schools consume higher volume of alcohol than day scholars as 34.8% boarding students and 21.8% day-scholars consume alcohol, day scholars who reside in internally displaced camps are facing problems of drug and psychoactive substance use due to the crowded environment and idleness after school which influence them into use of substance (15).Social activities at school like debates, scouting and

social clubs were associated with alcohol use, adolescent students who belonged to social clubs are less consumers of alcohol, about 22.2% of them drink compared to 36.7% students who do not associate with clubs. However, social events outsides school results into high volume and frequency of consumption of alcohol, about 47.6% who attend social events outside school use alcohol compared to 22.2% who do not go outside school for social events (35).

For tobacco use, environmental exposure to tobacco smoke has influence to use according to study among high school students in Kampala, study found that, 56.4% adolescents aged 13-15 who smoke had exposure to second hand smoking at either home or public places, only 15.9% non-smokers had been exposed, it's clear from the study report that excessive and multiple exposure to second hand smoking has effect on adolescent initiation of smoking(49).

Perception was found to influence tobacco use among adolescents, a study on substance use among high school going students in Kampala revealed that 30.6% of the boys and 15% of the girls smoke because they perceived that people who smoke had more friends than those who do not smoke, also the same study revealed that 9.4% of the boys and 6.0% of the girls thought that smokers were more attractive than non-smokers, this influences them into use of tobacco (39). Pleasure and curiosity were also identified as one of the influencing contextual factors of alcohol use, a study in secondary schools in Kiryadongo Northwest Uganda on factors influencing alcohol use indicated that, 80.7% of students who use alcohol were curious about alcohol and its effect as well as deriving pleasure from getting drunk (49).

The relieving and relaxation effect of psychoactive substances was found to be a driver of substance use, a study on substance use and psychosocial competence of adolescents in selected secondary schools in Uganda indicated that, adolescents use psychoactive substances especially alcohol because it makes them feel relieved and rested, it relaxes the mind in a situation of stress, students further indicated intimate relationships as one of the factors leading to PSU in schools where boys mostly while engaging in intimate relationships, end up using alcohol excessively after being dropped by their girlfriends(35).

Confidence building among adolescents is another factor influencing psychoactive substance use. A study on the factors influencing PSU among adolescents in public secondary schools in Uganda revealed that, students use substances as a means of gaining confidence more especially towards subjects which they perceive to be hard, they often skip class to drink and report back in middle of the lesson. Furthermore, pornography and movie watching is linked to substance use, students revealed that watching actors drink and smoke in the movie motivate them to use these substances with the believe that practicing makes them stars like movie actors(50).

According to the study of sources and means of obtaining psychoactive substance among adolescents in public secondary schools in Uganda, it emerged that the school environment poses a great influence on adolescent students' use of alcohol and other substances, the rampant small shops, mini supermarkets, bars and kiosks offer easy access to substances and influence drinking behaviour, availability of these shops and substance outlets motivate them to create delivery network with shop attendants within school leading to heavy use (51).Exposure opportunities to high alcohol outlet density and availability of psychoactive substances have been cited as contributing factors to PSU among adolescents in school (32).

Further studies revealed that Psychoactive substance use is higher among adolescents in government schools than in private schools, this was due to private schools being more strict than government schools in limiting smuggling of the substances into the school environment, substance use among adolescent students was found to be more in rural than urban schools, this is because most government schools are situated in rural areas which are less strict(40).For substances such as tobacco, easy access increased use and disorder, a study on tobacco use among high school student in Kampala-Uganda revealed that, 68% of students who accessed tobacco product such as cigarette from most shops within the school environment had never been refused to buy cigarette from the shop sellers despite their adolescent age (49).

Packaging and easy access is one of the factors leading to use of psychoactive substances, a study on the means of access of substances in secondary schools indicated that, 60% of students who use alcohol linked it to easy access. Alcohol packed in sachets being popular and very easily accessible and concealed. Micro packaging of marijuana and cigarettes easily evade the school security systems and easily reach students dormitories compounded by school laxity to enforce

strict preventive measures on substances use with less support from the communities and families where these students come from(52).
Peer influence inevitably plays a big role in influencing adolescents to use psychoactive substances, a study on factor for substance use among adolescents in secondary schools in Bushenyi revealed that, students who stay in hostels where there is drug addiction are easily influenced by their peers(53).Friends have the greatest influence on the young smokers as the initiation of tobacco smoking generally occurs in the company of a friend who is a smoker, for example female adolescents with a best friend who is a smoker is nine times more likely to smoke as smoking is a shared activity within the social cycles (54). Alcohol use is heavily linked to peer influence among secondary school adolescent students as well, peers who are using alcohol influence fellow students into consumption and subsequently use disorders(49), this finding is consistent with a regional study among secondary students in mainland local government in Lagos Nigeria which revealed that, of the students found to be using substances such as alcohol and tobacco, 14.9% believed they were influenced by peer pressure (7), it also concurs with similar studies in Morocco and Ethiopia (55),(56).

Study on use of marijuana among undergraduate students in Makerere University revealed that, there is a relationship between motivation for school and psychoactive substance use, high numbers of students are not motivated to study as they are not informed of their future and how they intend to become successful members of society, therefore lack of motivation triggers the use of substances by these students, and low motivation equally leads to poor performance and further discouragement, hence ending up into using substances(57).

3.1.2.4 Alcohol, tobacco, marijuana production, distribution policy and regulation.

Production and distribution regulation and policy framework have had a huge influence on psychoactive substance use, a study on factors influencing substance use among secondary schools in Kampala revealed that, 22% students use substances either single or in combination. No school in Kampala is free of psychoactive substances such as alcohol, tobacco and marijuana, this is mainly attributed to the lack of school substance abuse policy and poor enforcement leading to increase availability of psychoactive substance in the school environment (52). Weak national alcohol and drug policy coupled with poor enforcement provide fertile ground for increasing the availability and accessibility of drugs and other harmful substances especially alcohol in Uganda (15), the regulation framework that regulates alcohol, tobacco and marijuana production and distribution use are outdated and weak in Uganda which is not providing any protection against harmful use of substances hence making access and use easy for the adolescents and entire population(53).

In Uganda, policies that regulate tobacco are focused on measures such as health information of harmful effects of tobacco smoking and mandatory hazard labelling, the Act for tobacco control and marketing was enacted in 1966 which is therefore outdated and does not respond to the current realities, although the government has restricted time of adverts for tobacco products on electronic media, there is poor compliance by private media owners couple with poor monitoring by government and compliance by private media owners provide opportunity for easy access and use especially among the adolescents (52),(58).

3.2 Public health and social consequences of psychoactive substance use among adolescents in Uganda

3.2.1 Psychoactive substance consumption.

3.2.1.1 Volume

The Global information system on alcohol and health 2018 revealed that, Uganda's average per capita consumption of alcohol stands at 9.5 litres and per capita consumption among adolescent aged 15-19 at 8.0 litres, this without a doubt has overwhelming health and social burden on adolescents and the country. One in every three patients who seek treatment for mental disorders at Butabika national referral hospital is a result of high volume alcohol consumption(59). This study agrees with a study on alcohol use among men in rural communities of Uganda which reported that, volume of alcohol consumption has a great association with health and social outcome, high volume consumption of alcohol leads to dependence characterized as alcohol use disorder which is associated with psychiatric problems. According to a report by Ministry of Health, high volume consumption has a unique effect on the self-esteem of men. There is high stigma among men who tested positive for alcohol used disorder, 47.5% indicated having consistently

consumed a high volume over a period of time and this was a reason their lives were wasted, they indicated having been discriminated against and felt dejected, their income was depleted which led to destitution and social exclusion in their own communities(60).

A study on impact of alcohol on health revealed that, cancer is evidence of increasing volume of consumption(61), similarly diabetes was revealed to be associated with consumption of alcohol, however this study also revealed that, lower use of alcohol has a protective effect whereas higher use increases the risk of diabetes(62), equally for cardiovascular diseases, alcohol's effect is detrimental in facilitating hypertension, the higher the use and frequency, the higher the risk(63).

Uganda has high tobacco smoking rates, the consumption is 150 units per capital according to WHO(25), high level of tobacco consumption for a longer period of time has detrimental health impacts on adolescents and during later adulthood. A study conducted in Mulago hospital revealed that, about 75% oral cancer patients had long history of tobacco smoking, an average of 20 years long smoking, majority of about 45% had been smoking for between 10-19 years (64). This is a clear testimony that the higher the volume of smoking and longer the duration,the higher risk of cancer and chronic conditions at the late stages of one's life span.

3.2.1.2 Context

There was no relevant article found to link the context of psychoactive substance use to the health and social outcome on adolescents or to the larger population in Uganda, however, in Kenya an assessment of substance use among school going adolescents revealed, 20% of polysubstance prevalence among adolescents, majority of adolescents start with one substance and progresses to use of other substances, alcohol was found the main gateway to tobacco and marijuana use which often results into comorbidity of substance use disorders (SUDs)(65). Additionally, in the United States, a logical regression analysis relates to substance use disorder (SUD) to multimorbidity of chronic conditions. Polysubstance use with comorbidity of SUD increase hospitalization for chronic diseases such as cardiovascular diseases, cancer, diabetes and other chronic conditions, it is observed that among the patients hospitalized with SUD the overall prevalence was 13.3%, more patients were found to present with multi morbidity of chronic diseases which increases linearly as 14.3% patients with SUD had one chronic condition, 21.2% had at least two chronic conditions and 35.5% of those with SUD had multiple chronic conditions(66). Therefore, from this study, one can relate contextual aspect of psychoactive substance to comorbidity of SUD which increases hospitalization for multiple chronic diseases.

3.2.1.3 Health Outcomes

3.2.1.3.1 Public Health consequences of psychoactive substance use.

Psychoactive substances use such as alcohol and tobacco smoking contribute to more than one type of diseases of public health importance, alcohol use disorder is associated with diseases such as diabetes, cardiovascular diseases, liver and pancreas diseases, cancer and neuropsychiatric diseases(33). There is increased risk of unsafe sexual practices associated to alcohol use which leads to HIV/AIDS infection, STIs, teenage pregnancies and unsafe abortions(15),(67), a study among students on the pattern of alcohol use and risky sexual behavior Uganda revealed that 50% of females and 37% male adolescents students reported having inconsistent condom use with a new partner as a result of alcohol use(68). The impact of alcohol consumption on HIV/AIDS patients' reduces adherence to antiretroviral treatment(69)

Public Health diseases such as cancer, ischemic heart disease and chronic obstructive airways diseases have also greatly been associated with tobacco smoking as a risk factor, and impacts are severe among adolescent students according to study on tobacco use among high school students in Arua, Uganda(70).

3.2.1.3.2 Social consequences of psychoactive substance use.

Adolescent substance use is well associated with declining grades, absenteeism from school, and dropping out of school. Cognitive and behavioral problems experienced by adolescents using substances may interfere with their academic performance(71). Psychoactive Substance use can affect social, psychological, cognitive and intelligence development and growth of an adolescent.(72), this finding relates to the study by the University of Maryland which indicated, marijuana use affects adolescents' intelligence by lowering Intelligence Quotient (IQ). In this report, 29.5% students missed class due to marijuana and alcohol consumption (61).

Study on under age alcohol consumption in secondary schools in Uganda indicated that, students who uses alcohol are likely to use substances such as marijuana as their bodies become used to alcohol and does not produce the desired effect they need, these lead to Psychoactive substance use and contribute to poor academic performance as poly substance use has extreme social effect, further report revealed memory interference and emotional development among adolescents (52), this study agrees with a study in Kenya on effect of drugs and substance abuse on primary school pupil in Kakuma refugee camp, it revealed that pupils who use substance about 40% repeat class, 50% absenteeism and 20% drop out of school (73)

A study on prevalence and factors influencing alcohol consumption amongst secondary students in Kiryadongo district, North western Uganda revealed that, 72.2% of the students were involved in a form of accident due to alcoholism, they demonstrated inability to study, reporting to school drank, high volume consumption results to fainting causing body injuries(74).

Psychoactive substance use by adolescent students often leads to abandoning school, increased absenteeism by these students leading to poor academic performance, decrease in participation in the curriculum activities and school dropout(52)(75). This finding is supported by report by National Care Centre in Kampala which indicated that 80% of all clients at the National Care Centre (NCC) in Kampala were school dropouts between 18-23 years old (22).

3.3 Good practices supporting appropriate intervention on substance use among adolescents in Uganda

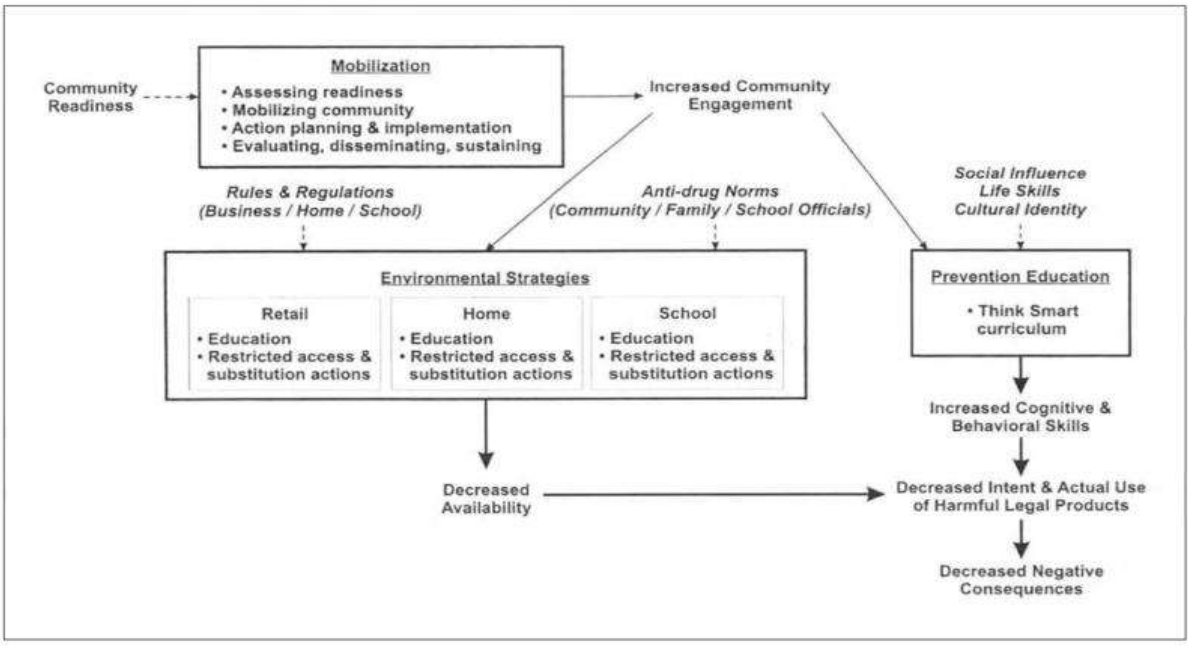
Evidence from other countries in support of practical preventive solutions for adolescent's psychoactive substance use, related public health and social consequences.

There is evidence both in high and low-middle income countries that implemented strong interventions to curb or reduce psychoactive substance use among adolescents both in schools and in the larger community. Physical and economic availability regulations were found to be effective in countries like Kenya, Nigeria, Ethiopia, and United States, this includes strict alcohol licensing laws, lowering the drinking and smoking age, increasing taxes on alcoholic beverages and cigarettes and proper enforcement of laws were found to be effective in reducing use and related disorders as well as public and social consequences. Evidence has shown that mass media alone was found to be ineffective in many countries, however mass media campaigns such as health warnings on the use combined with community focus actions proved to be effective in reducing psychoactive substances in Kenya and Nigeria (76).

Community based interventions through local ordinances and bylaws were found to be effective in countries like Kenya and Tanzania where massive community awareness and engagement using local community resource persons had generated positive success in addressing the psychoactive substances use and underlying health and social consequences. This intervention can easily be replicated in Uganda, however, its success requires high level commitment and enforcement by the technical and political leadership of the country(77).

School based interventions such as behavioural practice at school were implemented by many countries through, inclusion of psychoactive substance education in existing curricula, complementary health, and life skill education. In Kenya, the review revealed that substance use intervention model of increasing community engagement, environmental and school based approach as seen in fig 2 below was implemented (78). This model, though specifically for reducing inhaling harmful substances by youth, can be adopted, and implemented in Uganda due to similar community setup and successes it registered in Kenya.

Fig 2: Community Prevention Intervention model of illicit substances implemented in Kenya.



Johnson K, Courser M, Holder H, Miller B, Ogilvie K, Moore R, et al, 2007

In Nigeria, the review established that effective intervention programs were implemented to address issues of substance use among adolescent students; one of the major interventions was school drug strategy, school activities such as drama clubs, role plays were established to support adolescent students against psychoactive substance use, further intervention was peer education which empowered adolescent representatives to freely share information and discouraging open local alcohol and tobacco adverts. Families of the adolescents were made part of intervention strategy, family being a big player in shaping adolescent behavior in substances use, parents and family members were sensitized about protecting behaviors such as providing a safe family environment and parental monitoring. Additionally, Health and Social marketing approach was another interventional strategy employed, it was established that the use of school talking compounds, information dissemination have positively influenced adolescents against substance use in Nigeria (79).

A Community-based intervention to prevent substance misuse was implemented in the United States, this approach was used to reduce substance use where a social skill program approach for individuals is applied which responds to policies that restrict access of alcohol and other substances to adolescents. In a larger community level, this intervention focuses on swift policy to increase taxation on alcohol tobacco and marijuana products and marketing restrictions, this approach is as well being implemented in Kosovo as a modified version of community based intervention to include family connectedness. It should be noted that there is a positive yield where family and community centered rehabilitation resource centers were established to tackle the ever increasing risk factors and consequences of substance use in Kosovo. Although Uganda has already adopted and modified the same intervention approach to use the peer led community intervention approach in the slums of Kampala, its effectiveness and scalability is yet to be documented(77).

In Australia, the health education component within the wider community mobilization was found to be effective as preventive strategy against adolescent student substances use and related disorders. This intervention focused on mobilization of adolescents and empowering them with drug resistance skills, knowledge as well shaping their attitudes to respond and manage peer influence towards substance use, this approach registered high success due to inclusion of a parents empowerment program to monitor adolescents while at home, enhancing positive communication between the parent and child as also having parents participate in school policy review and update so as to respond to adolescent appropriate school based substance prevention strategies(80), whereas Uganda has a health education program, it is often centralized and the content is not specific to adolescents substance use prevention, and also is not part of the wider community mobilization as in Australia. Although the context of delivering this strategy in Australia

is different from Uganda, the approach can be integrated easily within the community mobilization framework which is a vehicle for delivery various community programs.

For the tobacco smoking prevention strategy, a systematic review in high income countries observed that digital platforms were found to be effective for adolescent specific tobacco smoking prevention, in this intervention, mass media is used to deliver personal testimonies and devastating messages on the effect of tobacco to the adolescents, this makes them fear and avoid smoking. Evaluation of this program revealed the effectiveness in reducing the level of smoking and promoting cessation among adolescents, it also promote positive attitude, perception and behaviors(81), Uganda could consider this strategy for adoption because the wide coverage of social media among adolescents present good opportunity, additionally there is similar approach being used in Uganda for tuberculosis awareness campaign using social media, although its effectiveness has not yet been evaluated, lessons are already documented, and with few modification replication can be effective.

CHAPTER FOUR

4.0 DISCUSSION

4.1 Individual vulnerability factors

On the review of various articles, individual factors such as age, gender, family, and economic status were found to have an association and extent in influencing psychoactive substance use among adolescents in Uganda, although each of the factors stated under individual vulnerability have a varied degree of influence; gender and familiar factors were the most influential in adolescent psychoactive substance use. Most studies agree that substance use among males is higher in comparison to females, this pertains all three substances; alcohol, tobacco, and marijuana. The finding is reinforced by a similar study in the United States of America where alcohol, tobacco and marijuana use among male grade 10 students was higher than in their female counter parts. The gender disparity in use of substance is more to do with social acceptability in the society, the social set up of the community in Uganda makes it a taboo for female to use substance whereas it's a socially acceptable practice for men, this is reflected in all age groups.

On the other hand, family as an individual factor is pivotal in influencing adolescent substance use, siblings and parental monitoring are both an enabler and protective influence, adolescents easily learn from their siblings especially elder ones, siblings who use substance influence negatively and those who do not use substance provides protection against use. Equally, parental supervision was found to contribute to both protective and risk factors in Uganda, a similar study in Lagos Nigeria agrees with this study, where parental monitoring impacts greatly on adolescent substance use, adolescents who are closely monitored by their parents become evidently less involved in practicing risk behavior of use than adolescents with less supervision. From the array of findings, the role played by parents in shaping behavioral practices toward adolescents psychoactive substance use cannot be underestimated, parents as duty bearers should be involved in any interventions that address the drivers of substance use among adolescents.

Although some literature pointed to age as a driver of psychoactive substance use among adolescents, many of the literature converged on the average minimum age of initiation of substances but were silent on how minimum age of initiation influences substance use, a few articles that were reviewed were able to relate how age transition had influenced substance use especially late adolescents and in the adult age, therefore further research is needed to clearly demonstrate age as driver of substance use is needed .

Economic status had a clear link on influence of substance use from the review findings, there was demonstrable association between students having pocket money to substance use. Students whose parents are economically stable can easily purchase these substances in comparison to those whose parents are economically poor, however, fewer studies were not available for review for concrete conclusion. There is need to conduct more studies to demonstrate the association of economic status and substance use among adolescents in Uganda in support of age appropriate future intervention.

It's therefore important pay attention to individual vulnerability factors in designing prevention strategy for substance use among adolescents, the important role of family should be given special attention, the role of gender should be considered for inclusive community prevention strategy.

4.2 Societal vulnerability factors

The second most important driver to substance use is societal vulnerability factors. From the findings, a number of factors were identified, however, the most influencing factors of societal vulnerability factors are; peer influence, massive advertisement, environment and policy regulation framework.

Peers are both positive and negative reinforcement and is identified as most pivotal factor in learning and initiation of psychoactive substance use among adolescents, negative reinforcement and subsequent initiation occurs when substance use receive undesirable endorsement and acceptance among the peer social circles, and this is typically for alcohol, tobacco, and marijuana, this finding is true for other regional studies in Morocco and Ethiopia.

The influence of peers on adolescent substance use were clearly linked in many literatures reviewed, for adolescent students, school environmental context was found to be the bedrock and strength which is a catalyst for peer influence to become progressive. Most literatures reviewed indicated that schools which do not offer a full boarding section encourages students to rent rooms or stay in hostels at the neighborhood, this kind of arrangement provides opportunity for students to learn from their peers and consequently influences their behavioral path into substance use.

Advertisement of psychoactive substances such as alcohol and cigarette without safeguarding adolescents have a great influence on their use, events sponsorship by alcohol and tobacco companies create a high affinity among adolescents to use Psychoactive substances, this finding is evident where alcohol beverage and cigarette adverts were unregulated within communities and at national level, for this factor to be controlled and its impact minimized, the subnational governments and community structures should be empowered to manage and control local adverts that safely protects the young population especially adolescent students.

Adolescent environmental habitation was found to be the third most influential societal vulnerability factor after peer influence and substance advertisement, adolescents staying for example in slums of Kampala where there is marketing of substance, have access to free gifts inform of substance products, school environment where social event such as debates, club and scouting takes place, crowded camps especially among internally displaced or refugee settlements were found to greatly influence psychoactive substance use by adolescents. In view of the above, for any intervention to be successful in preventing the drivers, a tailored approach is required considering the different environmental setups and social structures the adolescent live in.

The Substance regulatory framework and policies have both negative influencing and protecting factors, However, findings revealed that, Uganda has clearly weak laws regulating alcohol and tobacco advertising, access, and physical availability, yet in other countries such as United States of America, Ethiopia, and other sub-Saharan African countries, although consumption is high, there are strong laws and strict enforcements of the minimum consumption age, marketing and distribution. The review further revealed that massive adverts on alcoholic beverages are conducted in Uganda without filtering information, indiscriminate access of alcohol and cigarette information by adolescents is identified as a big contributing factor influencing the use, although most adverts put a disclaimer of "No alcohol to be consumed by those under the age of 18,'' this statement alone is not enough. Unless regulation and enforcement are vigilantly observed; by regulating advertisements, access and consumption, the current adolescents and young population of Uganda slowly becoming a generational failure is inevitably as many may get wasted by substance use.

The extrinsic nature of societal vulnerability factors which are beyond the control of an individual require multi prong sectoral collaboration and approach, any policy formulations, reviews should be cognizant of its wider influence, additionally, it's a required of all government, development and non-governmental organizations to collaborate and coordinate in promoting success of any preventive community interventions.

4.3 Psychoactive substance consumption

4.3.1 Public health impact

From the literatures reviewed, several immediate and long-term public health impacts of Psychoactive Substance Use (PSU) on adolescents are revealed, the immediate impact from the available literatures documented high promiscuity behavior and sexual desire exhibited by the adolescents after use of alcohol, due to state of mind impairment. This leads to improper condom usage hence unsafe sexual encounters leading to STIs and teenage pregnancies. Further evidence indicates a high danger to adolescent HIV/AIDS patients who are on ART treatment regimen as it affects their adherence. This particular finding is detrimental to already good progress made by Uganda in the fight against HIV/AIDS which is appreciated globally. It also puts prudence for the country and government to take the fight against HIV/AIDS to the underlying factors such as of alcohol and other psychoactive substance use especially in adolescents both in school and out of school in order to save the next productive generation and human capital of the country.

The long-term public health effects of psychoactive substance use is severe, although many adolescents do not recognize these impacts, there is high generational public health impact posed by psychoactive substances as many studies from the review of literature revealed NCDs such as

cancer, diabetes, cardiovascular disease, and mental health disorders have been associated with alcohol, tobacco and marijuana use, a causal link between alcohol and cancer of oral cavity, pharynx, liver and breast cancer have been demonstrated from the various reviews conducted.

Consumption of psychoactive substance such as alcohol, tobacco smoking and marijuana in large quantities, in increased frequencies and longer periods are risk factors for NCDs such as cancer, diabetes, cardiovascular disease which increases hospitalization. Cancer is evidence of increasing volume of consumption, similarly diabetes was revealed to be associated with consumption of alcohol, however low use of alcohol has a protective effect whereas high use increases the risk of disease. Equally, for cardiovascular diseases, the higher the use and frequency, the higher the risk. Furthermore, there is evidence that polysubstance use leads to comorbidity of substance use disorder which also results to multiple morbidity of chronic diseases. From the reviews conducted, unless critical actions are taken to address factors of psychoactive substance use, their risk factors among adolescents in and out of schools and the country in general, there is great catalytic influence on epidemiological shift from communicable diseases to NCDs among the mid age adults which are traditionally diseases for elderly population in Uganda, it is a huge generational challenge that requires policy swift to respond and prioritize more resources toward non communicable disease prevention and management.

4.3.2 Social consequences

Clearly, PSU has devastating social consequences for individual adolescents and the larger community. The common impacts revealed from the reviews were declining in performance and grades, absenteeism, and school dropouts, Interference in short term memory, cognitive and emotional development inhibition were other attributable consequences. The impacts can be severe to the extent of fainting and body injuries. This finding is an exact reflection of observed effect of psychoactive substance use social consequences in the larger young population as the biggest contributor of accidents, related body injury and deaths in Uganda.

It's therefore important to note that, the devastating social consequence of psychoactive substance use is extreme poverty it puts on the families especially prolog treatment of disorders related to these substance use as it depletes household income. The social impacts of psychoactive substance use are easily recognized by the adolescents and community due their immediate effect and easy associations than most its public health impacts which are often to NCDs which manifest after a long time, their associations are forgotten due slow progression.

4.4 Good practices supporting appropriate intervention on substance use among adolescents in Uganda

From the reviews, supporting literatures were found from Kenya, Nigeria, Ethiopia, United State of America, Australia, and other high-income countries. A number of countries have piloted and tested prevention interventions which mostly produce the desired outcomes against substance use, its public and social consequences. The interesting finding of the review is that, the factors influencing use of these substances share similarities but differ in the context, and the corresponding social and public health impacts are also similar. With that in mind these interventions may be adopted for use in Uganda, however, the effectiveness of replication of such interventions require commitment of duty bearers, stringent regulations, and legislation.

The physical economic availability regulations being implemented in Kenya, Nigeria, Ethiopia, and United State of America may effectively be adopted for implementation in Uganda. Furthermore, Community interventions models implemented in Kenya is found to be effective in generating the intervention outcomes. Additionally, school-based interventions such as drama clubs, role plays, family awareness interventions and social health marketing in Nigeria are possible effective approaches that Uganda can learn and replicate to address challenges of substance use, its health, and social consequences among the adolescents both in school and out of school. However, for the same interventions to be replicated successfully in Uganda, the authorities and duty bearers should develop a people centered approach, and there is need for critical consultation and empowerment of local structures and responsible institutions.

The intervention strategy from Australia is highly motivating, Health education is being used as part of a wider community mobilization to integrate prevention activities is the best cost-effective strategy Uganda may adopt, as it's more inclusive in involving the peers, adolescents themselves

and parents. The need to decentralize health education as a broader part of the community mobilization program shall provide effective means of prevention in Uganda.

Another intervention with likelihood of high impact is the digital prevention platform, this intervention is more specific to adolescents and the young population. In Uganda with the wide spread of social media and internet usage among adolescents, introducing digital platforms would yield the best possible outcome. The program would excel where personal testimonies, messages tailored to suit the adolescents are disseminated. Also, most important to note is that, there is similar approach being implemented in Uganda for Tuberculosis awareness campaign using social media, with relevant stakeholder consultation and lessons learned, adolescent tailored psychoactive substance use prevention strategy can be implemented even within a limited resource scale.

CHAPTER FIVE

5.1 CONCLUSION AND RECOMMENDATIONS

5.1.1 CONCLUSION

The review substantially addresses the overarching and four specific objectives of the study, poly-psychoactive substance use among adolescents is common, a good number of adolescents from the review use either alcohol in combination with tobacco or marijuana or both although alcohol is the most popular among adolescents.

In spite of the poly-psychoactive substance prevalence among the adolescents, influencing factors are shared in common with alcohol, tobacco, and marijuana. The most common influencing factors of psychoactive substance use among adolescents were gender and family under individual vulnerability factors and peer influence, massive advertisement of psychoactive substances, environmental context, policy, and regulation framework under societal vulnerability factors, and this is in response to objective one of the study. However, societal vulnerability factors pose an overwhelming influence than individual vulnerability factors, this is because societal vulnerability factors are extrinsic in nature and there is limited control over them by the adolescents. On the other hand, individual vulnerability factors are intrinsic in nature and the individual adolescent has some control over them as the level of influence may easily be managed by improving their knowledge, skills, and perception.

In reference to the second specific objective which focuses on the public health and social consequences of psychoactive substance use (PSU), the review adequately satisfies the objective expectations. The main health impacts associated to PSU documented in the review were NCDs (Cancer, diabetes, cardiovascular diseases, ischemia, and mental health disorders) which are long term effects. Poly-psychoactive substances was found common from the review, the risk factors are adverse and doubles for SUD and NCD comorbidities. Aside from the prevalence of poly substance use among adolescents, the volume, intensity, patterns, and longevity of use have close relationship, as the higher the volume, intensity and longevity of use, the higher chance of developing related NCDs, it is however clear from the review that due to poly-psychoactive substance use, comorbidity of SUD and NCD was common among adolescents. The short-term health impacts are found to be injuries as high volume leads to intoxication, fainting and sometimes unconsciousness, and also the risk of HIV infections which is common with alcohol use. Again, it is clear from the review that, the main social consequences are poverty, absenteeism from school, school dropout and low adherence to ART treatment for AIDS patients, it was worth noting that the social consequences are easily recognized and acknowledged by both the adolescents and larger community population due to their presentation within the shortest time of use. Social consequences remain the most significant impact appreciated within the adolescents and community network. As any of the NCDs associated to psychoactive substance use develop in an individual, there are no remedies that can be applied to prevent them apart from case management and care. An intervention to prevent the risk factors such as high volume of use, intensity, pattern of use and duration at the earliest time possible is the best strategy. Behavior change communication intervention strategy can be employed to mitigate the risk factors using adolescents themselves as role models could be the best feasible local approach that can be implemented.

Objective three was achieved through review of regional and global literature on substance use prevention strategies that were effectively implemented, so as to learn and replicate in Uganda. Although a number of preventive strategies were identified from the review, four reviews were regarded most important, cost effective and resonate with the local system and structure of Uganda as discussed below;

Using health education as a wide community mobilization activity which was implemented in Australia, this strategy can be replicated locally because Uganda already has community engagement strategies for other programs where health education can become an integral part.

The second strategy identified for replication in Uganda is the community prevention intervention model that was implemented in Kenya, this strategy is worthy of replication because it requires integration of all stakeholders, to play individual roles in a coordinated approach as Uganda implements sector wide approach of healthcare service delivery systems, tailoring adolescent

specific psychoactive substance use prevention that can be structured under the sector wide approach which is easy to initiate and integrate for maximum program outcome.,

The third strategy identified is the use of adolescent specific digital platforms for education and sensitization being implemented in high income countries, this strategy can be considered for adoption in Uganda because the wide coverage of social media among adolescents presents a good opportunity. Additionally, a similar approach is being used in Uganda for a tuberculosis awareness campaign using social media, although its effectiveness has not yet been evaluated, lessons are already being documented and with some modification, this approach would produce a cost-effective preventive strategy for adolescents in Uganda.

The fourth strategy identified is the responsive policy and regulation framework on psychoactive substance production, distribution and consumption which was effectively implemented in the United states, this can be replicated easily because Uganda needs to review and update its policy and regulation on psychoactive substance production, distribution and regulation as the current policy was enacted in 1966 and is outdated, with strong evidence from this study and others, if well enforced it would produce a good outcome.

The Conceptual causal model of alcohol consumption and health outcomes which was modified as in fig 1 significantly guided the review findings, hence achievement of the objectives and outcome of the study. However, the framework is limited in scope in wider social determinants such as globalization and health systems structure among others, if included, it would have elicited broader influencing factors, therefore the framework could further be modified to include those aspects of social determinants that may influence psychoactive substance use among adolescents. Additionally, this framework should be expanded to include other psychoactive substances to broaden its application than limiting it to only alcohol.

5.1.2 RECOMMENDATIONS

In reference to the review findings and taking into consideration other countries, and in response to the study objective four, the following evidence based, locally responsive recommendations are derived;

To the Ministry of Health in Uganda

i. Commissioner for NCDs
- To adopt and implement the Community Prevention Intervention model of Psychoactive substance use through sector wide approach delivery support systems, use adolescents as role models, enhance the capacity of parents, families, schools and community resource structures in monitoring and supervision.
- To integrate specific alcohol, tobacco, and marijuana prevention messages intoa broader community mobilization framework.
- To develop digital platforms using social media as means of disseminating adolescent tailored preventive messages against psychoactive substance use.

ii. Director policy and research
- To review and update alcohol, tobacco, and marijuana policy and regulation on production, distribution and consumption including safeguarding against harmful pro alcohol and tobacco advertisements, and event sponsorship guidelines by alcohol and tobacco companies.

To the Ministry of Education and Sports in Uganda

iii. Commissioner of primary and secondary education
- To modify the existing comprehensive curricula to include life skills related to peer resistant and contextual enablers as well as social intelligence to reduce substance use among secondary school adolescents.
- To introduce and enforce compulsory psychoactive substance use status reports for any adolescent before admission into school.

To both the Ministry of Education and Sports and the Ministry of Health

iv. Commissioners of Ministry of Education and Sports, and commissioner NCDs in Ministry of Health
   - To establish a mini PSUD rehabilitation facility at every secondary school as one of the vital minimum operating license requirements, this would support management of disorders among students as a primary level of care for PSUD to minimize adverse effects.

To the Ministry of Local Government

v. Community development officers
   - To monitor and vigilantly enforce policy and regulatory framework, and also monitor implementation of integrated community prevention interventions using community engagement frameworks and structures.

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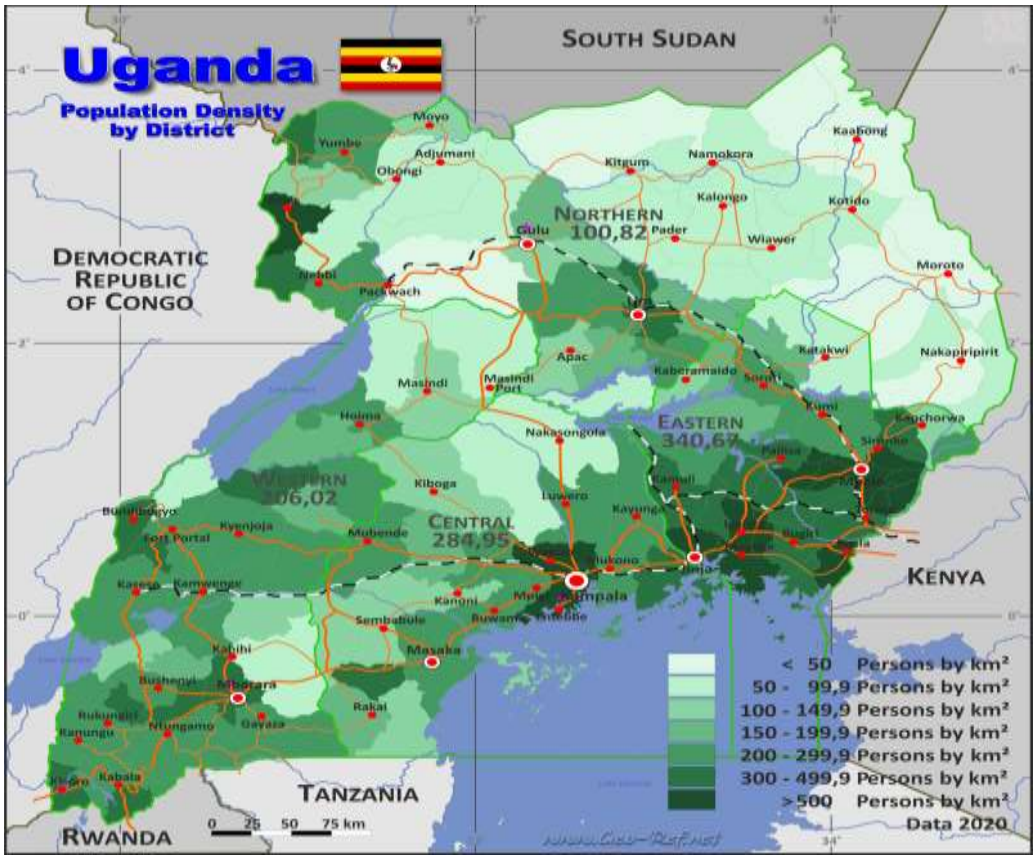
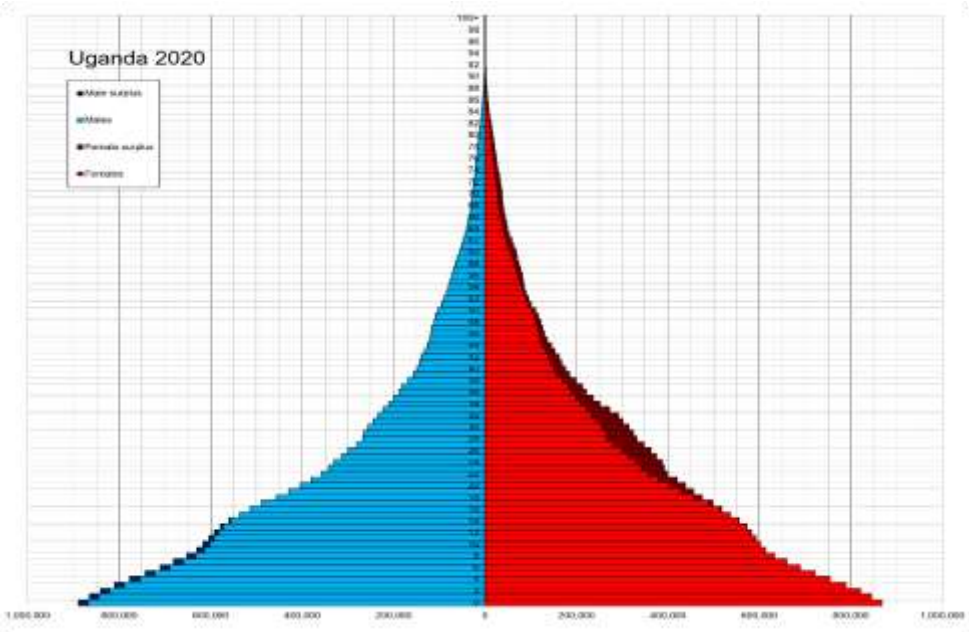
APPENDICES

APPENDIX I: Map showing population density of Uganda by region- 2020 projection.



Source: UBOS 2020.

APPENDIX II: Population Pyramid of Uganda estimate 2020 based on 2014 census



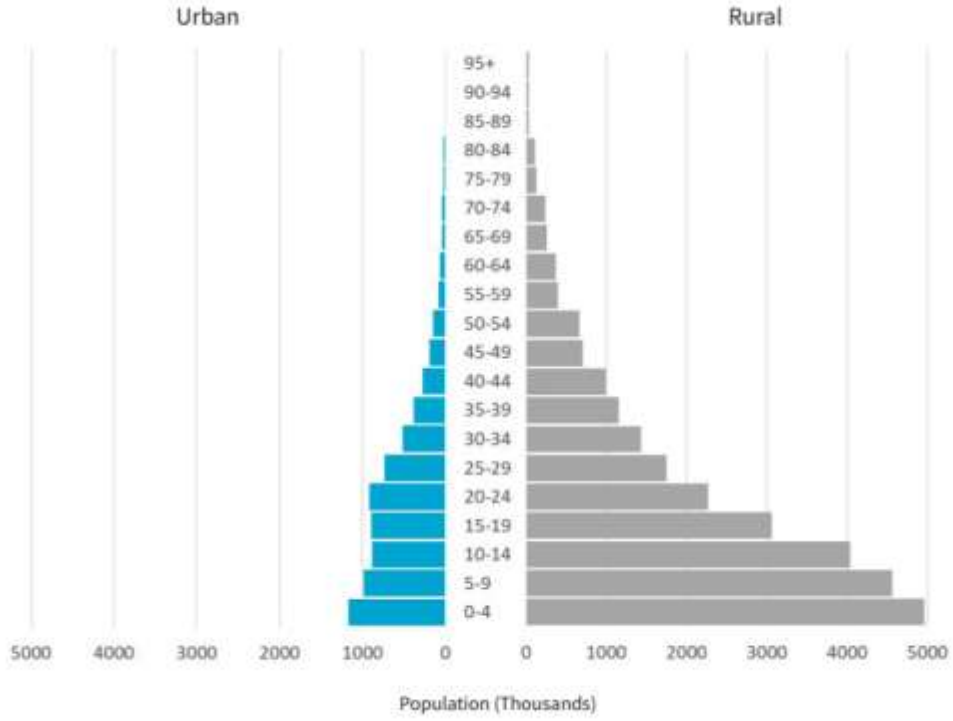
Source: UBOS 2020

APPENDIX III: Demographic and socio-economic characteristics 2019

Indicator (2019)	Uganda
Total population (million)	42.7
Population growth (annual %)	3.3
Urban population (% of total population)	24.4
Life expectancy at birth (years)	62.9 (2018)
Total fertility rate (births per women)	4.9 (2018)
Poverty headcount ratio at $1.90 a day (% of population)	41.7 (2016)
Human Development Index Rank (out of 189)	159

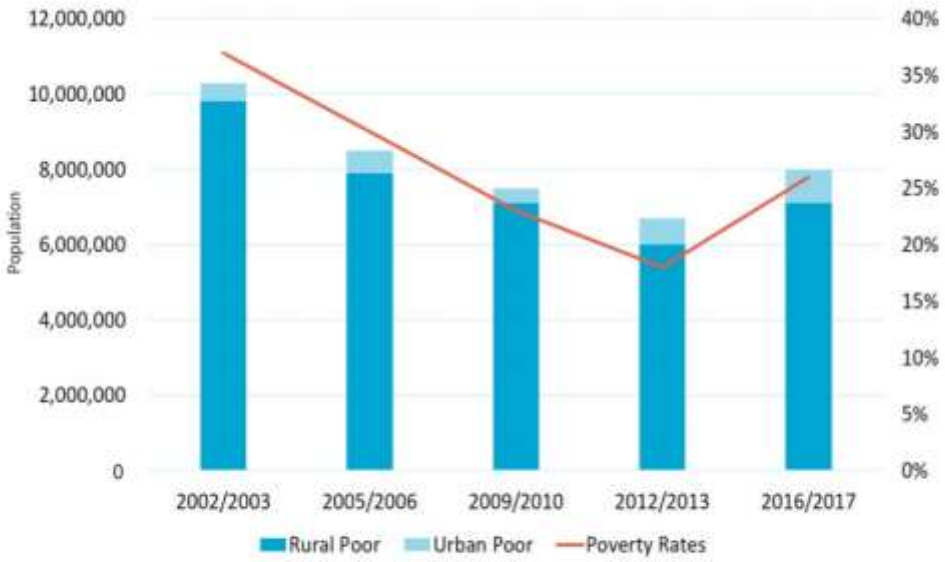
Source: World Bank 2019 United Nations Development Program 2019

APPENDIX IV: Population distribution by age and residence (2014)



Source: UBOS census 2014

APPENDIXV: Poverty rates and estimated rural and urban poor population in Uganda (2002-2017)



*According to the Uganda Bureau of Statistics, the poverty rate is calculated as the percentage of the populate with an average annual consumption expenditure per adult less than UGX 46,233

Source: Uganda DHS, 2003, 2005, 2010, 2013, 2017

APPENDIX VI: Financial management and technical barrier to NCD policy and program process in Uganda

	Financial (control and allocation of funds to NCD-related activities; overall funding in the health sector)	Managerial (ability to lead on policy issues, coordinate efforts among government & partners, oversee implementation)	Technical (ability to produce, analyze, interpret, and influence policy/ programming)
Policy/Program Formulation	• NCD Department (previously Desk) has limited ability to mobilize resources, including human resources, necessary for the finalization and execution of the NCD Strategic Plan • Government unable to commission studies to fill NCD knowledge gaps	• Inadequate recruitment of techno-managerial human resources limits the NCD Department's ability to manage and coordinate processes within the Ministry of Health to move the agenda for NCDs forward • Reliance on external partners to address gaps in coordinating efforts around policy/program development	• Primary study on NCDs done in 2014 was donor-funded/partner-led; need more evidence; limited role of government in driving research efforts • Reliance on external partners for technical assistance and policy formulation based on evidence they generate
Policy/Program Implementation & Monitoring	• Limited funding for implementing established guidelines • Lack of public sector funding has elevated the role of partners and non-government organizations that are leading implementation • Due to limited funding, the government's role is limited to supervising activities funded and implemented by external partners	• Program implementation activities are largely done by external partners with minimal government oversight • Inadequate government oversight and coordination results in duplication of programs implemented by different actors • Fragmentation of efforts results in external partners working in silos	
Cross-cutting Issues	• Inertia to change existing funding practices, particularly if cuts are made to other disease areas • Absorptive capacity of the government may be limited after partner-run programs end • External actors provide significant financial and techno-managerial support in policy/program formulation and implementation processes		

Table structure adopted from khan 2018

Source: Global Health science and practice; www.ghspjournal.org

APPENDIXVII: ATLAS of Substance Use Disorders Resources for the Prevention and Treatment of Substance Use Disorders (SUD) Country Profile: UGANDA

DEMOGRAPHY

Total population[1] ('000s)	Year 2006	29'899
Annual population growth rate[1] (%)	Year 1996-2006	3.1
Population living in urban areas[1] (%)	Year 2006	13
Life expectancy at birth[1] (years)		
Female	Year 2006	51
Male	Year 2006	49
Adult literacy rate[2] (% aged 15 and above)	Year 1995-2005	66.8
Human Development Index[2a] (HDI)	Year 2005	0.505
GDP per capita[2] (PPP US$)	Year 2005	1'454
Gini Index[2b]	Year 2007	45.7

SUBSTANCE USE EPIDEMIOLOGY

National epidemiological data collection system		
Alcohol		Yes
Drugs		Yes
Prevalence estimates for alcohol use disorders[3] (12-month prevalence, %)		
Female (15+ years)	Year 2004	0.36
Male (15+ years)	Year 2004	3.35
Prevalence estimates for drug use disorders[3] (12-month prevalence, %)		
Female (15+ years)	Year 2004	0.03
Male (15+ years)	Year 2004	0.09
Injecting drug users[4] (per 100'000 inhabitants)	Year 2007	10

INJECTING DRUG USERS: HEALTH PROBLEMS

HIV/Aids[5] (%); estimated % of IDU who are HIV Ab +ve	0
Hepatitis B (%); estimated % of IDU who are hepatitis B SAg +ve	-
Hepatitis C (%); estimated % of IDU who are hepatitis C Ab +ve	-
Tuberculosis (%); estimated % of IDU who have had active TB in the last 12 months	-

SUBSTANCE ABUSE POLICY AND LAW

Substance abuse policy	Yes, a separate policy for alcohol and a separate policy for drugs
Availability of special legislative provision:	
Treatment and rehabilitation for people with SUD	No
Compulsory treatment for people with SUD	No
Presence of drug courts in the country	No
Availability of programmes which divert clients away from criminal justice system towards treatment	Yes, for alcohol and drug use disorders

TREATMENT SERVICES

A. ADMINISTRATION AND FINANCING

Government unit responsible for treatment services for SUD	Yes, for alcohol and drug use disorders together
Budget line in annual budget of government for SUD treatment services	Yes, for mental health, alcohol and drug use disorders together
Most important financing method for treatment services:	
Alcohol	Tax-based funding
Drugs	Tax-based funding

B. SECTORS AND SETTINGS

Of those receiving treatment for alcohol use disorders, the percentage (%) treated in[6]:	
Public sector	~60
Private sector	~20
Joint public-private sector venture	~10
NGOs	~10
Of those receiving treatment for drug use disorders, the percentage (%) treated in[6]:	
Public sector	~60
Private sector	~20
Joint public-private sector venture	~10
NGOs	~10
Most commonly used treatment setting for:	
People with alcohol use disorders	General health service
People with drug use disorders	General health service

C. AVAILABILITY, COVERAGE AND CAPACITY

Availability of treatment services (Yes/No) and estimated coverage* (%) of population:		
Alcohol use disorders		
Inpatient medical detoxification	Yes	<10
Outpatient medical detoxification	Yes	<10
Long-term residential rehabilitation	No	-
Drug use disorders		
Inpatient medical detoxification	Yes	<10
Outpatient medical detoxification	Yes	<10
Outpatient abstinence oriented treatment	Yes	<10
Substitution maintenance therapy of opioid dependence	No	-
Specialized treatment services for patients with drug use disorders (including IDU) with HIV/AIDS	Yes	
Number of outpatient treatment slots for alcohol and drug use disorders (per week)	200	
Total number of beds for alcohol and drug use disorders (most recent year available)	130	
Waiting period to receive outpatient opioid substitution treatment	-	
Implementation of screening/brief intervention in primary care		
Alcohol	Yes, but rarely	
Drugs	Yes, but rarely	
Presence of essential list of therapeutic drugs	Yes	

D. TREATMENT SYSTEM ORGANIZATION

In national hospitals, there is a specialized treatment system for substance use disorders which is integrated in mental health care. Some treatment for substance use disorders is also provided in h care.	Treatment for both alcohol and drug use disorders

PHARMACOTHERAPY OF SUBSTANCE USE DISORDERS

Pharmacotherapy used for treatment of opioid dependence for detoxification	-
Pharmacotherapy used for treatment of opioid dependence for maintenance	-
Pharmacotherapy used for treatment of alcohol withdrawal	- Benzodiazepines (diazepam, clonazepam) - Chlorpromazine - New antipsychotics: olanzapine, risperidone

OPIOID AGONIST TREATMENT: THERAPEUTIC DRUGS & SETTINGS

Availability of agonist pharmacotherapy (Yes/No) and purpose of treatment (maintenance or detoxification)		
Methadone	No	-
Buprenorphine	No	-
Formulation of Methadone used	-	
Average daily dose (mg) for maintenance		
Methadone	-	
Buprenorphine	-	
Settings involved in provision of Methadone	-	
Settings involved in provision of Buprenorphine	-	
Number of supervised doses per week		
Methadone	-	
Buprenorphine	-	
Cost per milligram of Methadone in pharmacies	-	
Cost per 2 mg tablet of Buprenorphine in pharmacies	-	
Number of treatment slots for opioid agonist maintenance treatment (per day)		
Methadone	-	
Buprenorphine	-	

HUMAN RESOURCES

Three most important health professionals for treatment of persons with:	
Alcohol use disorders	- Psychiatric Clinical Officers - Psychiatrists - Psychologists
Drug use disorders	- Psychiatric Clinical Officers - Psychiatrists - Psychologists
NGOs in the country focusing on:	
Alcohol	Yes
Drugs	Yes

PREVENTION AND HARM REDUCTION

Government unit responsible for the prevention of SUD	Yes, for alcohol and drug use disorders together	
Budget line in annual budget of government for prevention of SUD	Yes, for mental health, alcohol and drug use disorders together	
Most important financing method for prevention services of SUD	State government	
Availability of prevention services (Yes/No) and estimated coverage* (%) of population		
Mass media (audiovisual)	Yes	25-49
Mass media (print)	Yes	<25
School-based programmes	Yes	<25
Community-based programmes	Yes	<25
Availability of harm reduction programmes		
Needle exchange programmes (community-based)	No	
Needle exchange programmes (in prisons)	No	
Supervised injection facilities	No	
Outreach services for injecting drug users	No	
Naloxone distribution	No	
Bleach distribution (community-based)	No	
Bleach distribution (in prisons)	No	

Note:
This country profile compiles information from the WHO ATLAS survey on resources for the treatment and prevention of substance use disorders, and from other sources of data. If not otherwise indicated, data refer to the year 2008.

Footnotes:
1 Data from World Health Statistics, 2008.
2 Data from UNDP Human Development Report, 2007/2008.
2a Human Development Index (HDI): Index combining measures of life expectancy, literacy, educational attainment, and GDP per capita. A HDI below 0.5 represents "low development", a HDI of 0.8 or more represents "high development".
2b Gini index: Inequality measure of wealth distribution. A value of 0 corresponds to perfect equality, a value of 100 to perfect inequality.
3 Global Burden of Disease (GBD) estimate, 2004.
4 Use of a drug by injection may be intravenous, intramuscular or subcutaneous. Data based on national and regional hospital-based data on persons in treatment, 2007.
5 Reference: National and regional hospital-based data on persons in treatment, 2007.
6 Data based on expert assessment.
* Response involves expert assessment.

Source: WHO, 2010