Introducing Drug Related Harm Reduction Among People who inject drugs (PWIDs) in Ghana: Lessons from selected African Countries.

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Ghana.

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"Introducing Drug Harm Reduction Among People who inject drugs in Ghana: Lessons from selected African Countries".

A thesis submitted in partial fulfilment of the requirement for the degree of
Master of Public Health

By

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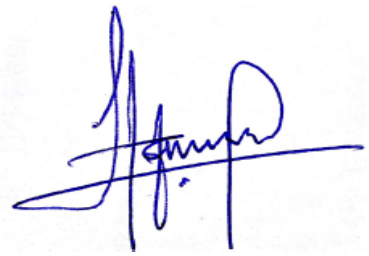
Signature: 

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ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral
CHAG	Christian Health Association of Ghana
FSW	Female Sex Worker
GETFUND	Ghana Education Trust Fund
GDP	Gross Domestic Product
GDHS	Ghana Demographic Health Survey
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HIV	Human Immunodeficiency Virus
IDU	Injecting drug user
ICHD	International Course in Health Development
KIT	Koninklijk Instituut voor de Tropen
KIA	Kotoka International Airport
MSM	Man having sex with man
MOH	Ministry Of Health
MMT	Methadone Maintenance Therapy
MdM-F	Médecins du Monde-France
NACP	National AIDS Control Programme
NACOB	Narcotics Control Board
NDLEA	the National Drug Law Enforcement Agency
NMC	Nurses and Mid-wife Council
NGO	Non-governmental organization
NSEP	Needle syringe exchange programme
NS	Needle syringe
NSP	National Strategic Plan
OST	Opioid substitution therapy
PWID	People Who Inject Drug
TI	Targeted intervention
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations International Children's Emergency Fund
UNODC	United Nations Office for Drugs and Crime
VCT	Voluntary Counseling and Testing
VU	Vrije Universiteit

WHO	World Health Organization

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GLOSSARY

Harm Reduction: Harm reduction for the purpose of the study are the policies, programmes and practices that aim to reduce the harms associated with the use of psychoactive drugs in people who are not unwilling or unable to stop (Harm Reduction International 2017).

Harm Reduction by definition according to UNAIDS (2015), it's a cluster of programmes and policies designed and tailored for PWIDs with the overall aim of alleviating the harmful effects (Social, Health and Economic) associated with psychoactive substance use. The WHO (2009) and UNAIDS (2015) consider the following components as a comprehensive package of the harm reduction strategy;

- Prevention and treatment of sexually transmitted infections (STIs)
- Condom programmes for people who inject drugs (PWIDs) and their sexual partners
- Needle and syringe programmes (NSEPs)
- Opioid substitution therapy (OST)
- Voluntary HIV testing and counselling
- HIV care and Antiretroviral therapy (ART) for PWIDs
- Tailored information, education and communication for PWIDs and their sexual partners through outreaches
- Vaccination, diagnosis and treatment of viral hepatitis
- Prevention, diagnosis and treatment of tuberculosis

Transactional/commercial sex: According to the UNAIDS terminology guidelines (2015), is define as a "consenting female, male and transgender adult and it also includes young people above the age of 18 years who exchange sexual services for money or goods"(UNAIDS, 2015).

ABSTRACT

Background
Ghana is one of the countries in sub Saharan Africa with strong economic growth. With a population close to 28million people (GSS et al 2016), not much research demonstrates the Harm reduction (HR) interventions among people who inject drugs (PWIDs) and HIV transmission among them.

Objectives: To Identify Contributing factors influencing drug use and HIV transmission among PWID in Ghana and evidence for effective Interventions regarding drug related harm reduction in Ghana.

Method: Literature was reviewed using the modified conceptual framework adapted from Andersen and Single to interpret the literature.

Results
The findings suggest growing trend of drug use in Ghana and sub-Saharan Africa with high HIV transmission. This is due to poor economic conditions, the mass media, weak parenting as well as peer influence. There is lack of data on PWIDs and its associated HIV infection rate in Ghana and across Africa and this does not present a clear picture of the situation. Harm Reduction interventions are not existent in Ghana except mental health hospitals with Voluntary Counseling and Testing (VCT) and Antiretroviral Therapy (ARTs) services. Needle syringe exchange programme (NSEP) and Opioid substitution therapy (OST) however are in some African countries. Laws and policies in Africa criminalize the use of drugs. Finally, variables influencing the use of drugs are, multifaceted, multi-dimensional and interrelated.

Recommendations
The study indicates the need for the adoption of NSEP and OST, widening access to VCT and ARTs. NACOB should collaborate with MOH and Department of social welfare (DSW) in the implementation of the NSEP programme. Finally, there is the need for the Ministry of Health to enhance and expand the ART programmes currently on going in Ghana.

Key Words

Harm reduction, People who inject drugs (PWID), Ghana, HIV, Psychotropic substances

WORD COUNT: 12,718

Ligbi Basha, Ghana

INTRODUCTION

I am **Ligbi Basha** from the republic of Ghana. Prior to my commencement of the ICHD/MPH programme, I worked with the Ghana Narcotics Control Board (NACOB), a law enforcement agency under the Ministry of Interior. NACOB as an institution has the mandate to safeguard the boarders of the country against the influx of narcotics drugs from South America (Cocaine) and South East Asia (Heroin) through Ghana to mainly North America and Europe.

Having worked with NACOB for the past 7 years and coming into close proximity with both drug couriers and users in particular through occasional operations in the slums, visits to the prisons and some rehabilitation centres, the sight of the suffering drug users calls for urgent measures in addressing the drug situation. There has been growing trends in the use of the drugs due to the country being seen as a favourable transit point for traffickers. The implication of this upsurge is that, people will use the drugs through injections and other ways of administration. This could be a means of spreading infectious disease of international public health concern such as HIV and viral Hepatitis. Also, my experience at the ART clinic of the ridge regional hospital during my internship as a pharmacist, gave me an insight on the HIV burden in the country as a whole and greater Accra region in particular. The growing trend of the drug use and HIV infection is a cause to worry by all stakeholders. Therefore this study will seek to look into identifying the contributing factors influencing drug use and HIV transmission among people who inject drugs (PWID) and look for evidence for effective Interventions regarding drug related harm reduction in Ghana. This will help improve policies and programs and reduce HIV prevalence among PWIDs in Ghana.

CHAPTER ONE:

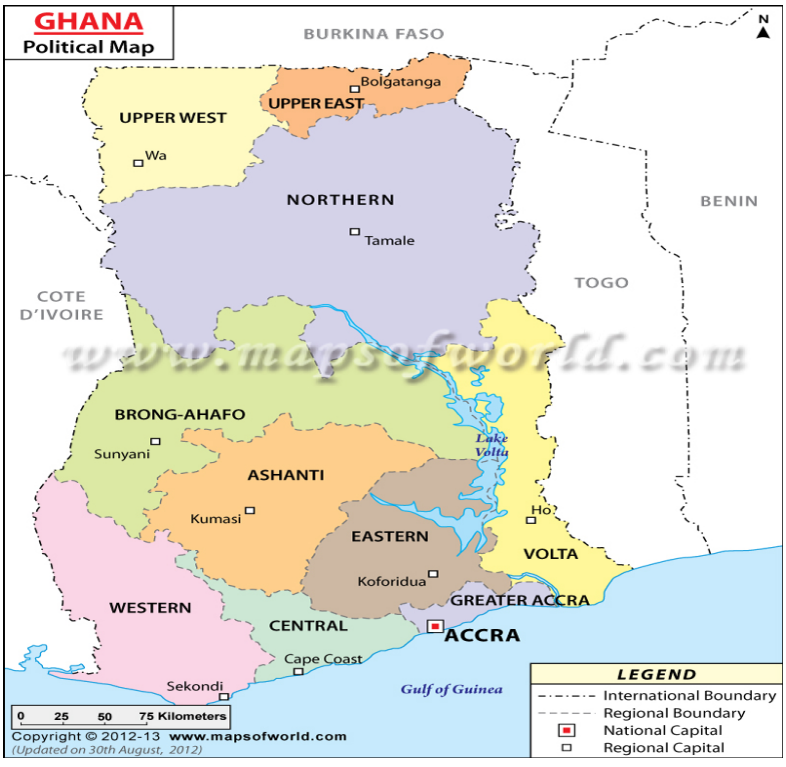
BACKGROUND INFORMATION OF GHANA

1.1 Geographical location and administrative structure

Ghana, formally called the gold coast due to its vast natural mineral resources, is located on the western part of Africa sandwiched between three francophone countries namely; To the north is Burkina Faso, Togo to the East, Ivory Coast to the west and a 560 kilometre stretch of coast line (Gulf of Guinea) which lies to the south as per the Ghana Statistical Service (GSS) (GSS et al. 2014).

Ghana has a multi-party democracy with a democratically elected president who serves for 4 years with a maximum of two-term mandate. There is also a parliament and judicial system headed by an appointed chief justice. Administratively, Ghana is divided in to ten (10) regions, which is further subdivided in to 216 districts for effective decentralization of governance (GSS 2013). The figure 1 below represents the political map of Ghana showing the various administrative regions and Ghana's international neighbours.

Figure 1:Political Map of Ghana



(**Sources:** https://www.mapsofworld.com/ghana/maps/ghana-political-map.jpg)

1.2 Population

The population of Ghana increases at the rate of 2.39% and has recorded a substantial increment from the last census conducted in the year 2010 from a population of 26,427,760 to one close to 28,409,576 people (GSS et al 2016). A larger portion of the Ghanaian population is under the age of 15 years, which literally indicate the youthful nature of the population. The Ghanaian population is largely urbanized with just about 49.1% residing in the rural area according to the 2010 population and housing census

with a further break down which indicates female dominance (51.2%) as against their male (48.8%) counterparts (GSS 2012). A survey report by United Nations International Children Emergency Fund [UNICEF] (2013) indicated that, the life expectancy was 61 years as at the year 2012.

1.3 Education/Literacy

Indices from the 2010 population and housing census shows that, Ghana had approximately 67% of its population who could read and also write the national adopted official language (English) (GSS 2012). Literacy rate in Ghana stood at 76.6% as at 2015 with male and female making up 82% and 71.4% respectively according to United Nations Education Social and Cultural Organisation [UNESCO] (UNESCO 2015).

In the sub regional level, Ghana in its quest to reduce illiteracy rates to the barest minimum, both current and past governments have made a lot of commitment in improving the education sector. The Ghana Education Trust Fund (GETFUND) was setup in the year 2000 by the government in a bid to improve teaching and learning through the provision of infrastructure and other necessary logistics required by schools (Ghana Demographic Health Survey [GDHS] 2014). Other interventions were the introduction of the school feeding programs in order to encourage attendance. The free senior high school was also rolled out on a pilot base across the country.

1.4 Ethnicity and Religion

Ghana is endowed with a harmonious multicultural and religious groups who cohabitate mutually without any problem. Data from the 2010 population and housing census indicated that, the Akans were predominant the majority with a population of 47%, The Dagombas 16% followed by the Ewes 14% and the GA-Adangbes representing 7%. Religiously, the Christians were the majority with 71.2% followed by Islam with 17.6%, traditional religion was 5.2%, with those without religion representing 5.3% whiles 0.8% represented other religions (GSS 2014).

1.5 Health System Overview

The Ghana health service is largely public. The government provides about 60% of the delivery system. The faith-based organizations are the next largest contributor and provider of health service and last but not the least is the private for profit facilities including NGO's. As a result of decentralization in the health sector, the Ministry of health (MOH) largely remained with the responsibility of policy making and regulatory activities which it does through its subunits like the Medical and Dental Council (MDC), Food and Drugs Administration (FDA), The Pharmacy Council (PC), the Nurses and Mid-wife Council (NMC) and the National Health Insurance Authority (NHIA). The Ghana health service together with the Teaching Hospitals, implement the policies made by the MOH (Ghana Health Service [GHS] 2010). They are the forefront of healthcare delivery.

Apart from the faith-based organizations, which complement the government effort in healthcare delivery, other contributors such as the private for profit providers and other traditional practitioners cannot be overlooked in the healthcare system (PPME-GHS-2011). With about 172 accredited health facilities to their credit, the Christian Health Association of Ghana (CHAG) contributes an estimated 42% of all health service nationwide with their facilities making up 5.3% of all health infrastructures across the country (CHAG 2012; Appiah-Denkyera et al 2013).

1.5.1 HIV Situation in Ghana

HIV was first detected in Ghana in the year 1986 (Oppong, 1998). This discovery was a wakeup call for government. It was through this that necessitated the birth of the

National Aids Control Program (NACP) with an oversight responsibility of HIV related policy implementation and activities geared towards the control of HIV in Ghana. The highest national prevalence of 3.6% was recorded in the year 2003 which prompted the government together with other international organizations to institute various measure to curtail the explosive nature of the infection. This resulted in the epidemic going down to about 1.9% in 2009 and a further 1.3% in the year 2013 (Ghana Aids Commission [GAC] 2014).

In its 2016 report, the Ghana Aids Commission (GAC) revealed that, the HIV prevalence recorded among pregnant women attending ANC was 2.6% whiles new infections rate among the age group (15-24years) remained unchanged (1.1%).

CHAPTER TWO

2.0 PROBLEM STATEMENT AND JUSTIFICATION, OBJECTIVES, METHODOLOGY AND CONCEPTUAL FRAMEWORK.

2.1 Statement of Problem

One of the central issues of global concern is the use of psychoactive substances. The World Drug Report in 2015 reported that, globally about 27 million people suffer from drug related conditions or drug dependence (UNODC, 2015). A significant percentage consists of young people between the ages of 12 to 17 years. It is reported that nearly 21.5 million people in the world aged 12 years and above suffered substance abuse with about 7.1milion being illicit drug use (Feinstein et al., 2012). Also among African countries, many young people are affected. Whiles in Ghana there is no estimates of the total number of psychoactive substance users, the Ghana Narcotics Control Board (NACOB) estimated that 50,000 young people between the age of 12 to 35 years, are psychotropic substance users of which 35,000 are from the Junior High/ Senior High schools and Tertiary institutions (NACOB 2014). Similarly, in Benin it is reported that 45% of drug users are young people, averagely 22 years while also in Cameroon, between 75% and 80% of hospitalizations for drug abuse has been for individuals between 15 and 39 years of age (NACOB 2014). In Ghana for instance, marijuana is the most common drug used among the youth even though cocaine, heroin and other psychotropic substances are also used (Doku 2012). A study conducted within a space of one year in Ghana among 117 and 216 drug users in 1996 and 1997 respectively found that, 9%(1996) and 15%(1997) used heroin (Affinnih 2005). Data on the number of people in jail as a result of drug related offences in Ghana are sparse.

However, Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) has been a major concern for governments, health experts and non-governmental organisations. According to the UNAIDS, global estimates of people living with HIV in 2015 was about 36.7 million consisting of all age groupings as against the 33.3 million people who were affected in 2010 and same replicated in Western and Central Africa, where 6.5million people were living with the virus in 2015 as against 6.3miion in 2010 (UNAIDS, 2016). In Ghana, while the national HIV prevalence rate is at 2.4% (1.6% in 2014,1.8% in 2015), two regions, the Volta and Brong Ahafo region recorded rates above the national prevalence rate of 2.7% from 2.2% and 2.6% respectively in 2014 (Sentinel Survey Report 2016, GAC 2014). Health concerns have been raised on the increasing use of drugs among drugs users particularly People Who Inject Drugs (PWID). It is indicated that HIV prevalence worldwide among people who inject drugs (PWID) is around 19% (World Health Organization, 2013) and this is an increase compared to 10% reported in 2007 (UNAIDS 2007). With an estimated 140,000 HIV infected PWIDs globally (2014), it is said that, the number of PWIDs who are infected with HIV every year has not declined since the year 2010 (UNAIDS 2016).

Injecting drug users are among the key population who are particularly vulnerable to HIV infections. A study by Dutta et al. (2012) indicated that, comparatively the burden of HIV among the PWID community is higher than among the rest of the population. In a correlation between HIV and drug injections, the UNAIDS (2012) shared that nearly 10% of worldwide HIV cases are as a result of injecting drug use. It is indicated that due to the sharing and re-use of contaminated injection materials, HIV infection rate among PWIDs is higher (International Federation of Red Cross 2010). The national strategic plan (NSP) identified the key population in Ghana. These were the Men having sex with Men (MSM), Female Sex Workers (FSW), People Who Inject Drugs (PWID) and Prisoners. Interestingly, all but PWID had access to information; education and other HIV related services in a review in 2014 (GAC 2014).

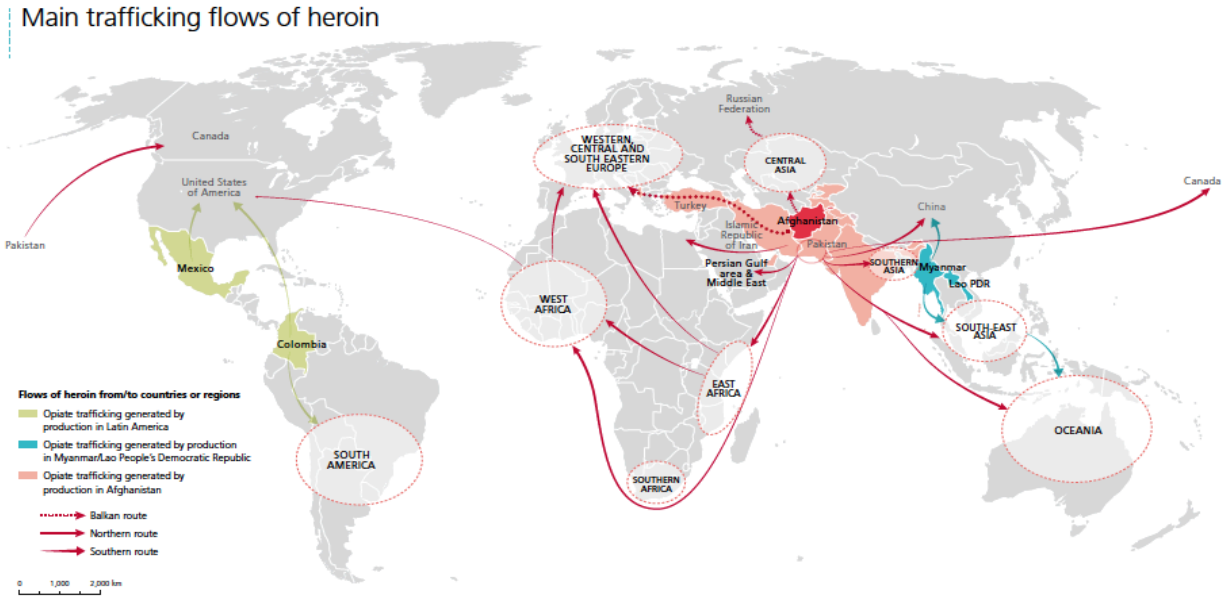
In a bid to curtail the risk associated with the increasing use of psychotropic substances via injections and as a way of tackling the spread of HIV, countries and health policy experts have introduced harm reduction models. In Ghana, the only activity for PWID's is treatment with some rehabilitative components through the mental hospitals.

Furthermore, a significant missing link of the HIV Sentinel Surveys in terms of methodology is the exclusion of PWIDs and the extent of influence on HIV spread in Ghana. Learning from the experiences of other African countries and the Ghana National Strategic Plan (NSP) giving recognition to the PWID's as part of the key population, this study will try to look at a better understanding of drug use and possibilities for Harm Reduction in Ghana.

2.2 Justification

Ghana is a major country in the West African sub region. The use of west Africa as a base for transiting cocaine and heroin from Asia and South America respectively, has led to an upsurge in drug use among the youth and with the absence of drug treatment policies in this region, it poses a major public health threat which will potentially worsen the already existing health problems such as the spread of HIV (WACD 2014). So it is important to do this study in order to come up with appropriate interventions in curbing this health threat. The figure 2 below shows the heroine route from source countries in Asia through West Africa to America and Europe. Evidence from a study in Kenya and Nigeria showed that the upsurge of drug use through injection in PWIDs, is directly associated with the trafficking routes of the drugs (Strathdee et al. 2010).

Figure 2: Main Heroine trafficking flows from/to countries



Source: (UNODC 2016)

In the year 2011, 25.6% of a sample of young people aged 17–25 years who injected heroin was living with HIV in Dar es Salaam, United Republic of Tanzania (Atkinson, et al., 2011). Similarly, HIV prevalence among PWIDs was 4.2% in Nigeria, 51.6% in Mauritius (Boring et al., 2011). This however calls for concern in countries such as Ghana where up to date attention on PWID and HIV transmission virtually does not exist

(Jürgens et tal.,2011).

Ghana as a country has implemented extensive programmes geared towards reversing the trend of the HIV infection. Data on the number of PWID's or the HIV prevalence among the PWID community in Ghana are currently not available. As mentioned in the problem statement, the NSP recognised PWID as key population who are highly vulnerable to HIV infections yet no specific intervention program tailored in addressing the situation which makes this study a must in formulating interventions to reverse these health threat.

However, while the concept of Drug Harm Reduction is not new, Ghana is yet to embrace this concept and its benefits in dealing with the use of drugs particularly illicit psychotropic substances. Also, it is deduced that most of the harm reduction interventions in Ghana are based in mental institutions hence no modern harm reduction modules such as Needle Exchange Programmes or Opioid Substitution Therapy exist in the country. Furthermore, state control of drugs particularly psychotropic drugs usually takes the form of incarceration.

So learning from harm reduction in other countries, the study will add literature to the already existing scholarly materials on harm reduction models, illicit drug use and its threat to public health and as well as it resultant influence on HIV transmission via the pattern or mode of use. The study will also contribute to policy formulation in the area of risk associated with drug use and harm reduction.

2.3 General Objectives

To Identify Contributing factors influencing drug use and HIV transmission among PWIDs and evidence for effective Interventions regarding drug related harm reduction in Ghana, in order to improve policies and programs and reduce HIV prevalence among PWIDs in Ghana.

2.3.1 Specific Objectives

1. To describe trends over time in injecting drug use and factors influencing drug use among PWIDs in Ghana.
2. To analyse the contributing factors influencing HIV transmission among PWIDs in Ghana and other countries in sub-Sahara Africa.
3. To identifying effective interventions regarding Harm Reduction among PWIDs in Ghana and any relevant other countries.
4. To make recommendations to government and other stakeholders to improve harm reduction interventions regarding HIV among IDUs.

2.4 Methodology

2.4.1 Review of Literature

To achieve the purpose of this study, literature review of both published an unpublished documents related to the objectives of the study. The VU and Cochrane library websites were mostly utilised for the search. Peer reviewed journals were also searched using Google scholar, Google and PubMed. Ghana national web sites and other international web sites such as, the Ministry of Health (MOH), Ghana Health Service (GHS), WHO, NACP and UNAIDS were also utilised in the search process. It was only English written literature that was strictly reviewed for the purpose of this study.

2.4.2 Search Strategy:

The specific objectives were put in to consideration in choosing the keywords for this study. The keywords that were used in the search are, Harm Reduction, People Who Inject Drugs (PWID), HIV/AIDS, Injecting Drug Users (IDU), Psychotropic Substances, Needle Exchange, Drug Abuse, HIV vulnerability and OST (Methadone/Buprenorphine), Drug harm reduction policies and Harm Reduction Models. These keywords were used in combination with words such as, AND, OR, Sub-Saharan Africa, LMIC.

Inclusion criteria

- The study included the theoretical literatures emphasizing on the factors that influence drug users to inject drugs in Ghana
- It also focused on the policies to control drug by injection in Ghana as well as the health-associated risk in the using the drugs.
- Since current data on the people who inject drugs are hard to find in Ghana, the study considered earlier estimations in terms of drug usage by injection in Ghana.
- Very relevant data that was considered old was added in order to enhance the quality of the study

Exclusion Criteria

- Abstracts of articles in other languages were not considered in this study.
- Literature that was talking about non injecting drugs
- Articles that did not grant full access were not included

2.4.3 Limitation

A couple of limitations were noted in the study and these are enumerated below;

- The absence of harm reduction in Ghana limits the information on data of people who inject drugs and have been infected with HIV.

- Finally, studies on HIV transmission in relation to IDUs in Ghana are not much.

2.5 Study Conceptual Framework

The study adopts the dynamic drugs systems model by Erik Single (2009) and its complemented by the Ecological perspective model in understanding why people use drugs in Ghana and its resultant health risks with regards to HIV.

2.5.1 The modified Conceptual framework based on Erik Single (1999), complemented by Bronfenbrenner (2009).

Two conceptual models, the harm reduction model of Erik Single (1999) and the socio-ecological model of Bronfenbrenner were adapted and modified by the author to be used in the analysis of the findings. The variables used in the adapted model were tailored in order to understand and reduce drug-related harm, especially HIV infection associated with drug injection among PWIDs.

The adapted model has three key variables namely Dependent variable, proximate causes and underlying determinants. The independent variable, which is grouped into macrosystem, exosystem, mesosystem and the individual self, was taken from the Bronfenbrenner socio-ecological model. This seeks to explore the various factors influencing drug use in a chronological order looking at the various levels from the adapted socio-ecological model components. The individual-level context, consisting of factors such as personality traits, beliefs, and attitudes of the individual while the family

factors cut across peer group influence, often known as the microsystem or immediate environment (Moran et al. 2016). The next level also known as the Exosystem consist of a broad social context involving the neighbourhood, institutions and systems as well as the mass media and political system. The final level is the macrosystem and this refers to the broad norms of values, beliefs, ideologies and cultural norms shared that influences drug usage. The dependent and intervening variables which forms part of the adapted framework was taken from the Erik Single (1999) model of drug harm reduction to complement that of the Bronfenbrenner socio-ecological model (2009) in analysing the interventions tailored for reducing drug harm. The dependent variables looks at levels of drug use, patterns of use and injection drug use, Associated risk behaviours such as needle sharing and other adverse health and social consequences ranging from drug overdose and suicide. The proximate cause cut across drug availability, attitudes towards illicit drug use, alternatives to using illicit drugs and the underlying determinants include environmental factors, drug policies and interventions with users (UNODC 2009).

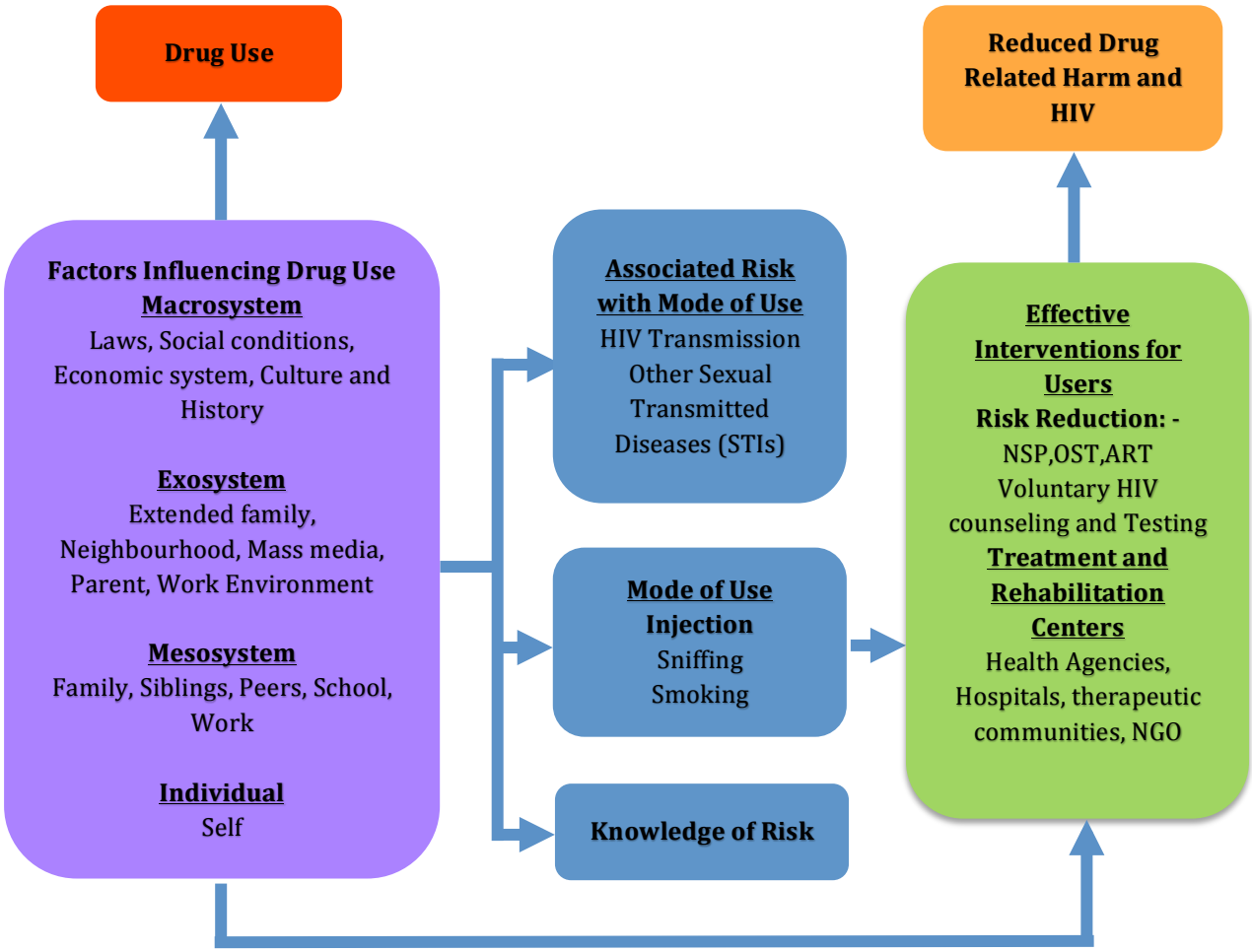
The adapted model by the author therefore underpins the study by including in it the trends; nature and type of drugs used as well as the underlying health effects from the use of the drugs. A key point worth noting is that, the various variables and or factors in the various systems in the adapted framework are interrelated and are mutually influential (Sallis, Owen, & Fisher, 2008). This implies that factors at different level can result in a particular behaviour. The study finds this adapted framework very useful in the following angles;

- The objective one of the study that deals with the trends and factors influencing drug use in Ghana can be explained in terms of the Macrosystem, Exosystem, Mesosystem and the Individual attributed factors.
- With regards to drug use and HIV, the framework explains that associated risky behaviours such as needle-sharing lead to the transmission of HIV and other side effects.
- The Harm Reduction in selected countries is also analysed in the context of the framework while the proposal for a suitable Drug Harm Reduction model for Ghana will consider the framework as a comprehensive method.

The Figure 3 below shows the modified adapted framework of the Bronfenbrenner socio-ecological model and Erik Single model of drug harm reduction.

Figure 3: Conceptualised framework based on Erik Single (1999), complemented by Bronfenbrenner socio-ecological (2009).

IDEPENDENT VARIABLE	INTERVENING VARIABLE	DEPENDENT VARIABLE



Source: Author (2017)

From the diagram above, harm reduction as a dependent variable depends on the use of drugs. The use of the drugs is however as a result of the interplay between several variables spanning from individual self, family, community, country and societal factors. When a person decides to use a particular drug, the person will have to make choice on the options available for use and this choice is dependent on the knowledge of use of the option and the available health risk associated with the mode of use. These associated health risk may include HIV/AIDS. In a bit to reduce the health risk, harm reduction models are designed and implemented to reduce the risk associated with drug use such as the spread of HIV via the sharing of syringes.

2.5 Organization of the Study

The study is organized in five chapters. Chapter one contains the introduction to the study. This basically contains the background information of the country, cutting across history, culture and socio-economic development. Chapter two have the problem statement, research objectives, research methods, conceptual framework and the

justification of the study. Chapter three contain findings of the study, which is organised according to the objectives of the study as well as in conformity to the conceptual framework. Chapter four focused on the discussion of the findings as provided in chapter three. Chapter five deals with the conclusions and recommendations.

CHAPTER THREE

STUDY FINDINGS

3.0 Introduction

This chapter contains findings of the study. For the purpose of clarity and consistency, the findings are organized around the conceptual framework adapted by the author starting with the factors influencing drug use.

3.1 Factors Influencing drug use and trends in usage among PWIDs in Ghana.

As mentioned in the problem statement, drug usage has become a major concern for government and civil society organizations. Its usage has also been a burden among the youth particularly due to its high health effects. Affinnih (2002) in his study acknowledged the scarcity of information on IDU in Africa and attributed this to the fact that most African countries do not have the economic capacity and interest required in monitoring the trends in drug usage and its link to HIV. The correlation between HIV and drug use have been reiterated by academics. However, literatures have established that not much research has been conducted in the area of drug usage and HIV transmission especially in sub-Sahara Africa. Survey on drug use by injection and its implications on HIV transmission are not common in developing countries such as Ghana. As a result, it is difficult to directly trace the estimates of HIV transmission due to injecting drug use. It is of the view that injecting drug use and drug trafficking have increased in West Africa in the last 10 years (Asher, Hahn, Couture, et al. 2013). In spite of the fact that heterosexual sex accounts for most transmissions, injecting drug use accounts for an increasing proportion of HIV infections across sub-Saharan Africa (Mathers et al. 2008). The figure below shows the use of drugs in sub Saharan Africa, its relationship in the transmission of HIV.

Table 1: HIV among IDUs in Africa

Country/territory with reported injecting drug use[a]	People who inject drugs[b]	HIV prevalence among people who inject drugs (%)[b]
Côte D'Ivoire	nk	nk
Djibouti	nk	nk
Gabon	nk	nk
Ghana	nk	nk
Kenya	49,167[2]	18.3[2]
Malawi	nk	nk
Mauritius	9,253 (5,699-10,444)[3]	47.4[3]
Nigeria	nk	4.2[4]
Senegal	nk	9.2[4]
Seychelles	1,671 (673–1,706)[4]	5.8[3]
Sierra Leone	nk	nk
South Africa	67,000[5]	19.4[4]
Uganda	nk	nk
Tanzania	25,000-50,000[58]	42[58]
Zambia	nk	nk

Source: Asher and Hahn (2013

It can be deduced from the table 1 above that, among sub Saharan African countries, cote D'ivoire, Djibouti, Gabon, Ghana, Malawi, Nigeria, Senegal, Sierra Leone, Uganda and Zambia do not have statistics on the number of people who use drugs in their respective countries hence do not have literature or information on who is infected with HIV. For Kenya, out of the 49.167 (Petersen et al. 2013) people who inject drugs, 18.3% are infected with HIV. Similarly, South Africa has had 19.4% of its 67.000 people who inject drugs infected with HIV. In Tanzania, between 25,000-50,000 people who inject drugs, 42% are infected with HIV. The lack of data in the first place does not provide a clear picture of the current state of drug use and HIV in the countries without data and it hampers programmes and interventions on Harm Reduction in that aspect.

The HIV epidemic among the IDU community can be attributed to their needle sharing behaviors and the failure to engage in safer sex practices among the IDU's and their sexual partners (Vickerman et al 2006). It is of the view that injecting drug use and drug trafficking has increased in West Africa in the last 10 years (Asher, Hahn, Couture, et al. 2013). In spite of the fact that heterosexual sex accounts for most transmissions, injecting drug use accounts for an increasing proportion of HIV infections across sub-Saharan Africa (Mathers et al. 2008). The most common illicit drugs in Ghana are the cannabis or marijuana, cocaine and heroin. Ghana is therefore noted currently as marijuana producing country for international trade of which much is consumed among the population (Adu-Gyamfi & Brenya 2015).

The Central Intelligence Agency (CIA) of the USA report on drug usage in Ghana showed a significant domestic cocaine and cannabis use in Ghana (CIA 2013). Cocaine and heroin

are also used in certain suburbs in the country mostly in the cities. Data existing in Ghana on the use of illicit drugs is sparse but an old survey tracing drug use trends in Ghana found out that among 117 drug users in 1996 and 216 drug users in 1997, 9% and 15%, respectively used heroin respectively (Affinnih 2005). With no data showing the influence of injecting drug use contribution to HIV transmission, studies have shown that more than one-third of prisoners in Ghana had ever injected drugs (11.5% of whom were HIV positive) and that history of injecting drug use and needle/syringe sharing was positively associated with HIV infection (Messersmith et al. 2015).

The association between Drug use by Injection and HIV have been established in some African countries where survey is conducted to determine the trends in drugs use and its role in HIV transmission and spread. In sub-Sahara Africa, it is estimated in 2008 that about 117,8500 people inject drugs and between 26000-572000 may be living with HIV (Mathers et al., 2008). There is however variations in some selected countries. It is relevant to note that while people inject drugs, the driving forces for using the drugs can be understood from the adapted conceptual framework by the author.

3.1.1 Macrosystem variable

3.1.1.1 LAWS:

In spite of the fact that Ghana do not have a harm reduction program for drug users, the wake of upsurge in drug usage and its resultant influence on human development and the expenditure on health have pushed for the formulation of policies and acts to regulate the movement and consumption of drugs. These policies and laws include the food and drugs Act (1992), the Narcotic Drugs Law (1990) and the Customs Act 891(2015). Evidence shows that, a lot of countries including Ghana, continue to focus on criminalising all drug related issues over public health approach thus rendering PWID inaccessible to effective HIV/AIDS intervention programs due to the social and legal barriers impeding the process (Wolfe et al. 2007).This however leads to overcrowding in the prisons. Similarly, where sanctions on drug violations are not punitive enough it tends to encourage drug trade due to the high profitability involved. Also there have been some instances where drug punishments have not been commensurate with the offences and this also encourages the drug trade.

Policies/Act

3.1.1.1.1 P.N.D.C.L. 3058 FOOD AND DRUGS ACT (1992)

The antinarcotic law was enacted under the Provisional National Defence Council (PNDC) in 1992 to ensure that food and drugs being manufactured and being imported into the country meet international standard and are suitable for consumption. Section 1 sub section 1 indicates that a person commits an offence if that person sells or offers for sale food or drugs that is poisonous or harmful and injurious to health. Sub section 2 further indicates that,

"In determining whether an article of food is injurious to health, regard should be had not only to the probable effect of that article on the health of a person consuming it, but also to the probable cumulative effect of articles of substantially similar composition on the health of a person consuming the article in ordinary quantities" (P. IV- 903).

Subsequently, section 11a shares the view that a person commits an offence if that person sells a drug, cosmetic, device or chemical substance which has in or on it a substance that may cause injury to the health of the user when the article is used (i) according to the directions on the label accompanying the article, or (ii) for a purpose and by a method of use that is customary or usual (p. IV-906).

These provisions mandate the food and drugs authority to arrest any individual who imports narcotic drugs unlawfully into the country. In Ghana, the laws are punitive enough but you often find debates and disagreement on the way drug related cases are treated and finally end up. In 2007, 76 parcels of cocaine on board MV Benjamin were

reported missing at the Tema port (GNA 2007). Between the first quarter of 2017, operatives of the NACOB arrested three people attempting to smuggle cocaine and heroin at the KIA (Nyabor 2017).

3.1.1.1.2 Narcotic Drugs Law-1990 (PNDCL 236)

This Act established the Narcotic Control Board and is mandated to deal with all narcotic drug related substances and crime. The act covers the importation and exportation, prohibition on possession of narcotic drugs, cultivation of plants for narcotic purpose, use of narcotic drugs prohibited among others. The law therefore mandates the narcotic control board to arrest, detain and prosecute offenders in narcotic related cases.

3.1.1.1.3 The Customs Act 891 (2015)

The Customs Division of the Ghana Revenue Authority (GRA) pay a key preventive role in the importation of unaccustomed goods, restricted goods and prohibited goods. The division plays a key role in agency duties by making arrest of narcotic substance and pass them to the NACOB for further actions. The division mount operations in search of un-custom goods for duty purposes and in the process sometimes they arrest some of these narcotic substances.

3.1.1.1.4 Other sub-Saharan Africa Countries

Countries in sub-Sahara Africa have also made concerted effort in formulating policies and programmes with the aim of drug harm reduction. It is of the view that almost all African countries maintained disproportionate law on drugs and have a response that is focused almost exclusively on the criminal justice system (Workshop Report 2015). For instance, Kenya has criminalised narcotic drug use just as the case of Ghana based on their 1996 psychotropic Act as well as the possession of even small quantities for personal use (Narcotic Drugs and Psychotropic Substance Act 1994). The possession of injecting paraphernalia is criminalized and government crackdown on drug dealers and sometimes incarcerate many of them (Hyde 2016). In the case of Ghana, the Criminal Investigations Department (CID) in collaboration with the NACOB mount operations in drug hubs in the major cities and make several arrest but this does not deter people from possessing and using narcotic substances. Policies in Nigeria and Tanzania, also criminalises the possession and usage of psychotropic drugs. In the case of Nigeria, the NDLEA focuses on supply control and demand reduction through seizures, arrest and prosecution. Sometimes operations are conducted in already overcrowded prisons in an attempt to control the availability of drugs (Ongunrombi 2012). In Tanzania, the possession of needles is illegal across some of the jurisdiction (Bowring et al. 2011).

3.1.1.2 Social Condition

Social conditions ranges from issues of poverty, unemployment, health issues and unemployment as well as mental health issues. Certain health conditions prompt people to turn to the use of drugs (WHO, 1996). In Ghana and Africa, unemployment has been a major headache to governments. It is of the view that the youth unemployment in Ghana is as a result of the fact that there have been a threefold increase in the youthful population over the last forty years, and also the failure of the economy to generate sufficient employment outlets (Amankrah 2006). It is clear that, significant number of patients in the hospitals suffer drug related issues due to unemployment. Those employed may be as a result of the nature of the work environment or work related problems.

3.1.1.3 Economic System

In many parts of Ghana, there are under developed communities that even lack basic amenities and these tend to be crime prone areas with much crimes emanating from the use of illicit drugs by smoking, sniffing and injection (PO). These are often termed as

"Ghettos". Even though the culture and history of Ghana is not associated with drug use and trade, economic conditions and some form of societal pressures have encouraged many people to turn into substance abuse such as alcohol and illicit drugs (PO).

For instance, the government of Ghana through the department of social welfare implemented the Livelihood Endowment Against Poverty programmes to enable families meet the basic necessities of life (Government of Ghana [GoG] 2008). As at the year 2013, over 71,000 beneficiaries from the 10 regions of Ghana all benefitted from the programme. A similar initiative is the establishment of the National Youth Employment Programme, later rebranded into the Youth Employment Agency (YEA). It was formed under the Youth Employment Act, Act 887 (2015) to empower young people to contribute meaningfully to socio-economic development (YEA Act, 2015). The recent spate of armed robbery and pick pocketing is blamed on unemployment by the youth, likewise in Nigeria; armed robbery is also attributed to variables such as injustice and poverty (Umar 2015). Poor economic condition is a contributor to the reasons why people use psychotropic substances drugs in Ghana.

3.1.1.4 Culture and History

The culture and history of the country can be linked to the usage of drugs. In some cultures, the use of psychotropic drugs and commercial sex work are not accepted. Some authors are of the view that no culture is free from drug abuse and the use of narcotic drugs (Britt 2004). Ghana's population is predominantly Christian (71.2%) (CIA, 2012). Youth or adolescents who attend religious services weekly are less likely to use marijuana than those who do not (Wallace et al. 2004). It is further confirmed that, religiosity reduces the odds of a lifetime risk of a person to use drugs by 31% (Allen 2009). For the case of Ghana, since a significant proportion of the population are Christian, drug use would be expected to be low. That is not the case, as drug use is ascending, including injecting drug use (PO). Marijuana is however the most common used substance among the youth. For instance, the stigma attached to HIV Counselling and Testing is enough to prevent PWIDs from seeking HCT services. This is similar across some other countries in the African region, such as Nigeria and Kenya. There are some similarities between the cultures of these countries and that of Ghana. In Kenya, 75% of respondents living with HIV had experienced some form of discrimination, such as social rejection and segregation (Odindo & Mwanthi 2008).

3.1.2 Exosystem

3.1.2.1 Extended Family

The Ghanaian family is noted for love and affection, protection of the passage of traditional value from the older generation to the younger generation. Studies have shown that parental smoking doubles the risk being a smoker 20 years later (Wen Van Duker & Olson 2009). Some drug users learnt the use of drugs from the family, where either of the parent or sibling is observed using it. It is of the view that until civilisation brought in education, agriculture and money economy, families in Ghana and Africa depended solely on the extended family system for survival and protection (Kwatei 2009). In modern Ghana and Africa, the nuclear family is now the most common type of family hence the gradual loss of peculiar societal norms and values. It is common in Ghana to see children who are not able to speak their own local language, manifestation of the fact that a significant component of socialisation has been missed (PO). This leads to the infiltration of foreign cultures and cultures such as the use of psychotropic drugs.

3.1.2.2 Neighbourhood

Neighbourhood do not in themselves produce and sell drugs to people who reside in them, rather it is the constituent variables such as the schools, the kind of people and their behaviour within the neighbourhoods, the level of education of the people and the kind and nature of religion within the vicinity. It is not sufficient to look at ethnic

differences in drug prevalence without adjusting for Neighbourhood effects (Douglas George & Ralph 2007). It is of the view that, in Ghana crack-cocaine and other high-octane drugs are taking over our schools and cities (Adu-Gyamfi 2007). In Ghana certain suburbs such as Tudu, Nima, Mamobi, Pig farm and Accra central are noted to be places that most drug users reside and operate their drug business. Several attempts by the police to raid and eject them have proved futile. On March 9, 2017, it was reported that the Ghana Police Service in a raid in Achimota, a famous suburb in the capital Accra, 43 suspected drug peddlers were arrested on suspicion of engaging in armed robbery and other criminal activities. This was after a raid in the "ghettoes" in the area (GNA 2016).

3.1.2.3 Mass Media

The mass media in Ghana is a key component and agent of socialisation. It has become a major tool for contributing to the development in Ghana and the globe. The mass media consist of radio, television, newspaper, Internet among others and these serve as major channels for portraying information and channelling communication (Griffiths 2009). It is indicated that knowledge about how the mass media work have the ability to influence the promotion of potentially risky behaviour, as in the form of advertising and the promotion of health education also in the form of promoting abstinence or moderation of risky behaviours (Griffiths 2009). For instance, movies portraying heroin addiction (eg. "Trainspotting") and those portraying the use of marijuana (eg.'Sunshine') are shown on television stations. It is also confirmed that the more adolescents are exposed to movies with smoking the more likely they are to start smoking (Dalton et al. 2003). A study on movies after the year 1983 showed that 8%of the movies were scenes of the use of cannabis and other non-injected drugs with 7% (Gunasekera Chapman & Campbell 2005).

In Ghana, it is common to view programmes and African movies as well as music lyrics containing nudity and scenes of drug use. The Ghana Media commission is very vigilant on the kind of programmes shown by the media.

3.1.2.4 Parent

Children found in parent work environment where there is the use of illicit drugs are found to use those drugs. Children turn to emulate scenes in movies, video games and plays. The parenting style adopted by parents in taking care of their wards have a higher probability of pushing children or adolescents to engage in the use of psychotropic drugs. It is indicated that there is low level of satisfaction with parental support and this has been shown to be a stronger predictor of substance use (Piko 2000). In the case of substance, it is confirmed that the youth may indulge in the use of drugs as a result of poor child-parent communication and poor parents support (Ahlström, 2002). In Ghana, parents are so supportive of their wards and make frantic effort to provide effective socialisation for their wards. Parents, teachers as well as elders turn to serve as counsellors. Unfortunately, busy work schedule reduces the communication, support and quality of time parents have for their children. It is indicated that parent may expose their children to drug dealers, other users, and hence unsafe and dangerous situations where they may turn to adopt the style of use (Lutya 2010). In a similar view, it is stated that parenting behaviours and practices have been consistently implicated as important in adolescent drug use (Broman Reckase & Freedman-Doan 2006).

3.1.2.5 Work and Work environment

The work and the work environment also influence the use of drugs and the output of unwanted behaviours. This tends to be associated with certain types of professions. These professions are mainly with the security sector and more stressing jobs such as the police, military, rig workers, factory workers, nurses and supermarket workers by virtue of their nature are associated with drug use (Farid, Lucas & Williams 1994). Also, hazardous working conditions, which are an indicator of quality work, may also be a

predictor of illicit drugs use influenced by the work (Frone 2008). Peers may influence other colleague workers to engage in illicit drug use. For instance, it is indicated that occupations such as seamen, rig workers, factory workers, military personnel, navy personnel, nurses, supermarket workers and broader occupational groupings such as blue-collar workers and white-collar workers are usually associated with alcohol use and substance abuse (Macdonald et al. 1999).

In a more confirmatory study, it is indicated that between the workplace and drug problems, the military and police, medical professionals, business professionals and truck drivers are more common (Macdonald et al. 1999). It is indicated that construction labourers, carpenters, waiters and waitresses, transportation workers, and those in moving occupations are more likely to have drug abuse disorders (Crum et al. 1995). There are informal pressure professions that usually require the use of a lot of energy. These include workers in the electronic waste industry and the scrap yard industry. These people use much energy and sometimes use alcohol and psychotropic drugs to gain much energy to work.

3.1.3 Mesosystem

A study done by Dillion (2011) established that, drug usage and its subsequent addiction could partly be attributed to the exposure to and behaviour of one's family and friends. Drug users sometimes suffer from family rejections and receive little or no support thereby exposing their vulnerability to HIV/AIDS (Gu et al. 2010, Kermode et al. 2012). Peer groups are highly influential in Ghana, right from the senior high level to tertiary institutions. The individual personality consisting of the identity, ego and super ego play an important role in the decision by that individual to engage in the use of drugs by injection. This also depends on the personality development as the person graduates from one stage of development to the other.

3.1.3.1 Family and siblings and School environment

The immediate family, peers and school environment play an influential role in the decision to use a particular drug or the general use of psychotropic drugs. The family consist of the parents and other siblings who relate to each other. Children now spend much time in school than at home hence they tend to be close to sibling and formal school where they meet peers in the school environment. It is of the view that Young people are vulnerable to much behaviour that put their health at risk such as experimenting with smoking cigarettes, taking illegal drugs, and drinking alcohol (Reyna & Farley 2006). It is confirmed that parents serve as role model for their children and impart important health-related knowledge and appropriate behaviour, as gatekeepers to both opportunities and barriers, and as the major source of reinforcement of behaviour in most children (Swain Ackerman & Ackerman, 2006). Another key aspect of the family role is that of socialisation and shaping of children to take up and contend with societal demands (Loke & Mak, 2013). Poor family communication as well as bad sibling behaviour may serve as role models for young ones to follow.

Siblings are also a significant part of the family and can also influence drug use. Even though siblings are part of the family system, study shows that there is substantial evidence for resemblance in substance or drug use among siblings (Duncan Duncan & Hops 2006). Adolescent substance use is linked to a cluster of behavioural problems such as school failure, sibling victimisation and bad peer group that co-occur and perhaps even greater than children and their parents (Dishion et al. 2004). A study however confirmed that both sibling conflict and warmth were correlated with sibling delinquency, and both peer and sibling delinquency independently contributed to levels of substance use (alcohol and drug use) (East & Khoo, 2005). In connecting the correlation between younger siblings and older siblings, it is found out that sibling relationship is an important process in the development of delinquent behaviour (Snyder et al. 2005). In this regard older siblings are regarded as role models (Whiteman & Christiansen 2008).

3.1.3.2 Peers and Individual

The world is global village influenced by a whole lot variable. Making friends is inevitable but where the friendship is created and the type of friends created matters. In Ghana, friends can be created in the church, neighbourhood, in schools and at social gatherings. Peer influence is a powerful tool for encouraging and putting an end to behaviours among adolescents especially among senior high school students and tertiary students. A survey of illicit drug use in Ghana in 2015 shows that men who used drugs were initially introduced to them by friends while most women were introduced to by a boyfriend (Messersmith et al. 2015). These friendships mostly start when they meet in the boarding houses in high school (PO). Furthermore, it is common to find some senior high schools in Ghana tagged with all sought of nicknames due to the fact that they are perceived to have students who are hyperactive due to the use of marijuana.

It is of the view that Social networks, both families and friends, play a key role in the development of adolescent alcohol and drug problems, access to treatment, and results of their treatment (Kosterman et al. 2000; Lindsey et al. 2010). In this instance, they may refuse taking up voluntary counselling and testing for HIV to know their status or decide to follow their peers in unwanted and unhealthy behaviours. In a survey, it was found that peers' associations with drug-using peers, tend to have much greater impact than associations with parents who used or had pro-drug using attitudes (Weisner 1999). The individual being influenced by the power of peers is also dependent on a host of personality traits. Per learning theories, behaviour can be learned and unlearned. In this vein, the power of an individual identity, ego and super ego play a role in the final decision to engage in a particular behaviour influenced by peers.

3.2 Factors influencing HIV transmission among PWIDs in Ghana and other countries in sub-Sahara Africa.

In its 2005 report, the UNODC acknowledged that the rate of spread of the HIV epidemic attributed to IDUs is higher than transmission caused through sexual contact. This could be due to several hosts of risky factors attributable to the IDU community. These factors differ from country to country. In Ghana, the scarcity of research in the area of PWIDs and HIV transmission make it difficult to comprehensively discuss the various variables that influence the transmission of HIV among PWIDs. Nonetheless an attempt is made to use the conceptual framework to discuss some key variables that lead to HIV transmission among IDUs peculiar to Ghana. This is then compared to the key African countries with Harm Reduction Interventions.

3.2.1 Re-use of Needles

A key point in the transmission of HIV among PWIDs in Ghana is the use of the equipment (Syringe) in the injection of the drug. This refers to the mode of use of the drug. Syringe sharing among PWIDs is largely influenced by the number of PWIDs involved and their networks (Latkin et al. 1996) and with larger PWID networks being the most vulnerable to HIV transmission (Friedman et al. 1997). Transmission of HIV is done when an infected person uses the syringe to inject drug and another person also uses it. This is as a result of the inability of each drug user to afford to buy the syringe or the person feeling shy to purchase the syringe or sometimes in a bid to avoid the police. A number of studies on Risky attitudes of PWIDs has been done in some African states which includes Tanzania (Timpson et al., 2006) and Mauritius (Abdool et al. 2006) but much cannot be said about the PWIDs in Ghana where a study by Messersmith et al. (2015) in Kumasi, found that half of the men (10/20) and 6 women (6/10) in the study said that they shared needles and syringes with other PWID. Respondents were also of the view that they shared their injecting equipment with their sexual partners. Evidence from a study conducted in Cape Town, South Africa showed that PWIDs still share needles when they clearly know the risk involve due to their desperation for the drug (Pluddermann et al. 2004). This is quiet common among drug users in Ghana.

3.2.2 Sexual behaviours

A study by Sherman (2001) indicated a correlation between drug use and sexual practice among drug users. Sexual behaviours contribute significantly to the transmission of HIV among IDUs. These behaviours emanate from the effect of the drug after a person injects it. These behaviours occur in two fold, which is transactional sex and condom use. It is of the view that there is low condom use among PWIDs specifically with steady partners and among those using crack cocaine (Bogart et al. 2005). It is further supported that female PWIDs are more likely to engage in commercial sex work and this puts them at a risk of the HIV transmission (Bogart et al., 2005). With majority of PWIDs engaging in transactional sex behaviour, it is indicated that most of them have multiple sex partners and have low condom use throughout the African region (Needle et al. 2006). The table 4.1 shows the patterns of sexual behaviour among countries in West Africa.

Table 2: Sex trade and condom use in Africa

Country	Exchange Sex for Money	Sometimes, Occasional, Never Condom Use
Ghana (Adeji et al., 2008)	5.3%	Not given
Kenya (Sullivan, Levine, Charwarski, Schottenfeld, & Fiellin, 2007)	17.4%	87.7% (last encounter)
Mauritius (Abdool, Sulluman, & Dhannoo, 2006)	Not given	80% (ever)
Nigeria (Adelekan & Lawal, 2006)	Not given	80% (past 30 days)
South Africa (Parry & Pithey, 2006; Pluddeman, Parry, Flisher, & Jordaan, 2008)	5.6%	64% (ever)
Tanzania (Timpson et al., 2006; Williams et al., 2007; Williams et al., 2009)	33%–85%	60%–76% (ever)
Zanzibar (Dahoma, et al., 2006)	86%	Not given

Source: Asher and Hahn (2013)

From the table 3, it is deduced that 5.3% of PWIDs in Ghana exchange sex for money, followed by Nigeria 17.4%. Tanzania on the other hand had 33%-85% of PWIDs exchange sex for money while South Africa has just 5.6%. With regards to condom use, Ghana does not have data on the number of PWIDs who use condom. For Nigeria, 80% of PWIDs used condom in the past 30 days, whiles in Kenya, 87.7% used condom in the last encounter. This indicates that there is low condom use among PWIDs in Africa. This could be attributed to the low decision-making among them during sex.

3.2.2.1 Transactional Sex

Transactional sex is often sex gained from commercial sex work. This usually have the intent of making money after the act. Commercial sex workers charge more when they do not use protection and while they do not know the HIV status of their partners. In the case where commercial sex workers come into contact with their PWID sex partners, usually they do not make the final decision regarding whether to use protection or not to use protection. A study done in Japan, USA, Thailand and Belgium indicated a higher frequency of sexual activities among drug users (Udry et al. 1993). Most female drug users tend to keep up with their drug habit through exchange of sex for money or sometimes the drugs and others are compelled by their partners to do it hence increasing their risk for the transmission of HIV (Lam 2008). Messersmith et al. (2015) in their study found that it is not uncommon for women to exchange sex for money and/or drugs or for men to buy sex.

3.2.2.2 Condom Use

The use of condom is a major way for reversing HIV transmission among all categories of people. It has been part of the Ghana Aids Commission policy to reducing the spread of the epidemic. Among PWIDs, it is highly probable that people who inject drugs may not

patronize the use of condoms in having sexual inter course with the opposite sex, thereby risking the spread of HIV. Messersmith et al. (2015) found that women and men in their study reported very low levels of condom use, especially with regular sexual partners in a study on multiple HIV vulnerabilities of men and women who inject drugs in Kumasi.

3.2.3 Awareness

3.2.3.1 Awareness of HIV

Education is one of the pillars of the Ghana AIDs Control programme. This cuts across print and electronic education as well. It is important for PWIDs to have knowledge about the causes and the effects of the disease, how it can be transmitted and managed. When PWIDs have no knowledge of HIV, then they tend to engage in behaviours sufficiently risky to the contracting and transmission of the disease and vice versa. It is indicated that in sub-Saharan Africa, there is high proportion of PWIDs who are HIV positive and who lack knowledge about the risks associated with drug use (Asher and Hahn 2013). In the case of Ghana, evidence suggests that the knowledge of HIV and the ways of its transmission has reached a wider population due to the enormous effort by the various media platforms, teachers and NGOs. For instance, it is found in Kumasi that all study participants involved in a study on knowledge, risk perception and testing for HIV, it is found that all the participants have heard of HIV and many know that it can be transmitted via sex without condom and the use of infected injecting equipment (Messersmith et al. 2015).

3.2.3.2 Awareness of risk in mode of use

Also knowledge of the risk associated with the mode of the drug usage also plays a role in HIV transmission among PWIDs. For instance, knowledge of sterilisation would make the needle or syringe being safe for re-use. Also knowledge in the risk associated with the needle sharing would encourage PWIDs to purchase and use new syringes.

3.2.4 The case of Sub Sahara Africa

About 60% of the world HIV-infected population are from Sub-Sahara Africa (UNAIDS, 2005). Literature available indicates that, the HIV epidemic in Sub-Saharan Africa is largely attributed to heterosexual transmission but with the increasing trends of drug usage in most Sub-Saharan countries, the PWIDs are becoming an important avenue for HIV transmission (Needle et al. 2000). From the literature, there is not much distinction between the factors that influence HIV transmission among PWIDs in Ghana and the rest of the African continent particularly sub-Sahara Africa. These are usually countries such as Nigeria, Kenya, Senegal, Tanzania and South Africa which has one form of harm reduction intervention implemented and also have data on PWID and it correlation to HIV transmission. The overriding variable, that influences HIV transmission among PWIDs is knowledge over several intervening variables as evidenced in the conceptual framework. For instance, Dahoma et al. (2006) found out that less than 50% of subjects in Zanzibar could relate any negative health consequences to drug use. Also in Nigeria, about 25% of PWIDs reported an understanding of the HIV risks related to drug use (Adelekan & Lawal 2006). In addition to lack of knowledge regarding risks associated with injecting drug use, the fear of getting tested and the fear of receiving a diagnosis of HIV impacted rates of testing (Hendriksen et al. 2009).

One key variable is the fact that most PWIDs do not understand the correlation between drug use and HIV and also do not have knowledge of the risk of some injection practises in the sub region (Asher & Hahn 2013). In this regard they engage in al sought of risky behaviours such as the sharing of needles and syringes. PWIDs are also associated with risky sexual behaviours, low rates of condom use and transactional sex practices (Reid 2009). Lack of testing for HIV status is another variable that influences the HIV transmission among PWIDs. This is however due to lack of knowledge on the benefits of testing and the fact that mass campaigns on HIV prevention and transmission have obscured that of injection risk (Asher & Hahn 2013). Another key variable that influence

HIV among PWIDs is the stigma in testing for status (Hendriksen et al. 2009). In many parts of Africa, HIV is a condition that attracts a lot of stigma from communities and neighbourhoods and even sometimes family and friends. Due to this, many people even receiving Anti Retro Viral therapy tend to hide their identities in the collection of their medications (PO). This stigma in the case of PWIDs prevent them from going for voluntary counselling and testing. This allows for the spread of the disease since PWIDs may engage in risky life styles and unsafe sexual behaviours.

3.3 Harm Reduction Intervention among IDUs in Ghana and any relevant other countries.

3.3.1 Rehabilitation in the Mental Hospital

Ghana has 3 major mental health institutions such as the Accra Psychiatric Hospital, the Pantang Mental hospital and the Ankaful government hospital. Literature indicates that these mental health institutions continue to receive drug related patients. In 2008, statistics from the 3 psychiatric hospitals namely Accra psychiatric hospitals, Pantang hospital and Ankaful hospital recorded a total of 1,792 drug related patients including 95 females. When compared to 1,475 drug related patients consisting of 68 females who were treated in the year 2007, it can be deduced that there have been increase in the record of drug related patients. This calls for harm reduction interventions. From the data, there were 1,056 patients admitted for Cannabis abuse, 9 for cocaine and 1 for heroin (NACOB 2008). Going forward for year 2010, drug related cases reported in the four governmental hospitals were 2216 compared to 1945 in the year 2009 (NACOB 2010). Mental hospitals in Ghana have faced several difficulties. This ranges from poor working conditions for psychiatric nurses, doctors, feeding of in mates in the hospitals and the general paramedics as well as general supplies including medicines (Lim Sanderson & Andrews 2000).

3.3.2 Opioid Substitution Therapy (OST) and Needle-Syringe Exchange Program (NSEP)

In Ghana, OST is not available. However, it is shown that some countries in sub Saharan Africa have implemented the NSEP and OST. Oral opiates are given to PWIDs to reduce the use of injecting drugs and minimise risky injection practices (Wilson et al. 2015). Even though global coverage for OST is slow, the programme is in over 80 countries (Mather et al. 2010). Buprenorphine and Methadone as part of the 2005 essential medicine list of the WHO are the recommended pharmacological drugs for PWIDs who are enrolled on OST programme (Farr et al. 2012). OST is believed to improve quality of life and even encourages adherence to ART for PWIDs who test positive for HIV (Gowing et al. 2011). In Africa, Tanzania started the OST program in the year 2010 adding up to Mauritius which already has one running (Mathers et al., 2010) and by September 2011, about 175 PWIDs had benefitted (Bowring et al, 2011). Inadequate government support limits the service availability of OST in most African countries. South Africa relaxed its legal restrictions for OST but they are mostly available in private health facilities (Weich et al. 2008). A study by Massersmith et al. (2014) in Kumasi with 52 participants had most PWIDs opting for OST as means to minimise withdrawal symptoms.

The table 3 below shows drug harm reduction, PWID rates and HIV rates in selected countries in Africa.

Table 3: IDUs, HIV, NSP and OST in Africa

Country/territory with reported injecting drug use[a]	People who inject drugs[b]	HIV prevalence among people who inject drugs (%)[b]	Hepatitis C (anti-HCV) prevalence among people who inject drugs (%)[f]	Hepatitis B (anti-HBsAg) prevalence among people who inject drugs (%)[f]	Harm reduction response[e]	
					NSP[d]	OST[e]
Côte D'Ivoire	nk	nk	nk	nk	✖	✖
Djibouti	nk	nk	nk	nk	✖	✖
Gabon	nk	nk	nk	nk	✖	✖
Ghana	nk	nk	40.1	nk	✖	✖
Kenya	49,167[2]	18.3[2]	51.4 (42.2–60.6)	6.4	✖	✔ (M,O)[f]
Malawi	nk	nk	nk	nk	✖ (P)	✖
Mauritius	9,253 (5,699-10,444)[3]	47.4[3]	97.3[3]	9	✔ (52) (P)	✔ (16)(M,O)
Nigeria	nk	4.2[4]	nk	nk	✖	✔
Senegal	nk	9.2[4]	nk	nk	✖	✔ (B,O)
Seychelles	1,671 (673–1,706)[4]	5.8[3]	53.5	0.1	✖	✖
Sierra Leone	nk	nk	nk	nk	nk	✖
South Africa	67,000[5]	19.4[4]	nk	nk	✔ (1)(P)[5]	✔ (6)(M,B)
Uganda	nk	nk	nk	nk	✖	✖
Tanzania	25,000-50,000[58]	42[58]	22.2	3.8	✔ (1) (P)	✔ (1)
Zambia	nk	nk	nk	nk	✖	✖

Source: UNAIDS (2012)

The table 3 above shows the countries that have implemented the NSEP and OST programmes. These countries include Mauritius, South Africa and Tanzania has implemented both NSEP and OST. Malawi implemented only NSEP while Kenya and Senegal implemented OST. The NSEPs are usually isolated efforts by NGOs and are limited, as they do not reach the vast majority of people**.** In 2010 Médecins du Monde-France (MdM-F) initiated the first NSEP site in Tanzania, in the Temeke district a suburb of Dar es Salaam (Bowring et al. 2011). With regards to OST, Tanzania started its OST in 2010 but it became fully operational in 2011. Even though the programme was in singe facility, it was able to reach 175 PWIDs the year 2011 (Bowring et al. 2011). There are also limited OST services in Senegal and South Africa but limited government support (Weich et al. 2008). In Kenya, despite the fact that OST could prevent 14% of HIV infections projected between 2010 -2015, methadone for detoxification is available in one clinic on very limited basis (Strathdee et al. 2010). And as shown in the table 3 above, Ghana has neither NSEP nor OST for PWIDs.

3.3.3 HIV care and ART for PWID

With the onset of the spread of HIV, governments have made frantic efforts to contain the spread of the disease and to provide care and support for those who are already infected. The care comes as a result of efforts to remove stigma and discrimination among people living with HIV/AIDs and accord them the necessary assistance. ARTs are also another way of proving support to people living with HIV. In Africa, an estimated 5,064,000 people were receiving antiretroviral therapy (ART) as at 2010 (WHO 2011). The cost of providing the therapy has been a burden to government budgets. In Ghana, ART is supported and subsidized by the government. This is to widen the accessibility of the medications. The GoG is also providing tax incentives to local pharmaceutical companies in Ghana to engage in the manufacture of ARTs to help reduce the burden of cost.

This practice involves given to the HIV-positive injecting drug users (IDU) antiretroviral and other related services in order to reduce viral load and minimises the chances of HIV transmission among the IDUs (Wilson et al., 2015). The WHO reported that in 2010,9 out of 35 sub-Saharan African countries reported having HIV related dedicated services for PWIDs (WHO 2011). Scarcity of data still contribute to the inability to tell how many PWIDs accesses ART in Africa but evidence shows that Mauritius has a much better response to HIV among PWIDs in the whole continent (Stoicescu et al. 2012). As at the year 2008, the United Nation reported that 38 and 138 PWIDs were on ART in Kenya and Mauritius respectively (mathers et al. 2010). Evidence from a study in Bangkok, shows that, ART given to PWIDs in the form of pre-exposure prophylaxis (PrEP), decreased HIV transmission by 48.9% among PWIDs (Choopanya et al. 2013).

3.3.4 Voluntary HIV Counseling and Testing (VCT)

VCT is the current strategy of ensuring that people get to know their status and is coupled with stigma. It is indicated that, stigma is a complex process that negatively label people who are "different," and this usually lead to devaluation and discrimination. This has widely resulted in the reluctance to get tested for HIV (Hendriksen et al. 2009). Furthermore, Lack of knowledge about HIV transmission, belief that an HIV diagnosis meant immediate death, and the fear of results not being confidential contribute to low rates of HIV testing (Meiberg et al. 2008). Also the fears of the impact an HIV diagnosis might have on family and community also contribute to the reluctance in testing for HIV (Hendriksen et al. 2009). There is a great deal of stigma related to being an IDU and the phobia of including the burden of HIV stigma could also be a restrictive factor for PWIDs to seek HIV testing (Parry et al. 2010). Statistically, it is of the view that males account for 66%–93% of all PWIDs in sub-Saharan Africa while the vast majority of PWIDs in the region are not receiving education about risks or knowing more about their status (Aceijas et al. 2006). It is however necessary that, interventions take into consideration the needs of PWIDs and should not be discriminatory in nature.

3.3.6 Needle-Syringe Exchange Program (NSEP)

This is a harm reduction strategy, which is carried out by distributing sterile needle/syringes and other injecting paraphernalia to people who inject drugs. Evidence from data available confirms the presence of injecting drug use in prisons across Ghana, Côte D'Ivoire, Kenya and Mauritius (Kenya et al. 2011) though no traces of any OST or NSP program being implemented in any of the prisons (Stoicescu 2012). A Needle-Syringe Exchange Program in Tanzania, which was started by Médecins du Monde-France (MdM-F) in 2010, had by September 2011 distributed 32,700 needle and syringes to over 1307 PWIDs (Bowring et al. 2011). With this recorded successes, some jurisdictions within Tanzania continue to criminalize the possession of needles. Respondents from a study in Kenya communicated of being harassed by the police or sometimes their injecting paraphernalia seized (NASCOP 2012). A study on PWIDs in Kumasi showed that, whiles some PWIDs who were at the point of quitting the habit of drug use believe NSP will be beneficial, others were of the view that it will rather encourage a continues use (Massersmith et al. 2015). Other evidences from previous studies showed that, we could reduce unsafe injections among PWIDs and also eliminate infected injecting paraphernalia by maximizing and circulating the quantity of sterile injecting paraphernalia to the IDUs (Wilson et al. 2015).

CHAPTER FOUR

4.0 DISCUSSION

This chapter deals with the discussion of the findings presented in chapter three. This is in response to the objectives and the conceptual framework adapted and modified from the ecological perspectives and Single model of drug policy and control.

The association between HIV and drug use has not been sufficiently indicated by studies especially in Ghana. Not much research has been conducted in the area of drug usage and HIV transmission especially in sub-Sahara Africa. The factors that influence the use of drugs and the transmission of HIV in Ghana are similar to other countries in the West African sub region. This consists of laws, social conditions, economic systems, culture and history. In Ghana, drug use and possession, particularly psychotropic drugs, are legally criminalized. NACOB is the institution mandated to arrest and prosecute individuals in a bid to control the demand and supply of drugs. It is believed that the recent decision to make narcotics offences bailable under the Ghanaian law will not help the fight against the illicit trade. It is therefore necessary to ensure an effective drug prosecution law with punitive measures against the drug traffickers.

It is common to find deplorable social conditions across cities in Ghana, often known as slums. The economic structure of a country also contributes to the drug menace. As such governments in developing countries such as Ghana are making frantic effort on improving the economic development of the country and ensure that people's standard of living is uplifted. Several poverty and livelihood initiatives and interventions have been implemented in a bid to reduce poverty. Besides all the government initiatives, there is the growing rate of graduate unemployment in the country. There is a cause to believe whether the population is growing faster as compared to resources or people are graduating from school at early ages.

The laws, policies, neighbourhood, mass media and peer influence are great significant variables that influence the use of drugs. These are influenced by other auxiliary variables such as family, work environment and history. For instance, in countries where the use of marijuana has been legalized, it is the ordinary people who smoke the drug on the streets. In Ghana the use and possession of marijuana is prohibited. In the case of marijuana, it has rather become a substance mostly patronized by the youth especially in the senior high schools. Among countries in sub Saharan Africa, it is difficult to detach the influence of these variables from influencing host drug related behaviours. Apart from the slum development that leads to the use of drugs, the extended family system also contributes to the use of drugs. The neighbourhood in which one leaves or the vicinity plays a great deal of role in personality development. The socio-economic status of the neighbourhood, the type of education, the type and personality profile of friends, the nature of the work of parents all play role in the habits and attitudes that adolescent or young people portray in society. The neighbourhood in this regard cannot be viewed as an independent entity but inter connected in a host of variables.

The mass media has also been a significant influence in the manifestation of unwanted behaviours that are likely to be detrimental to public health. What is shown on television and said on radio can contribute to the use of drugs. The kind of movies shown on television and the level of language employed by actors and actresses further contribute to social vices. This is usually done via social modelling, where children and adolescent model their role models. In some instances, the advertisement of such drugs enables the youth to turn to adopt their use. This has enabled television owners to display the required age for any movie and programmes shown and caution viewer's discretion on

them. Parents also contribute to that effect by enabling child lock televisions where they lock certain channels to prevent children from viewing them. In Ghana for instance, some items such as the importation of pornographic materials such magazines are restricted as per the customs Act 891 (2009). Also under the act the importation of illicit drugs is prohibited.

The behaviour of parent as well as the parental work environment cannot be ignored in the case of variables that influence drug use. This also follows the modelling framework where children inherit the attitude and behavioural likes of their parents. Where children and adolescent see parent inject drugs often times, they may also be tempted to try in the absence of the parent or caretaker. This parental behaviour and attitudes usually come for the parental style of the parent. The parenting life styles have different implications for adolescent development. Where a parent is much authoritative, it may imply that parents may want more protection for the child hence place restrictions on the child's movement. The little time the child or adolescents get, he or she may want to experience all the freedom hence engage in behaviours by peers. In the case of freedom for adolescent by the parents, it will enhance their development but may lead them to bad attitudes from peers. It is however important for parents to adopt the appropriate parenting style and this can be influenced by the level of education of the parents as well the neighbourhood in which they find themselves. With the support of pastors, teachers and peer educators as well as fun clubs, parent are able to properly socialise their children.

The work environment of an individual plays a role in the development of one self in the case of drug use. Research has established the correlation between one's work environment and alcohol and substance abuse. This is however dependent on the kind of occupation. It however means that work environment and alcohol use is dependent on the kind of occupation. The case of families in Africa in terms of it influence, have already been established by literature. Where families fail in their quest to properly socialise children, it may lead to them engaging in behaviours such as the illicit use of drugs. In Ghana, it is not uncommon to see parent engage their wards in all manner of economic activities in unacceptable conditions in a bid to support parents and they end up joining bad peers and engage in unearned behaviours. Siblings on the other hand play a key role in the behavioural outcomes and the personality development of other siblings. The key point is to ensure that elder siblings are of good behaviour and serve as positive role models in the communities. Education will play a key role in ensuring that siblings serve as good role models for other siblings.

The role of peers or social networks in encouraging friends to engage in behaviour cannot be under estimated. They are usually sometimes influential than even parents. Peers usually turn to share information and secrets with each other. They turn to copy each other in terms of behaviours, hence an adolescent who join peers into drug use by injection may emulate that kind behaviour. In Ghana peers turn to grow together over a long period of time and in some cases peers are usually childhood friends or schoolmates. Some also meet themselves when they join new neighbourhoods. It is however necessary to provide education to people to be aware of bad influence from peers. The connection between the family and the family environment cannot be eliminated when it comes to behavioural modelling by adolescence or children, likewise the school environment. In Ghana and in some parts of West Africa, school dropouts end up into the use of alcohol and illicit drugs. Others end up joining bad company or peers and end up in the "ghettoes". These people end up being arrested by the police and end up into jails with no better future. Others engage in risky behaviour thereby spreading the HIV virus as a result of the influence of drugs unintentionally as they do not know their status. In this regard the teachers as well as the kind of teaching practice, disciplinary policies and nature of the school environment all contribute to the development of the school children. In Ghana, where school are located in slums, student tends to pick up attitudes from their vicinities and may end up to drug use in the case

where there are drugs addicts closer. The Ghana Education Service for instance have a role to play in ensuring that schools are cited at appropriate venue.

Evidence suggests that there is still low level of information and awareness concerning the use of drugs. This presupposes that PWIDs have an idea that sharing of injection syringes risk them contracting HIV. Tackling this aspect require implementing interventions that will put an end to drug use. In terms of Africa, particularly West African countries, there is average level of knowledge among the general population in terms of HIV, its transmission, drug use and its associated risk. In spite of this, there is still the rising HIV infections and transmission among PWIDs across the sub region. However, a key point is the fact that there is lack of data or regular survey hence it is difficult to ascertain the true picture of the situation. It is however necessary that countries and international governmental organisation engages in research in the area of knowledge of HIV, drug use and risk involved in the mode of drug use to enable appropriate interventions.

The study found harm reduction interventions in Ghana to include rehabilitation in the mental hospitals, educational campaigns, VCTs and ART for PWID who are infected. Mental hospitals play a key role in the industry of harm reduction since they treat several mental cases involving drug use. In Ghana, there are a number of mental hospitals and they usually aim at rehabilitation of mentally ill patients. Provision of mental health services is the major form of harm reduction in Ghana. The Ghana Mental Health Bill is currently (2017) in parliament seeking parliamentary approval. It is the hope that when the bill is passed, it will provide relief for the smooth running of the mental health institutions as well as ensuring that the rights and privileges of the mentally ill are respected.
The most effective way of knowing the status and trend of HIV in a country is to encourage Voluntary Counselling and Testing (VCT). This programme will only be more effective through vigorous awareness and educational campaigns on the need to know one's status. Unfortunately, there are many barriers to VCT in Ghana and in the West African sub region. One key barrier is the stigma attached to HIV and the perceptions towards people who partake in the VCT.

The conceptual framework adopted puts the study into perspectives as it revealed that the variables that influence drug use in Ghana is multi-faceted and are interrelated. For instance, neighborhood could be influenced by social conditions whiles parenting could be influenced by poor economic conditions.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter comprise of the summary of findings, conclusions and recommendations. The recommendations are in line with the findings of the study and are underpinned by the conceptual framework.

5.1 Conclusions and Recommendations

Conclusion

From the findings and discussions, there is a growing trend of drug use among the youth and adolescents in Ghana and across the sub-Saharan African regions and this is associated with relatively high HIV transmission and infection. Much effort is being made by governments to combat the spread of the disease and use of drugs among the youth. This growing trend is as a result of several factors spanning across poor economic conditions, school dropout, weak parenting as well as peer influence. There is also general lack of data on PWIDs and its associated HIV infection rate in Ghana and across several countries in Africa and this does not present a clear picture of the situation at hand. It is observed that, it's not a priority of most governments in Africa to fund research projects that focuses on trends on drugs usage across the populations and some times too the antinarcotic agencies such as NACOB in Ghana and NDLEA in Nigeria, are under funded.

Harm Reduction interventions are also non-existent in Ghana with the exception of mental health hospitals with VCTs and ART services. There are a number of harm, reduction interventions such as the NSEPs and OST in selected African countries such as Nigeria, South Africa, Tanzania and Kenya as well as Senegal but these are often limited due to inadequate funding and some have also remained on pilot basis for too long. Furthermore, laws and policies in Africa particularly sub-Saharan Africa tend to criminalize the use of drugs leading to the incarceration of many people thereby overcrowding the prisons. Finally, variables influencing the use of drugs in Africa and Ghana are, multifaceted, multi-dimensional and interrelated.

Recommendations

From the results and discussions from the study and in a bid to implement a form of drug related harm reduction intervention in Ghana, the study recommends that,

To the Government and the Ghana Education Service,

- Parliament should amend the current Narcotic Control Bill to bestow more power and authority to NACOB to enable the board provide the necessary surveillance, arrest and prosecute drug related cases effectively in order to curtail the influx of the drugs in to the country.

- Parliament should further pass the Mental Health bill to pave the way for the effective and smooth operations of the mental health institutions, which currently provide rehabilitative services to drug users in Ghana.

- In the long term, the government with other stakeholders should conduct an environmental assessment for the implementation of OST in Ghana. This should also be coupled with providing an effective tax regime for the importers of the medications (Buprenorphine and Methadone) under the therapy for the purpose of affordability.

To the Ministry of Health and Department of Social Welfare,

- The Ministry of Health in collaboration with the Department of Social Welfare (DSW) and NACOB should implement the Needle and Syringe Exchange programme. This should aim at proving free sterilized needles and syringes to all PWIDs to prevent the re-use and sharing of needles.

- There is the need for the Ministry of Health to enhance and expand the ART programmes currently on going in Ghana. It is important that government grant pharmaceutical companies tax incentives to import ARTs and syringes so that it will be easily accessible for use by the PWID.

- The mass media which comprises of print and electronic media should be encourage to air commercials that will continuously educate the public about the dangers of the use of drugs as well as its associated risk. This will, be in the form of impacting knowledge to the public to inform decisions on drug use and sexuality.

To the researchers and the Ghana education service,

- Government and the academia with the support of benevolent organizations should engage in research in the area of drug use and HIV. This should be both quantitative to ascertain the numbers involved and qualitative to understand the dearth of the situation, this will enable tailored interventions in reversing the drug use menace.

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