

**ABUSE OF PSYCHOTROPIC SUBSTANCES -A SURVEY OF SOME
FIRST AND SECOND CYCLE INSTITUTIONS IN THE BOSOMTWI AND
ATWIMA-KWANWOMA DISTRICTS IN ASHANTI REGION OF GHANA**

KNUST

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THEORETICAL AND APPLIED BIOLOGY OF THE KWAME
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PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE MASTER
OF SCIENCE (MSc.) ENVIRONMENTAL SCIENCE DEGREE**

BY

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APRIL, 2010.

DECLARATION

I, **JAMES KWESI ASSABIL**, wish to solemnly declare that this thesis has been the result of my own work, submitted for the research requirement of an Msc. Environmental Science Degree in the Kwame Nkrumah University of Science and Technology, Kumasi and no previous submission for a degree has been done here or elsewhere. Also, works by others which served as sources of information have been duly acknowledged by reference to their authors.

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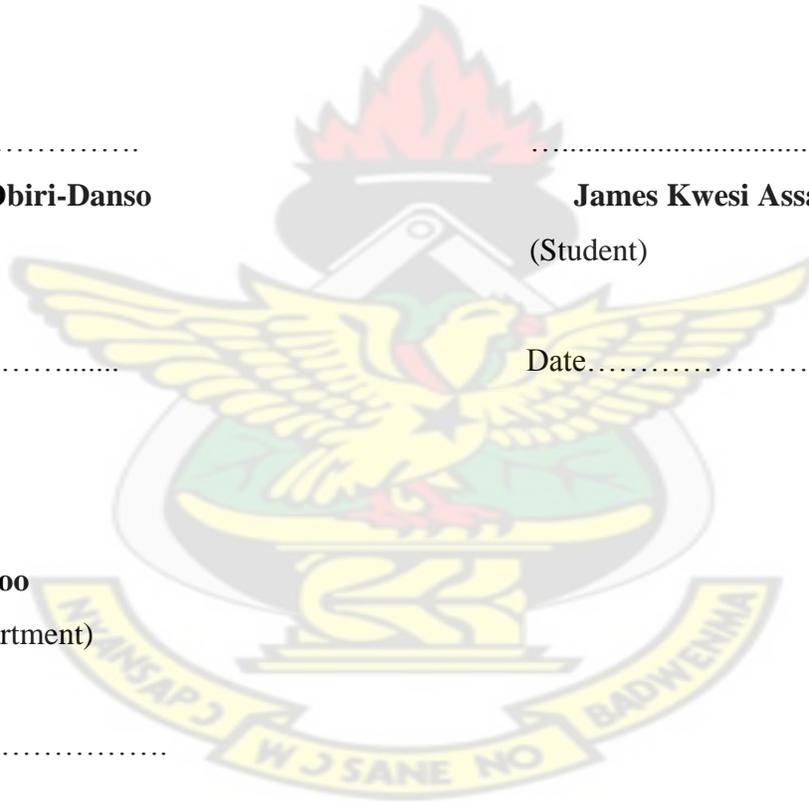
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DEDICATION

I wish to dedicate this work to my late dad (Very Rev. James K. Assabil), mum (Mrs. Sarah Assabil), my wife Mrs. Gloria Mansa Assabil and my Children (Michael Assabil and Patience Assabil for their moral and spiritual support.



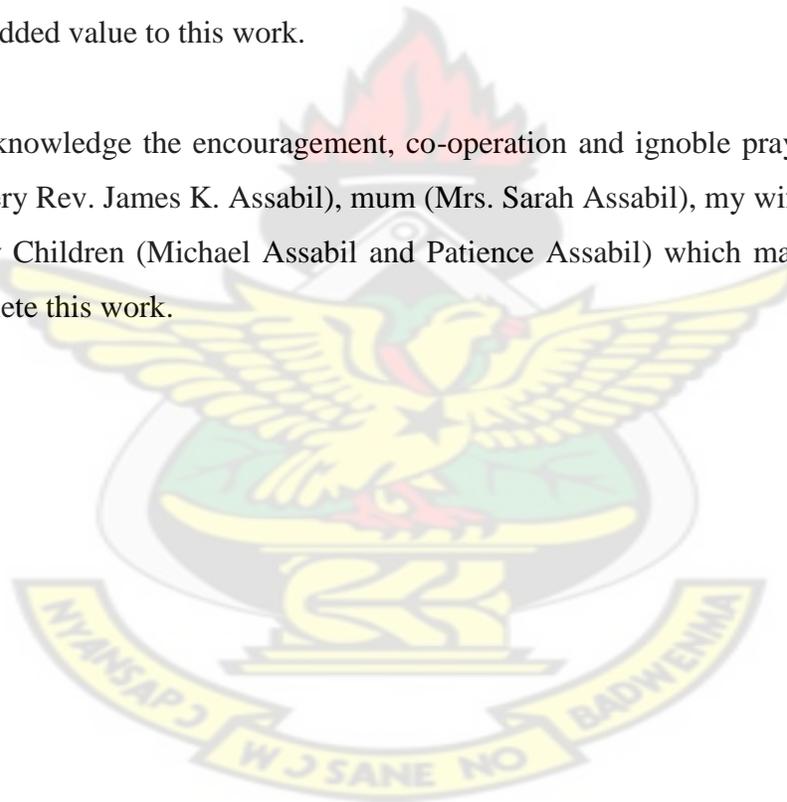
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ABSTRACT

A random survey using semi-structured questionnaires was conducted in 13 selected first and second cycle schools in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region to ascertain the effects of increased abuse of psychotropic substances on the academic performances of 600 students interviewed at random. The psychotropic drugs identified to be abused by the students include: amphetamines; coffee; cigarette; cocaine; marijuana; alcohol and heroine. Majority (94%) of pupils abuse both coffee and alcohol and 31% of pupils abuse marijuana, amphetamine, cocaine and heroine. Although majority (about 56%) of them claim the use of these drugs had improved their academic performances, about 11% of them rather developed truant behavioral problems with abysmal academic performances in the long run. The majority (about 61%) of them also got introduced to the drugs by their families and friends. Ninety six percent of the pupils were exposed to the problem of psychotropic substances abuse at an average age of about 11.5 years. This problem is worst in pupils with single parents or divorcees and also when adolescents are in serious financial problems. Parent remittances were the main source of money for the purchase of drugs. Majority (51%) of the student drug abusers were males although females constitute 45% of the population in these schools. However, the likelihood ratio of abuse amongst male and female students were either asymptotically insignificant ($P < 0.07$) or linearly insignificant ($P < 0.4$). The study generally revealed little improvement in academic performances in schools with increased drug use and the District Education Oversight Committees (DEOCs) as well as Parent Teacher Associations in the two Districts need to seriously get involved in school management programs to assist the implementation of child care monitoring programmes at home and schools in order to find a lasting solution to the rampant drug abuse problem.

CONTENTS

TITLE	PAGE
TITLE PAGE.....	i
DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
ABSTRACT.....	v
TABLE OF CONTENT.....	vi
LIST OF TABLES.....	ix
LIST OF FIGURES.....	xi
LIST OF PLATES.....	xii
LIST OF APPENDICES.....	xiii
LIST OF ACRONYMS AND ABBREVIATIONS.....	xiv
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Background Information.....	1
1.2 Objectives.....	5
CHAPTER TWO.....	6
LITERATURE REVIEW.....	6
2.1.0 Elicit Use of Controlled Substances.....	6
2.2.0 Global Use of Psychoactive Substances of Addiction and Abuse.....	9
2.2.1 Tobacco and Cigarette.....	10
2.2.2 Cigarette smoking among school children in Singapore-Smoking prevalence.....	10
2.2.3 Alcohol.....	11

2.2.4 Amphetamines.....	13
2.2.5 Narcotics.....	14
2.2.6 Barbiturates.....	15
2.2.7 Cocaine.....	15
2.2.8 Hallucinogens.....	17
2.2.9 Marijuana.....	18
2.3.0 Caffeine in Coffee and Kola nuts.....	24
2.3.1 Anabolic Steroid.....	24
2.3.2 Methadone.....	25
2.3.3 Valium.....	25
2.3.4 Heroin.....	26
2.3.5 The Cocaine, Amphetamine/Methamphetamine, Ritalin Connection.....	28
2.3.6 Schedule I.....	28
2.3.7 Schedule II.....	28
2.3.8 Schedule III.....	28
2.3.9 Schedule IV.....	29
2.4.0 Schedule V.....	29
2.4.1 What does the Drug Enforcement Administration (DEA) say about the drug charts?.....	29
2.4.2 Methylphenidate (Ritalin) Chart.....	30
2.4.3 Possible Mild Adverse Effects.....	31
2.4.4 Possible Serious Adverse Effects.....	31
2.4.5 This Drug should not be taken if.....	31
2.4.6 Conditions Requiring Dosing Adjustments.....	31
2.4.7 The Office of National Drug Control Policy.....	31

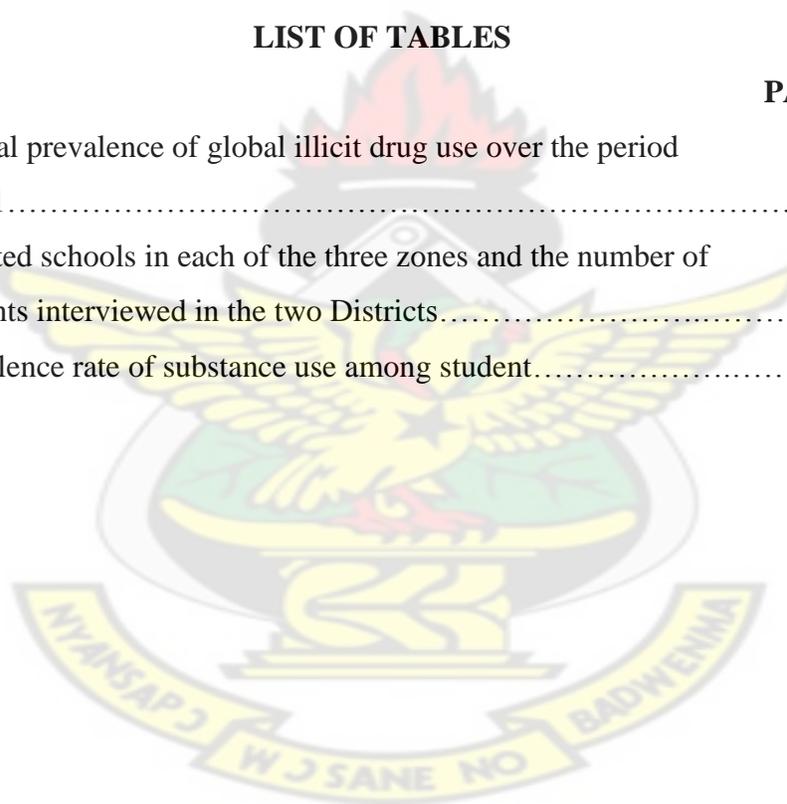
2.4.8 Prevention & Education.....	32
2.4.9 The Potential Future Problems for People Who Have Been Put on Ritalin....	32
CHAPTER THREE.....	34
MATERIALS AND METHODS.....	34
3.1 The Study area.....	34 3.2
Data Collection.....	35
3.3 Sampling Procedure.....	39
3.4 Statistical Analyses.....	40
CHAPTER FOUR.....	41
RESULTS.....	41
4.1 Psychotropic substances identified to be used by students.....	41
4.2 Prevalence rate of substance use.....	42
4.3 Introduction of psychotropic substances to students.....	42
4.4 Effects of substance use on academic performance.....	43
4.5 Awareness level of the uses and effects of various substances.....	44
4.6 Some Predisposing factors influencing access to use of various psychotropic substances.....	45
4.7. Age distribution of substance users against substance use.....	45
4.8. Sex distribution of substance users against the level of substance use.....	46
4.9 The mode of introduction of psychotropic substance to student users.....	46
4.10 Sources of money for purchase of the psychotropic substances.....	47
4.11 Frequency tables on the various psychotropic substance uses based on access.....	48
CHAPTER FIVE.....	49
DISCUSSION.....	49
CHAPTER SIX.....	56

CONCLUSION AND RECOMMENDATION.....	56
REFERENCES.....	59
APPENDICES.....	66

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LIST OF TABLES

TITLES	PAGES
Table 2.2 Annual prevalence of global illicit drug use over the period 1999-2001.....	8
Table 3.1 Selected schools in each of the three zones and the number of students interviewed in the two Districts.....	36
Table 4.1 Prevalence rate of substance use among student.....	42



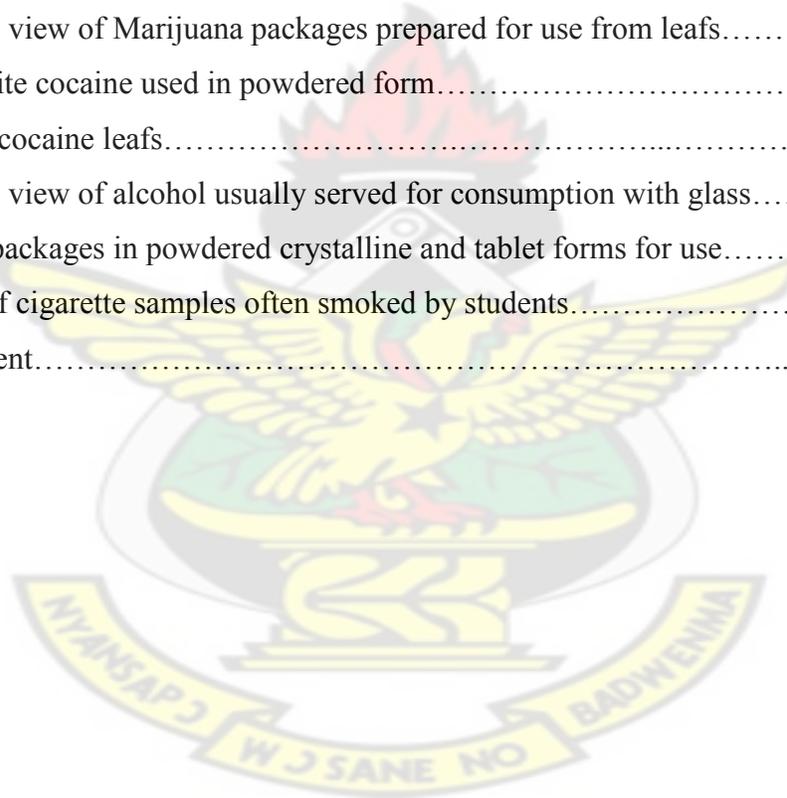
LIST OF FIGURES

TITLES	PAGES
Fig 3.1 Map of Bosomtwi and Atwima Kwanwoma Districts showing the 13 communities (×) selected for the study area.....	37
Figure 4.1 Different psychotropic substances used by students in the two Districts of Ashanti Region.....	41
Figure 4.2 Sources of substance supply to student users in the two Districts of Ashanti Region.....	43
Figure 4.3 Mode of introduction of psychotropic substances to student users in the two Districts of Ashanti Region.....	47
Figure 4.4 Source of money for purchase of the substances in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region.....	48



LIST OF PLATES

TITLES	PAGES
Plate 3.1 A group of students (males and females) grouped to respond to questionnaires in Trabuom JHS (Far East Zone). They were provided with refreshment to motivate them.....	38
Plate 3.2 A group of JHS Students answering questionnaires at Beposo (Far West Zone) motivated with incentives.....	38
Plate 3.3 A group of SHS Students responding to questionnaire at Afua Kobi Ampem Girls Senior High School at Trabuom.They were motivated.....	39
Plate 1 Pictorial view of Marijuana packages prepared for use from leafs.....	79
Plate 2 Fine white cocaine used in powdered form.....	79
Plate 3 Typical cocaine leafs.....	79
Plate 4 Pictorial view of alcohol usually served for consumption with glass.....	79
Plate 5 Heroin packages in powdered crystalline and tablet forms for use.....	80
Plate 6 Pieces of cigarette samples often smoked by students.....	80
Survey Instrument.....	81



LIST OF APPENDICES

TITLE	PAGE
Appendix 2.1 Table of Prevalence of smoking among adults and youth in selected countries.....	66
Appendix 4.1 Cross tabulation of substance effect on academic performance.....	67
Appendix 4.2 Table of chi-square test on substance effect on academic performance.....	67
Appendix 4.3 Table of symmetric measures of substance use on academic performance.....	67
Appendix 4.4 Cross tabulation showing whom the various respondents stay with.....	68
Appendix 4.5 Table of chi-square tests on whom the pupils stay with.....	68
Appendix 4.6 Table of symmetric measures on whom the various respondents stay with.....	68
Appendix 4.7 Cross tabulation of the age distribution of respondents against substance abuse.....	69
Appendix 4.8 Table of chi-square tests on age distribution of respondents against substance abuse.....	69
Appendix 4.9 Cross tabulation of sex distribution of respondents against substance abuse.....	69
Appendix 4.10 Table of chi-square tests of sex distribution of respondents against substance abuse.....	70
Appendix 4.11 Table of symmetric measures on sex distribution of respondents against substance abuse.....	70
Appendix 4.12 Table of cross tabulation on the introduction of psychotropic Substance.....	71
Appendix 4.13 Table of effect of substance use on academic performance of pupils in two Districts.....	71
Appendix 4.14 Table of percentage level of academic performance of pupils in two Districts.....	72
Appendix 4.15 Table of percentage response of students who uses coffee in two	

District.....	72
Appendix 4.16 Table of percentage level of awareness of the effects of coffee by students users in the two Districts.....	72
Appendix 4.17 Table of percentage responses indicating students who use alcohol In the two Districts.....	73
Appendix 4.18 Table of percentage awareness of the effects of alcohol by student users in the two Districts.....	73
Appendix 4.19 Table of percentage of students who use cigarette in the two Districts.....	73
Appendix 4.20 Table of percentage awareness of students about the effects of cigarette in two Districts.....	74
Appendix 4.21 Table of percentage of students who use marijuana in the two Districts.....	74
Appendix 4.22 Table of percentage awareness of effects of marijuana by students in the two Districts.....	74
Appendix 4.23 Table of Percentage of students who use amphetamine in the two Districts.....	75
Appendix 4.24 Table of Percentage awareness of the effects of amphetamine by Students in the two Districts.....	75
Appendix4.25Table of Percentage of students who use cocaine in the two Districts.....	75
Appendix 4.26 Table of Percentage awareness of the effects of cocaine by student in the two Districts.....	76
Appendix 4.27 Table of Percentage of students who use heroine in the two Districts.....	76
Appendix 4.28 Table of Percentage awareness of the effects of heroine by Students in the two Districts.....	76
Appendix 4.29 Table of Percentage distribution of student coffee users based on preference and access in the two Districts.....	76
Appendix 4.30 Table of Percentage distribution of student alcohol users based on preference and access in the two Districts.....	77

Appendix 4.31 Table of Percentage distribution of student cigarette users based on preference and access in the two Districts.....77

Appendix 4.32 Table of Percentage distribution of student marijuana users based on preference and access in the two Districts.....77

Appendix 4.33 Table of Percentage distribution of student amphetamine users based on preference and access in the two Districts.....78

Appendix 4.34 Table of Percentage distribution of student cocaine users based on preference and access in the two Districts.....78

Appendix 3.5 Table of Percentage distribution of student heroin users based on Preference and access in the two Districts.....78



LIST OF ACRONYMS AND ABBREVIATIONS

- ADHD**- Acquired Diseases of Human Drugs Dependence
- AIHW**- Australian Institute of Health and Welfare
- BAK**- Bosomtwi Atwima Kwanwoma
- BMR**-Blue Moon Research
- CNS**- Central Nervous System
- CRA**-Comparative Risk Analysis
- EMCDDA**- European Monitoring Centre for Drugs and Drug Addiction
- ESPAD**- European School Survey Project on Alcohol and other Drugs
- FCUBE**- Free Compulsory Universal Basic Education
- FDA**- Food and Drugs Association
- IDEA**- the Individual Development Education Assistance
- IDU**- Injecting Drug Use
- JHS**- Junior High School
- KMA**- Kumasi Metropolitan Assembly
- NCSRNFER**- National Centre for Social Research and the National Foundation for Educational Research.
- NHSDA**- National Household Survey on Drug Abuse
- NIDA**- National Institute on Drug Abuse
- NIH**-National Institutes of Health
- ODC**- Office on Drug and Crime
- ONDCP**- Office of National Drug Control Policy
- PTAs**- Parent Teacher Associations
- SACENDU**-South African Community Epidemiology Network on Drug use
- SAMHSA**- Substance Abuse and Mental Health Services Administration
- SMCs**- School Management Committees
- SPSS**- Statistical Package for Social Scientists
- SHS**- Senior High School
- THC**-Tetrahydrocannabinol
- UNODCCP**- United Nations Office on Drug and Crime Control Programme
- USA**- United States of America
- WHO**-World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background Information

A drug that is used for any purpose other than that approved therapeutically or socially within a given culture is drug abuse. It is also, the inappropriate and excessive use of drugs that may cause harm to the individual user and or to society in general (Simons *et al.*, 2005). The term, drug abuse has become almost synonymous with the abuse of psychotropic drugs, a chemical substance that can influence human consciousness (Downey, 1994). The problem has now assumed international proportions as it attacks all human races with children becoming the most predominant (Asperheim, 2002).

The most commonly abused drugs are central nervous system stimulants, depressants, narcotics, hallucinogens and volatile substances with each of these drugs giving the abuser a desired feeling although the primary effects are irregular and temporary and may be accompanied by or replaced with undesired secondary effects (Asperheim, 2002).

Numerous studies have documented correlations between substance use and suicide, depression, conduct disorder, school dropout, and poor scholastic attainment (Triplett and Payne., 2004). In particular, both truancy and grade point average (GPA) have been found to be reliable correlates of adolescent substance use (Simons *et al.*, 2005).

In 2003, 45% of USA high school students reported drinking alcohol, 28% reported episodic “heavy drinking,” and 22% reported using marijuana during the past month. Additionally, 8.5% reported attempting suicide and 33% reported being in a physical fight during the past year (Kirby, 2006).

A critical challenge for prevention is to identify those youth at increased risk for substance abuse, addiction, and related problems, so that they can receive timely and appropriate assistance (Haynie and Osgood, 2005). This is because adolescents tend to conceal problems such as substance use and suicidal thoughts, thus making it difficult to systematically identify those at increased risk. The school setting presents a unique opportunity for early identification and intervention, because it provides nearly universal access to children and youth. Nevertheless, school-based identification has been extraordinarily difficult to implement, due in part to the lack of appropriate screening mechanisms (Haynie and Osgood, 2005).

In the United States, substance abuse is currently being blamed on the family as a unit (Bumpass and Lu, 2000). Today, the family evokes a myriad of meanings and is made up of a variety of types. These range from the traditional notion of the nuclear family—comprising of a husband, wife, and their biological children—to an assortment of variations comprising of single parent, stepparent, and adopted parent households, (Bumpass and Lu, 2000). As the composition of the family continues to change, there is one constant that remains: changes within the family have an impact upon youths living within them with regard to both the nature of parent-child relations and parent-child socialization.

Research shows that traditional families provide lower levels of involvement in family activities (Astone and McLanahan., 1991), raise youths with lower levels of educational attainment (Downey, 1994), and have less access to social capital pertaining to child rearing than two parent families (Pong, 1997; Parcel and Dufur., 2001).

Dittus and Jaccard., (2000), Dorius *et al.*, (2004), and Regenerus and Luchies., (2006) have shown that there is a relationship between family structure and the risky behaviors of youths and that it is largely related to the levels of closeness and attachment and levels of supervision and monitoring that occur along with changes in family structure. McLanahan and Adams (1987) report that while the differences are small, adults with youths at home report they worry more and report higher levels of anxiety than adults in homes where youths are not present. With women increasingly participating in the paid labor force, the issue of commitment to work and family becomes important.

Despite the debates over the nature, value, and importance of the family, there is substantial evidence that not only is marriage beneficial to both men and women, but also that all sorts of undesirable experiences and behavior are more common among youths whose parents experience marital disruption (Furstenberg, 1990; Seltz, 1994). Additionally, youths from families with married parents live in much better economic environments compared to those from single parent families and youths in households with stepparents do not perform as well in school as those growing up with both biological parents (Downey, 1994; Astone and McLanahan., 1991; Hao, 1996).

Drug use among youths has been found to be lowest in mother-father families (Hoffman and Johnson., 1998). Thomas, *et al.*, (1996) report the highest rates of delinquency and substance abuse to be among White males in single mother households without the support of a nonresident father. Delinquency risk for males in stepfamilies and single parent families is double that of those living with both parents (Coughlin and Vuchinich, 1996).

Family structure has tended to focus on the changes that have occurred within the family over time but neglected issues that focus on the impact of changing family structures on the social issues of youth. Attention is also not given to tension within the family when comparing outcomes pertaining to risky behaviors of youths within different family types.

This study will investigate the role that family Structure,-coming from a two parent household or a nontraditional family- and tension within the family and academic units play in levels of substance usage among a sample of youths in selected first and second cycle institutions in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region. The work will also focus on the family structure, sources of drugs, gender and the different types of drugs available to the youth.

General Objectives

The main objective of this study is to investigate illicit drug use among students in public educational institutions in the Bosomtwi and Atwima Kwanwoma Districts in Ashanti Region. However the specific objectives were:

1.2 Specific Objectives

- To determine the different psychotropic substances commonly used by students in the two Districts
- To determine the prevalence rate of substance use among first and second cycle students in the two Districts
- To identify some of the predisposing factors to substance use among students in first and second cycle institutions
- To assess the awareness level of the students on the harmful effects of substance use
- To identify the distribution channels of the substance
- To identify the level in the educational ladder that illicit drug use start
- To assess the effect of substance use on the academic performance of students and
- To assess the kind of family link or background and determine whether or not the students are in single or both parent homes.

CHAPTER TWO

LITERATURE REVIEW

Despite prohibitions, illicit use of psychoactive substances is fairly widespread in many societies particularly among young adults, the usual purpose being to enjoy or benefit from the psychoactive properties of the substance. The fact that it is illegal may also add an attractive frisson and thus strengthen the identification of users with an alienated subculture (National Association of State Alcohol and Drug Abuse Directors, 1997).

The most widely used psychoactive substances are the following: caffeine, and related stimulants, commonly used in the form of coffee, tea, and many soft drinks; nicotine; currently most often used by smoking tobacco cigarettes; and alcoholic beverages, which come in many forms, including beer, wine and distilled spirits. The use of caffeinated substances is relatively problematic (Simons *et al.*, 2005).

2.1.0 Elicit Use of Controlled Substances.

Data from the United Nation's Office on Drug and Crime (ODC) show large- scale seizures of cocaine, heroine, cannabis, amphetamines-type stimulants in different parts of the world (National Institute on Drug Abuse, 1997). The availability of cocaine, heroine and cannabis depend on the level of cultivation in source countries and on the success or failure of trafficking organizations. However, even with increased levels of law enforcement activities there always seem to enough drugs available to users.

According to ODC estimates, about 185 million people make use of one type of illicit substance or another. The table below shows that cannabis is consumed by the largest number of illicit drug users followed by amphetamines, cocaine and the opiates, (National Institute on Drug Abuse, 1997).

Elicit drug use is a predominantly male activity, much more so than cigarette smoking and alcohol consumption. Drug use is also more prevalent among young people than in the older groups.

Several national and multinational surveys have provided data on drug use in different groups. For example, in the USA, National Household Survey on Drug Abuse (NHSDA) has served as a source of useful information on drug use in the general Population and the Monitoring the Future Project provides data on drug use by young people in secondary schools. The European School Survey Project on Alcohol and other Drugs (ESPAD), an initiative of the Council of Europe, has become a data source on youth drug use for many European Countries. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) also provides regular data on drug use (including hazardous methods of use, such as Injecting Drug Use (IDU) in European Countries. While national surveys of youth and adults are held on regular basis in some countries, reliable data on drug use is generally lacking in most developing countries. Projects such as the South African Community Epidemiology Network on Drug Use (SACENDU) and its related regional networks have started to address this lack of information.

Table 2.2: Annual prevalence of global illicit drug use over the period 1999-2001

	All illicit drugs	Cannabis	Amphetamines types stimulants		Cocaine	All opiates	Heroin
			Amphetamine	Ecstasy			
Number of users (in millions)	185.0	147.4	33.4	7.0	13.4	12.9	9.20
Proportion of global population (%)	3.3	2.5	0.6	0.1	0.2	0.2	0.15
Proportion of population 15 years and above	4.3	3.5	0.8	0.2	0.3	0.3	0.22

Source: National Institute on Drug Abuse, 1997.

The data in table 2.2 shows that 2.5% of the total Global population and 3.5% of people 15 years and above had used cannabis at least once in a year between 1998 and 2001. In many developed countries for example, Canada, the USA and European Countries, more than 2% of the youth reported heroine use and almost 5% reported smoking cocaine in their life time. Indeed 8% Of youth in the Western Europe and more than 20% of those in the USA have reported the use of at least one type of illicit drug other than cannabis (UNODCCP, 2002). There is evidence of rapid increases in the use of amphetamine-type stimulants among teenagers in Asia and Europe. Injecting drug use is also a growing phenomenon with implications for the spread of HIV/AIDS infections in an increasing number of countries.

The non-medicated use of medications (e.g. benzodiazepines, pain killers, amphetamines, etc) is known to be fairly common but global statistics are lacking (Rodriguez *et al.*, 1997).

2.2.0 Global Use of Psychoactive Substances of Addiction and Abuse

Drug addiction and drug abuse, chronic or habitual use of any chemical substance to alter states of body or mind for other than medically warranted purposes. Among the drugs with potential for abuse are NARCOTICS, including morphine, opium, heroin, and methadone; depressants such as ALCOHOL, BARBITURATES, and sedatives; stimulants such as COCAINE (see also CRACK) and AMPHETAMINES; HALLUCINOGENIC DRUGS; and MARIJUANA. Nicotine and CAFFEINE can also be abused, and ANABOLIC STEROIDS and HUMAN GROWTH HORMONE are often abused by athletes and bodybuilders seeking to increase muscle mass. An individual is said to be addicted if a physical dependence on a given drug develops and if withdrawal symptoms are experienced when the drug is discontinued or its dose decreased. True physical addiction is known to occur with the narcotics and depressants; psychological dependence, with or without physical symptoms, can develop with many other drugs, such as TRANQUILIZERS. The hallucinogens can also cause traumatic experiences and trigger psychotic reactions, including paranoia. Treatment for drug addiction includes METHADONE programs and participation in therapeutic communities (e.g., Synanon and Phoenix House) with other addicts who are giving up drugs. The question of what constitutes drug abuse depends on the cultural and social context. In some countries, narcotic use in the form of opium smoking is

common and not considered a serious drug problem; in others, hashish or related compounds are widely used. In most industrialized nations, however, the use of many of these drugs is illegal and associated with criminal behavior (UNODCCP, 2002).

2.2.1 Tobacco and Cigarette

Many types of tobacco products are being consumed through out the world but the most popular form of nicotine use is cigarette smoking. There are about 1.2 billion smokers in the world and the number is expected to increase to 2 billion by 2030 (Australian Institute of Health and Welfare (AIHW) (2002).

Smoking is spreading in developing countries and among women. Currently, 50% of men and 9% of women in developing countries smoke, as compared with 35% of men and 22% of women in developed countries (Australian Institute of Health and Welfare (AIHW) (2002).

2.2.2 Cigarette smoking among school children in Singapore-Smoking prevalence.

A cross sectional nationally representative survey of 33,110 school-going children in Singapore aged between 9 and 20 years was carried out to obtain, for the first time, baseline information on smoking among the school-going population in Singapore. The survey was carried out among students attending vocational institutes and public sector schools in Singapore in 1987 (Emmanuel *et al.*, 1987). The overall smoking prevalence was found to be 2% (3% among boys and 0.2% among girls). Ex-smokers comprised 2% of respondents whilst those who had only experimented with smoking made up 9% of the respondents. Analyses of the data showed that cigarette smoking was more prevalent among Malays, among boys, among older children, and among the less academically inclined. On average, boys smoked a median of 20 cigarettes a week and

girls, 12 cigarettes a week. Internationally, the smoking prevalence among the school-going population in Singapore is significantly lower than that of developed countries like Australia, England and neighbouring countries such as Malaysia has been shown in Table 2.1 at the Appendix section (Emmanuel *et al.*, 1987).

2.2.3 Alcohol

Alcohol is any of a class of organic compounds with the general formula R-OH, where R is an alkyl group made up of carbon and hydrogen and -OH is one or more hydroxyl groups, each made up of one atom of oxygen and one of hydrogen. Although the term alcohol ordinarily refers to ETHANOL, the alcohol in alcoholic beverages, the class of alcohols also includes METHANOL and the amyl, butyl, and propyl alcohols, all with one hydroxyl group; the glycols, with two hydroxyl groups; and glycerol, with three. Many of the characteristic properties and reactions of alcohols are due to the polarity, or unequal distribution, of electric charges in the C-O-H portion of the molecule (Ayerst, 1999).

Alcohol and tobacco are similar in several ways; both are legal substances and widely available in most parts of the world; and both are marketed aggressively by transnational corporations that target young people in advertising and promotion campaigns (Ayerst, 1999).

Alcoholism is a chronic illness characterized by the habitual consumption of alcohol to a degree that interferes with physical or mental health, or with normal social or occupational behavior. A widespread health problem, it produces both physical and psychological addiction. Alcohol is a central nervous system depressant that reduces anxiety, inhibition, and feelings of guilt; lowers alertness; impairs perception,

judgment, and muscular coordination; and, in high doses, can cause unconsciousness and even death. Long-term alcoholism damages the brain, liver, heart, and other organs. Symptoms of alcohol withdrawal can range from a simple hangover to severe delirium tremens (a condition characterized by deliriousness, violent trembling, hallucinations, and seizures). Treatment includes use of disulfiram (Anti abuse), a drug that produces discomfort if alcohol is consumed; anti-anxiety drugs to suppress withdrawal symptoms; psychological counseling; and support from groups such as Alcoholics Anonymous (Kirby, 2006).

According to global status reports on alcohol, (Triplett and Payne, 2004), the level of consumption of alcohol has declined in the past twenty years in developed countries but is increasing in the developing countries especially in the Western Pacific Region where annual per capita consumption among adults ranges from 5-9 litres of pure alcohol and also in countries in the former Soviet Union ((Triplett and Payne., 2004). In the past, research on the epidemiology of alcohol use in developed countries have focused on average volume of alcohol consumption in determining the level of drinking in a particular country using production or sales data from official records has tended to underestimate consumption, especially in developing countries, where unrecorded consumption of locally brewed beverages is significant (Triplett and Payne., 2004).

The WHO in order to improve the measurement of per capita consumption, sponsored research project in four countries (Brazil, China and Nigeria) to determine the level of unrecorded consumption in these countries. It is expected that more precise estimate of alcohol use will lead to a better understanding of the association between use and problems. In this regard, the Comparative Risk Analysis (CRA) Project of

WHO is worthy of note. The CRA uses per capita consumption data together with patterns of drinking to link use to disease burden (Rehn *et al.*, 2003). A patterns approach to alcohol consumption assures that the way in which alcohol is consumed is closely linked to disease outcome. Drinking during meals for example is associated with less risk of problems than drinking during fiestas or drinking in public places. In the CRA, analysis, four pattern values have been developed, with 1 as the least hazardous and 4 as the most detrimental (Bailey *et al.*, 1998).

In African Region, the pattern of drinking has tended towards the higher levels with men in most countries drinking at pattern value 3 of the CRA estimated and this is the case for Gabon, Ghana, Kenya, Lesotho, Senegal and South Africa. In few countries, such as Zambia and Zimbabwe, the pattern is 4 (National Institute on Drug Abuse, 1998).

2.2.4 Amphetamines

Amphetamines are also known as: Slang: amp, base, benzies, billy, billy whiz, crystal meth, ice, meth, speed, sulph, sulphate, uppers, whiz, and yabba (National Centre for Social Research and the National Foundation for Educational Research 2000).

Amphetamines refer to any of a class of powerful drugs that act as stimulants on the central nervous system. Popularly known as "bennies," "speed," or "uppers," and are well known to enhance mental alertness with the ability to concentrate; cause wakefulness, talkativeness, and euphoria; and temporarily reverse the effects of fatigue. They have been used to treat obesity, narcolepsy and minimal brain dysfunction. Amphetamines can produce insomnia, hyperactivity, and irritability, as well as such severe systemic disorders as cardiac irregularities, elevated blood pressure, and gastric

disturbances. The drugs are addictive and easily abused; addiction can result in psychosis or death from over exhaustion or cardiac arrest (National Centre for Social Research and the National Foundation for Educational Research 2000).

Amphetamines are powerful synthetic stimulants or 'uppers'. They come as pills and capsules but the most common form is as a powder which can be white, grey, yellowish, or even pink. A stronger, purer form is base - an off-white paste.

Amphetamines are snorted, mixed in a drink, or swallowed. Heavy users may inject them. The strongest and most addictive form is methamphetamine. It not only comes in the usual powder and pill forms but also as a translucent crystal known as ice which is usually smoked (National Centre for Social Research and the National Foundation for Educational Research 2000)

Street amphetamines are notoriously impure. They're made in backroom labs and usually bulked up or 'cut' with things like glucose, caffeine, vitamin C or baby milk powder. The end result? About 10% pure and 90% crap (UNODCCP, Annual Report 2002).

2.2.5 Narcotics

Narcotic, group of drugs with potent analgesic effects, associated with alteration of mood and behavior. The chief narcotic drugs are OPIUM, CODEINE, MORPHINE, and the morphine derivative HEROIN. Narcotics are thought to act by mimicking and/or enhancing the activity of ENDORPHINS, proteins produced by the brain and believed to modulate pain and other nervous system functions. Narcotics are valuable in numbing the senses, alleviating pain, inducing sleep, and relieving diarrhea. Common side effects include nausea, vomiting, and allergic reactions. In large doses, narcotics

can cause respiratory depression, COMA, and death. All narcotics are addictive; synthetic narcotics such as meperidine and METHADONE tend to be less addicting and possess fewer side effects, but they are also less potent (Blomqvist, 1996).

2.2.6 Barbiturates.

Barbiturate is any depressant drug derived from barbituric acid. In low doses, barbiturates have a tranquilizing effect. Increased doses are hypnotic or sleep-inducing, and still larger doses act as anticonvulsants and anesthetics. Barbiturates were widely used as SLEEPING PILLS; such use may lead to psychological dependency, physiological tolerance, and even death by overdose. Barbiturates do not relieve pain (Blomqvist, 1996).

2.2.7 Cocaine

Cocaine is an Alkaloid drug derived from coca leaves, producing euphoria, hallucinations, and temporary increases in physical energy. Prolonged use can cause nervous-system aberrations (including delusions), general physical deterioration, weight loss, and addiction. Withdrawal from the drug can produce severe depression (Williams *et al.*, 1995).

Crack, a form of cocaine. A less expensive, more potent, smokable form of the drug, it is the most addictive of abused substances. The drug's availability has greatly increased the number of addicts, resulting in major law enforcement problems in Western countries (Williams *et al.*, 1995).

Cocaine, the most potent stimulant of natural origin, is extracted from the leaves of the

coca plant (*Erythroxylon coca*), which is indigenous to the Andean highlands of South America. Natives in this region chew or brew coca leaves into a tea for refreshment and to relieve fatigue similar to the customs of chewing tobacco and drinking tea or coffee (Williams *et al.*, 1995).

Pure cocaine was first isolated in the 1880s and used as a local anesthetic in eye surgery. It was particularly useful in surgery of the nose and throat because of its ability to provide anesthesia as well as to constrict blood vessels and limit bleeding. Many of its therapeutic applications are now obsolete due to the development of safer drugs (Williams *et al.*, 1995).

Illicitly, cocaine is usually distributed as a white crystalline powder or as an off-white chunky material (Plate 2 in the Appendix section). The powder, usually cocaine hydrochloride, is often diluted with a variety of substances, the most common of which are sugars such as lactose, inositol and mannitol, and local anesthetics such as lidocaine. The adulteration increases the volume and thus multiplies profits. Cocaine hydrochloride is generally snorted or dissolved in water and injected. It is rarely smoked (Williams *et al.*, 1995).

"Crack," the chunk or "rock" form of cocaine, is a ready-to-use freebase. On the illicit market it is sold in small, inexpensive dosage units that are smoked. With crack came a dramatic increase in drug abuse problems and violence. Smoking delivers large quantities of cocaine to the lungs, producing effects comparable to intravenous injection; these effects are felt almost immediately after smoking, are very intense, and are quickly over. Once introduced in the mid-1980s, crack abuse spread rapidly and made the cocaine experience available to anyone with \$10 and access to a dealer. In addition to other toxicities

associated with cocaine abuse, cocaine smokers suffer from acute respiratory problems including cough, shortness of breath, and severe chest pains with lung trauma and bleeding (Williams *et al.*, 1995).

The intensity of the psychological effects of cocaine, as with most psychoactive drugs, depends on the dose and rate of entry to the brain. Cocaine reaches the brain through the snorting method in three to five minutes. Intravenous injection of cocaine produces a rush in 15 to 30 seconds and smoking produces an almost immediate intense experience. The euphoric effects of cocaine are almost indistinguishable from those of amphetamine, although they do not last as long. These intense effects can be followed by a dysphonic crash. To avoid the fatigue and the depression of "coming down," frequent repeated doses are taken. Excessive doses of cocaine may lead to seizures and death from respiratory failure, stroke, cerebral hemorrhage or heart failure. There is no specific antidote for cocaine overdose (Williams *et al.*, 1995).

According to the 1993 Household Drug Survey, the number of Americans who used cocaine within the preceding month of the survey numbered about 1.3 million; occasional users (those who used cocaine less often than monthly) numbered at approximately 3 million, down from 8.1 million in 1985. The number of weekly users has remained steady at around a half million since 1983 (Williams *et al.*, 1995).

2.2.8 Hallucinogens.

Hallucinogenic drug is an Alkaloid substance that alters consciousness; also called psychotomimetic, or, popularly, psychedelic or mind-expanding drug. Hallucinogens include mescaline, or PEYOTE; psilocin and psilocybin, from the mushrooms

Psilocybe mexicana and Stropharia cubensis; LSD (lysergic acid diethylamide); BELLADONNA; and MANDRAKE. MARIJUANA has hallucinogenic properties but is pharmacologically distinct. Hallucinogens have been used by primitive societies in both the Old and New Worlds to facilitate meditation, cure illness, placate evil spirits, and enhance mystical and magical powers Blue Moon Research and Planning (BMR) (2000). They produce a wide range of effects, from pleasant to very disturbing, depending on dosage, potency, and the personality and environment of the drug taker. Effects include altered perception of time and space and of the color, detail, and size of objects; also the experience of imaginary conversations, music, odors, tastes, and other sensations Blue Moon Research and Planning (BMR) (2000). Hallucinogens are not physically habit-forming, but tolerance, i.e., the need to take increased quantities to induce the original effect, may develop.

2.2.9 Marijuana

Marijuana or marihuana, relatively mild but, addictive drug with hallucinogenic properties, obtained from the flowering tops, stems, and leaves of the hemp plant. Resins found on the surface of the female plant are used to prepare the most potent form of marijuana, hashish. The primary active substance is tetrahydrocannabinol (THC). Marijuana produces a dreamy, euphoric state of altered consciousness, with feelings of detachment and gaiety. The appetite is usually enhanced, while the sex drive may increase or decrease. Adverse reactions are relatively rare, and most can be attributed to adulterants frequently found in marijuana preparations. Marijuana has been used experimentally to reduce nausea from cancer CHEMOTHERAPY and in the

treatment of GLAUCOMA, but in 1992 the Drug Enforcement Administration declined to reclassify marijuana so that it could be prescribed by doctors. Marinol, a synthetic form of THC, is approved for use in reducing the nausea caused by chemotherapy. In the U.S. there were a number of successful efforts, especially in the 1970s, to reduce criminal penalties for possession and use of marijuana, but many of the resulting laws have since been modified or repealed (Williams *et al.*, 1995) Source: <http://www.whitehousedrugpolicy.gov/prevent/index.html>.

Also, Marijuana is a green, brown, or gray mixture of dried, shredded leaves, stems, seeds, and flowers of the hemp plant (Plate 1 in Appendix section). You may hear marijuana called by street names such as pot, herb, weed, grass, boom, Mary Jane, gangster, or chronic. There are more than 200 slang terms for marijuana National Institute on Drug Abuse (National Survey Results on Drug Use from The Monitoring The Future Study, 1975-1997).

All forms of marijuana are mind-altering. In other words, they change how the brain works. They all contain THC (delta-9-tetrahydrocannabinol), the main active chemical in marijuana. They also contain more than 400 other chemicals. Marijuana's effects on the user depend on its strength or potency, which is related to the amount of THC it contains (Harder and Reitbrock., 1997). The THC content of marijuana has been increasing since the 1970s.

Marijuana is usually smoked as a cigarette (*called a joint or a nail*) or in a pipe or a bong. Recently, it has appeared in cigar wrappers called blunts, when it is often combined with another drug, such as crack cocaine (Harder and Reitbrock., 1997).

THC in marijuana is rapidly absorbed by fatty tissues in various organs. Generally, traces (*metabolites*) of THC can be detected by standard urine testing methods several days after a smoking session. However, in chronic heavy users, traces can sometimes be detected for weeks after they have stopped using marijuana (Harder and Reitbrock., 1997).

Contrary to popular belief, most teenagers do not use marijuana. Among students surveyed in a yearly national survey, only about one in six 10th graders report they are current marijuana users (*that is, used marijuana within the past month*). Fewer than one in four high school seniors are a current marijuana user (Pope and Yurgelun-Todd, 1996).

There are many reasons why some children and young teens start smoking marijuana. Many young people smoke marijuana because they see their brothers, sisters, friends, or even older family members using it. Some use marijuana because of peer pressure. Others may think it's cool to use marijuana because they hear songs about it and see it on TV and in movies. Some teens may feel they need marijuana and other drugs to help them escape from problems at home, at school, or with friends (Pope and Yurgelun-Todd, 1996).

No matter how many shirts and caps you see printed with the marijuana leaf, or how many groups sing about it, remember this: You don't have to use marijuana just because you think everybody else is doing it. Most teenagers do not use marijuana! (Pope and Yurgelun-Todd., 1996).

The short-term effects of marijuana include: problems with memory and learning (Rodriguez de Fonseca *et al.*, 1997); distorted perception (*sights, sounds, time, touch*)

(Jones et al., 1981); trouble with thinking and problem solving and loss of motor coordination; and increased heart rate (Harder and Reitbrock., 1997). These effects are even greater when other drugs are mixed with the marijuana; and users do not always know what drugs are given to them (Harder and Reitbrock, 1997).

Marijuana affects memory, judgment and perception (SAMHSA, 1997.). The drug can make you mess up in school, in sports or clubs, or with your friends. If you're high on marijuana, you are more likely to make mistakes that could embarrass or even hurt you. If you use marijuana a lot, you could start to lose interest in how you look and how you're getting along at school or work.

Findings so far show that regular use of marijuana or THC may play a role in some kinds of cancer and in problems with the respiratory and immune systems Blue Moon Research and Planning (BMR) (2000).

It is hard to know for sure whether regular marijuana use causes cancer. But it is known that marijuana contains some of the same, and sometimes even more, of the cancer-causing chemicals found in tobacco smoke. Studies show that someone who smokes five joints per day may be taking in as many cancer-causing chemicals as someone who smokes a full pack of cigarettes every day (NIDA 1975-1997)

People who smoke marijuana often develop the same kinds of breathing problems that cigarette smokers have: coughing and wheezing. They tend to have more chest colds than nonusers. They are also at greater risk of getting lung infections like pneumonia (Bammer and Weekes., 1994).

Animal studies have found that THC can damage the cells and tissues in the body

that help protect against disease. When the immune cells are weakened you are more likely to get sick (Bammer and Weekes, 1994).

. Long-term studies of high school students and their patterns of drug use show that very few young people use other illegal drugs without first trying marijuana (Liguori, *et al.*, 1998). For example, the risk of using cocaine is much greater for those who have tried marijuana than for those who have never tried it. Using marijuana puts children and teens in contact with people who are users and sellers of other drugs. So there is more of a risk that a marijuana user will be exposed to and urged to try more drugs (Liguori, *et al.*, 1998).

To better determine this risk, scientists are examining the possibility that long-term marijuana use may create changes in the brain that make a person more at risk of becoming addicted to other drugs, such as alcohol or cocaine. Further research is needed to predict who will be at greatest risk (Liguori, *et al.*, 1998).

If someone is high on marijuana, he or she might seem dizzy and have trouble walking; seem silly and giggly for no reason; have very red, bloodshot eyes; and have a hard time remembering things that just happened. When the early effects fade, over a few hours, the user can become very sleepy (Liguori, *et al.*, 1998).

Under U.S. law since 1970, marijuana has been a Schedule I controlled substance. This means that the drug, at least in its smoked form, has no commonly accepted medical use (Liguori, *et al.*, 1998).

THC, the active chemical in marijuana, is manufactured into a pill available by prescription that can be used to treat the nausea and vomiting that occur with certain cancer treatments and to help AIDS patients eat more to keep up their weight.

According to scientists, more research needs to be done on THC's side effects and other potential medical uses (Liguori, *et al.*, 1998).

Studies in children born to mothers who used marijuana have shown increased behavioral problems during infancy and preschool years. In school, these children are more likely to have problems with decision-making, memory, and the ability to remain attentive (Cornelius *et al.*, 1995).

Researchers are not certain whether health problems that may be caused by early exposure to marijuana will remain as the child grows into adulthood. However, since some parts of the brain continue to develop throughout adolescence, it is also possible that certain kinds of problems may appear as the child matures (Cornelius *et al.*, 1995).

Studies have shown that when people smoke large amounts of marijuana for years, the drug takes its toll on mental functions (Fletcher *et al.*, 1996). Heavy or daily use of marijuana affects the parts of the brain that control memory, attention, and learning. A working short-term memory is needed to learn and perform tasks that call for more than one or two steps. Smoking marijuana causes some changes in the brain that are like those caused by cocaine, heroin, and alcohol. Scientists are still learning about the many ways that marijuana can affect the brain.

Long-term marijuana use can lead to addiction in some people. That is, they cannot control their urges to seek out and use marijuana, even though it negatively affects their family relationships, school performance, and recreational activities (Pope *et al.*, 1996). According to one study, marijuana use by teenagers who have prior antisocial problems can quickly lead to addiction (Crowley *et al.*, 1998).)In addition, some frequent, heavy marijuana users develop “tolerance” to its effects. This means they need larger and

larger amounts of marijuana to get the same desired effects as they used to get from smaller amounts.

2.3.0 Caffeine in Coffee and Kola nuts.

Caffeine is an odorless, slightly bitter ALKALOID found in coffee, tea; COLA nuts, MATÉ, and cocoa (see CACAO). In moderation, caffeine is a mild stimulant that increases urination and the heart rate and rhythm. Excessive intake can cause restlessness, insomnia, heart irregularities, and delirium (Williams *et al.*, 1995).

2.3.1 Anabolic Steroid

Anabolic steroid or androgenic steroid refers to any of a group of synthetic derivatives of TESTOSTERONE that promote muscle and bone growth. Used therapeutically to treat chronic debilitating diseases, anabolic steroids have also been used by bodybuilders and athletes seeking increased muscle mass and enhanced strength and stamina. Such use is banned by the International Olympic Committee and other governing bodies in sports, and in 1988 a federal law made it illegal to distribute anabolic steroids for no therapeutic uses. Abuse of anabolic steroids may lead to increased aggressiveness, irritability, and other disruptive behavioral effects, including symptoms characteristic of drug addiction; long term effects are not known Source:

<http://www.whitehousedrugpolicy.gov/prevent/index.html>

2.3.2 Methadone

Methadone is a synthetic NARCOTIC, similar in effect to MORPHINE, used primarily in the treatment of narcotic drug addiction. Given to addicts, it blocks the euphoric action of HEROIN without itself causing euphoria and causes less severe and hazardous withdrawal symptoms than other narcotic drugs (although critics of methadone therapy point out that methadone patients are still addicts). Methadone is also used as an ANALGESIC, especially in patients who are terminally ill (Biernacki, 1986).

2.3.3 Valium

Description: Valium belongs to the group of medicines called central nervous system (CNS) depressants (medicines that slow down the nervous system).

Valium is used to relieve anxiety. However, Valium should not be used to relieve nervousness or tension caused by the stress of everyday life (Valium Facts 26th September 2006) <http://www.reliable-online-drugs.com/buy-online/buy-Valium-online/buy-Valium-online.html>.

Valium may be habit forming, especially when taken for a long time or in high doses. Some signs of dependence include a strong desire or need to continue this medicine, a need to increase the dose to receive the effects of the medicine, withdrawal effects may occur after the medicine is stopped (Valium Facts 26th September 2006) <http://www.reliable-online-drugs.com/buy-online/buy-Valium-online/buy-Valium-online.html>.

People may become mentally or physically dependent on Valium. In such cases, Valium will add to the effects of alcohol and other central nervous system (CNS) depressants. Some examples of CNS depressants are antihistamines or medicine for hay fever, other allergies, or colds; pain medicine or narcotics; barbiturates; medicine for seizures; muscle relaxants; or anesthetics, including some dental anesthetics. Check with your doctor before taking any of the above while you are taking Valium. Taking an overdose may lead to unconsciousness and possibly death. Some signs of an overdose include continuing slurred speech or confusion, severe drowsiness, severe weakness, and staggering Valium Facts 26th September 2006) <http://www.reliable-online-drugs.com/buy-online/buy-Valium-online/buy-Valium-online.html>.

. Valium may cause some people, especially older persons, to become drowsy, dizzy, lightheaded, clumsy or unsteady or less alert than normally. If you develop any unusual and strange thoughts or behavior while you are taking Valium, be sure to discuss this with your doctor (Valium Facts 26th September 2006) <http://www.reliable-online-drugs.com/buy-online/buy-Valium-online/buy-Valium-online.html>.

2.3.4 Heroin

Heroin is an addictive drug, and its use is a serious problem in America. Heroin is processed from morphine, a naturally occurring substance extracted from the seedpod of the Asian poppy plant. Heroin usually appears as a white or brown powder. Street names for heroin include "smack," "H," "skag," and "junk." Other names may refer to types of heroin produced in a specific geographical area, such as "Mexican black tar."

Heroin abuse is associated with serious health conditions, including fatal overdose, spontaneous abortion, collapsed veins, and, particularly in users who inject the drug, infectious diseases, including HIV/AIDS and hepatitis (NIDA, 1998)

The short-term effects of heroin abuse appear soon after a single dose and disappear in a few hours. After an injection of heroin, the user reports feeling a surge of euphoria ("rush") accompanied by a warm flushing of the skin, a dry mouth, and heavy extremities. Following this initial euphoria, the user goes "on the nod," an alternately wakeful and drowsy state. Mental functioning becomes clouded due to the depression of the central nervous system. Long-term effects of heroin appear after repeated use for some period of time. Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulites, and liver disease. Pulmonary complications, including various types of pneumonia, may result from the poor health condition of the abuser, as well as from heroin's depressing effects on respiration (NIDA, 1998)

Withdrawal, which in regular abusers may occur as early as a few hours after the last administration, produces drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps ("cold turkey"), kicking movements ("kicking the habit"), and other symptoms. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and subside after about a week. Sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal, although heroin withdrawal is considered less dangerous than alcohol or barbiturate withdrawal (NIDA, 1998).

There is a broad range of treatment options for heroin addiction, including medications as well as behavioral therapies. Science has taught us that when medication

treatment is integrated with other supportive services, patients are often able to stop heroin (or other opiate) use and return to more stable and productive lives (NIDA, 1998).

2.3.5 The Cocaine, Amphetamine/Methamphetamine, Ritalin Connection

The Food and Drugs Association (FDA) classifies controlled drugs according to the following Controlled Drug Schedules (NIDA, 1998).

FDA Controlled Drug Schedules

2.3.6 Schedule I

These medicines are those with a high abuse and dependence potential. Typically, the only use for these substances is for research purposes. Examples include LSD and heroin. A prescription cannot be legally written for these drugs for medicinal use (NIDA, 1998).

2.3.7 Schedule II

These medicines have therapeutic uses and have the highest abuse and dependence potential for drugs with medicinal purposes. Examples include Morphine, Demerol, Speed, Opium, Cocaine and Ritalin. A written prescription is required and refills are not allowed (NIDA, 1998).

2.3.8 Schedule III

Medicines in this schedule have an abuse and dependence potential that is less than those in schedule II, but greater than those in schedule IV. These medicines have clear medicinal uses and include drugs such as hydrocodone, prozac, codeine and paregoric in combination. Common names include Tylenol 3 (with codeine) and Tenuate. A

telephone prescription is permitted for medications in this class; however, it must be converted to written form by a pharmacist. Prescriptions for these medicines may be refilled, but only five times in six months (William *et al.*, 1995).

2.3.9 Schedule IV

This schedule contains medicines with less abuse and dependence potential than those in schedule III. Examples of medicines in this schedule include Darvon, Valium and Librium. Prescriptions for these medicines may be refilled, but only five times in six months (NIDA, 1998).

2.4.0 Schedule V

These medicines have the lowest abuse and dependence potential. Medicines in this class include Lomotil and Imodium. Drugs in this class which require a prescription are handled the same as any nonscheduled prescription medicine. Some drugs in this class do not require a prescription, and may be sold only with the approval of a pharmacist. The buyer is required to sign a logbook when the drug is dispensed (NIDA, 1998).

2.4.1 What does the Drug Enforcement Administration (DEA) say about the drug charts?

The following are quotes from the information that used to appear on the DEA's website from their "*Uses and Effects*" charts, and "*What Parents Need to Know*" about drugs that were listed as three of the six most abused Controlled Substances in the "Stimulants" category according to the **U.S. Department of Justice - Drug Enforcement Administration.**

Note: There is no known research that has shown any of these facts have changed.

Yet this is information that has mysteriously vanished from the DEA website. We suspect the reason is that these facts would indict the FDA for its approval of these dangerous drugs due to the strong lobby and monetary powers of the pharmaceutical companies. Also note the descriptions of each, and how nearly identical of they are (SAMSHA, 1997).

2.4.2 Methylphenidate (Ritalin) Chart

The primary, legitimate medical use of methylphenidate (Ritalin) is to treat attention deficit disorders in children. As with other Schedule II stimulants, the abuse of methylphenidate may produce the same effects as the abuse of cocaine or the amphetamines. It has been reported that the psychosis of chronic methylphenidate intoxication is identical to the paranoid psychosis of amphetamine intoxication (SAMSHA, 1997).

Unlike other stimulants, however, methylphenidate has not been clandestinely produced, although abuse of this substance has been well documented among narcotic addicts who dissolve the tablets in water and inject the mixture. Complications arising from this practice are common due to the insoluble fillers used in the tablets. When injected, these materials block small blood vessels, causing serious damage to the lungs and retina of the eye (SAMSHA, 1997). Next, are more of the potential side effects of these Schedule II drugs according to the companies that make them (SAMSHA, 1997).

2.4.3 Possible Mild Adverse Effects

Skin rash, hives, drug fever, joint pains, headaches, dizziness, rapid and forceful heart palpitation, reduced appetite, nausea, abdominal discomfort, stuttering, hallucinations, nervousness and insomnia (SAMSHA, 1997). .

2.4.4 Possible Serious Adverse Effects

Severe skin reactions, extensive bruising due to allergic destruction of blood platelets. Porphyria, liver toxicity, and muscular damage. Idiosyncratic reaction: Abnormal patterns of behavior, abnormally low red blood cell and white blood counts, and childhood growth suppression (SAMSHA, 1997). .

2.4.5 This Drug should not be taken if:

You have had an allergic reaction to it previously, developed glaucoma and experiencing a period of severe anxiety, nervous tension or depression.

2.4.6 Conditions Requiring Dosing Adjustments (SAMSHA, 1997).

LIVER FUNCTION: Used with caution and in decreased dose in patients with liver compromise.

KIDNEY FUNCTION: The kidney does not appear to be involved in the elimination of this drug.

2.4.7 The Office of National Drug Control Policy

Barry R. McCaffrey, Director of ONDCP, is a member of the President's Cabinet and is the principal Administration and national spokesperson on illicit drug use and related issues. The Director's role is to create a national understanding of the nature of

threat from illicit drug use and the importance of resisting drugs at all levels of society. The Director also serves as "drug issues advocate" within the Cabinet, developing collaborative relationships with Cabinet members and keeping the President informed on drug issues. Additionally, the Director coordinates and oversees other national drug control program agencies, reviews and certifies agencies' drug control budgets, and serves as chair of ONDCP's Research, Data, and Evaluation Advisory Committee (William *et al.*, 1995).

2.4.8 Prevention & Education.

Prevention is the ultimate key to reversing the upward trend in the use of drugs and empowering communities to address their drug problems. Central to this effort is the development and implementation of initiatives to prevent illicit drug use, including casual use by youth and other high-risk populations. The most effective strategies for preventing drug use, keeping drugs out of neighborhoods and schools, and providing a safe and secure environment for all people are cooperative efforts that mobilize and involve all elements of a community. Source:

<http://www.whitehousedrugpolicy.gov/prevent/index.html>

2.4.9 The Potential Future Problems for People Who Have Been Put on Ritalin.

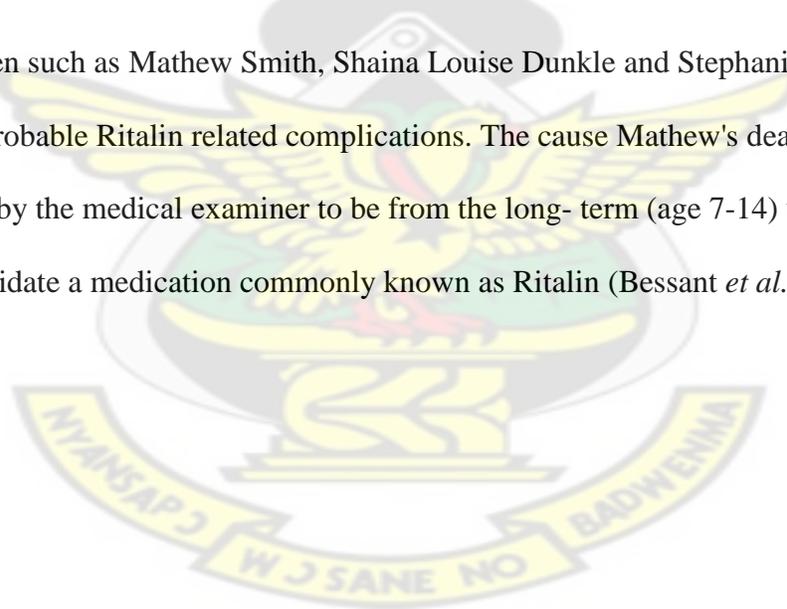
The side effects of Ritalin & Cocaine are almost identical – so are the compounds. The D.A.R.E. program was started to get children off of the class II drugs such as, cocaine, morphine, speed etc. And I.D.E.A. the Individual Development Education Assistance Act of 1985 will give schools extra money for children with learning disabilities who take Ritalin, which is also a class II drug. On one side of the hall

they're taught not to take a class II drug from a friend but to go across the hall and get it from a school official. Do you really wonder why they are lost?

America uses 5 times more Ritalin than the rest of the world combined according to the drug manufacturers that make it. Sweden manufactures Ritalin for the USA but outlawed it in the country in 1985!

According to the 2000 US Military Recruitment Manual, you may not join the Army, Air force, Navy, or Marines if you are on Ritalin because you are a class II drug user. You must get a doctors note saying you've been off for 3yrs. Insurance companies can turn you down for a pre-existing condition of Attention Deficit or raise your rates as a schedule II drug user (William *et al.*, 1995).

Children such as Mathew Smith, Shaina Louise Dunkle and Stephanie Hall have died from probable Ritalin related complications. The cause Mathew's death was determined by the medical examiner to be from the long- term (age 7-14) use of Methylphenidate a medication commonly known as Ritalin (Bessant *et al.*, 2002).



CHAPTER THREE

MATERIALS AND METHODS

3.1 The Study Area

The study was conducted in the Bosomtwi and Atwima Kwanwoma Districts. The two districts are located in the central part of the Ashanti Region of Ghana. The two Districts lies within latitude $6^{\circ} 24''$ North and longitudes $6^{\circ} 43''$ North and longitudes $1^{\circ} 15''$ West and $1^{\circ} 46''$ West and are bounded in the north by the Kumasi Metropolitan Assembly (KMA), Atwima Nwabiagya and Ejisu-Juaben districts, in the south by Amansie East and West districts and in the west by Atwima Nwabiagya district (Figure 3.1). The Bosomtwi and Atwima Kwanwoma Districts together has a land size of 681,799 sq. km and forms about 2.81% of the total land size of the Ashanti Region. The population of the two districts is 146,028 with 50.3% being females and 49.7% males. The two Districts are 90 % rural. The Ashanti Region has a population of 3,612,950 with a growth rate of 2.5% per annum (Ghana Statistical Service, 2002). The two districts have 135 communities with Kuntanase as the administrative capital for Bosomtwi and Foase Atwima as the administrative capital for Atwima Kwanwoma District. Nearly 41% of the population in the two Districts are within the 0-14 year group, 55% in the 15-64 year group and 4% are above 65 years (Ghana Statistical Service, 2002). The main economic activities in the two districts include petty-trading, farming and cottage industry. The agricultural sector alone absorbs about 58% of the labour force while cottage industry, service and commerce taking 18%, 13% and 11%, respectively. The two districts general economies are therefore agrarian and rural with low commercial activities especially in the remote and smaller communities. The

relatively high commercial activities are confined to the few larger communities particularly those along major roads and those close to Kumasi. There are no weekly or periodic markets in the two districts (Bosomtwi and Atwima Kwanwoma District Assembly Profile, 2006).

The two Districts have 86 Kindergartens (KG's), 100 Primary Schools, 64 Junior High School (JHS) and three Senior High School (SHS). The teacher-pupil ratio is 1:30. In addition, there are three vocational and two technical institutes, all in the Bosomtwe District. The two Districts have 18 health facilities ranging from hospitals, health centres to clinics (9 of these are public, 7 mission health centres and 2 private clinics) (Bosomtwi Atwima Kwanwoma District Assembly Profile, 2006).

3.2 Data Collection

The study areas, Bosomtwi and Atwima Kwanwoma districts, were as zoned into three sections namely the Far East (Beposo and Abono), the Far West (Aburaso, Trabuom, Nweneso No.1 and Nweneso No.3) and Central (Esreso, Sawua and Jachie-Pramso) as shown in (Figure 3.1). Thirteen schools made up of ten Junior High Schools (JHS) and all the three public Senior High Schools (SHS) in the two Districts were chosen from all the zones (Table 3.1). Based on gender and class within either the Junior High School or Senior High School, between forty and fifty students were randomly selected from each school (Table 3.1). Each of the selected female and male students was allowed to complete questionnaires independently as shown in Plates 3.1, 3.2 and 3.3. They were also motivated with some incentives to ensure a high response rate. The questionnaires were administered to 600 students made up of 258 females and 342 males (Table 3.1).

Table 3.1: Selected schools in each of the three zones and the number of students interviewed in the Bosomtwi and Atwima Kwanwoma Districts

Far East Zone				
	School	Female	Male	Sub-total
SHS	Beposo Senior High School	18	32	50
JHS	Abono D/A	17	26	43
	Beposo D/A	15	30	45
Central Zone				
	School	Female	Male	Sub-total
SHS	Jachie-Pramso Senior High School	17	36	53
JHS	Esreso D/A	17	27	44
	Jachie D/A	19	22	41
	Pramso D/A	17	28	45
	Sawua D/A	17	27	44
Far West Zone				
	School	Female	Male	Sub-total
SHS	Afia Kobi Apem Girls Senior High Sch.	50	-	50
JHS	Nweneso No.1 D/A	19	27	46
	Nweneso No. 3 D/A	18	29	47
	Traboum Roman Catholic (R/C)	18	28	46
	Aburaso D/A	16	30	46
TOTAL		258	342	600

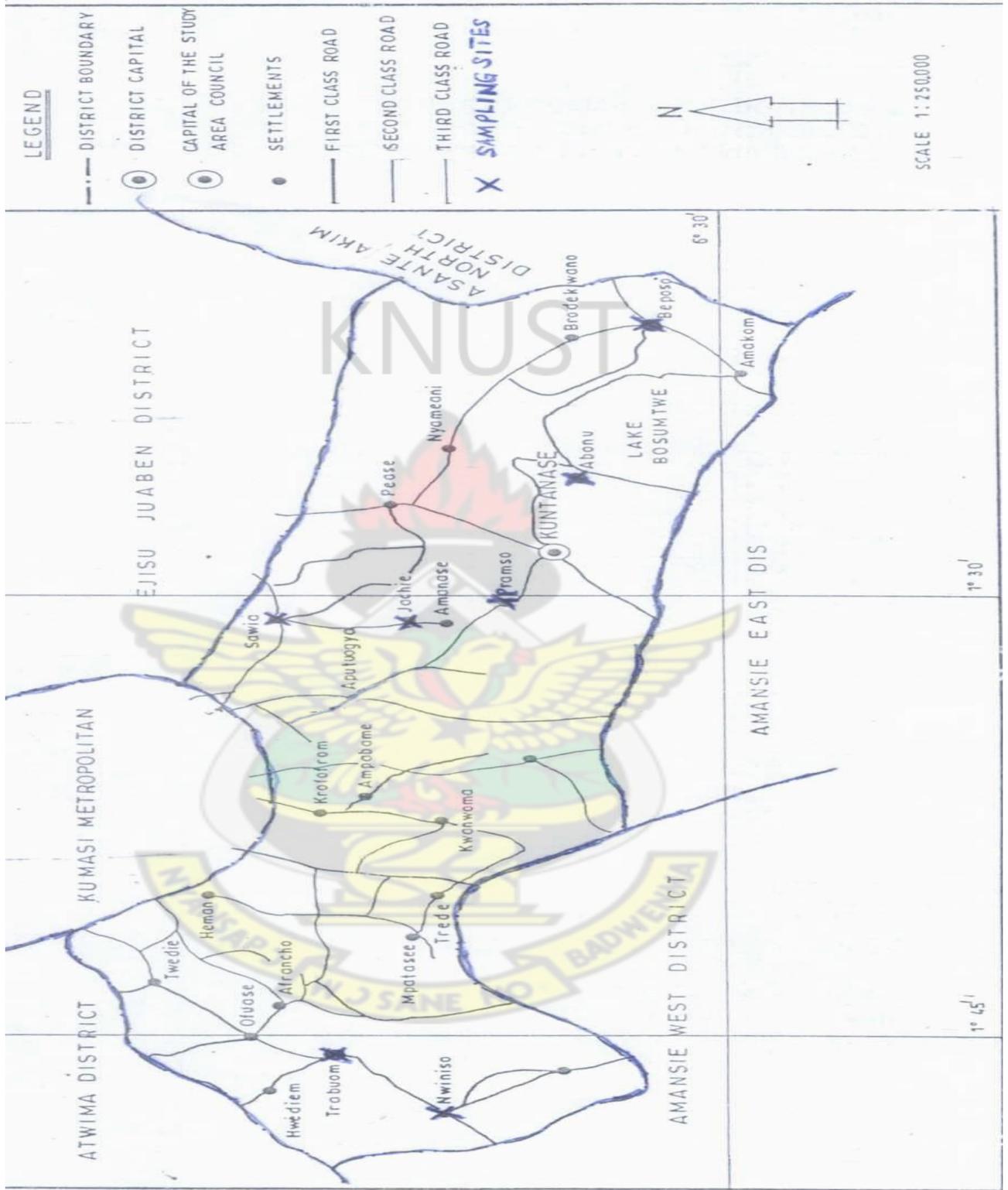


Fig 3.1: Map of Bosomtwe and Atwima Kwanwoma Districts showing the 13 communities (x) selected for the study area



Plate 3.1: A group of students (males and females) grouped to respond to questionnaires in Trabuom JHS (Far East Zone). They were provided with refreshment to motivate them

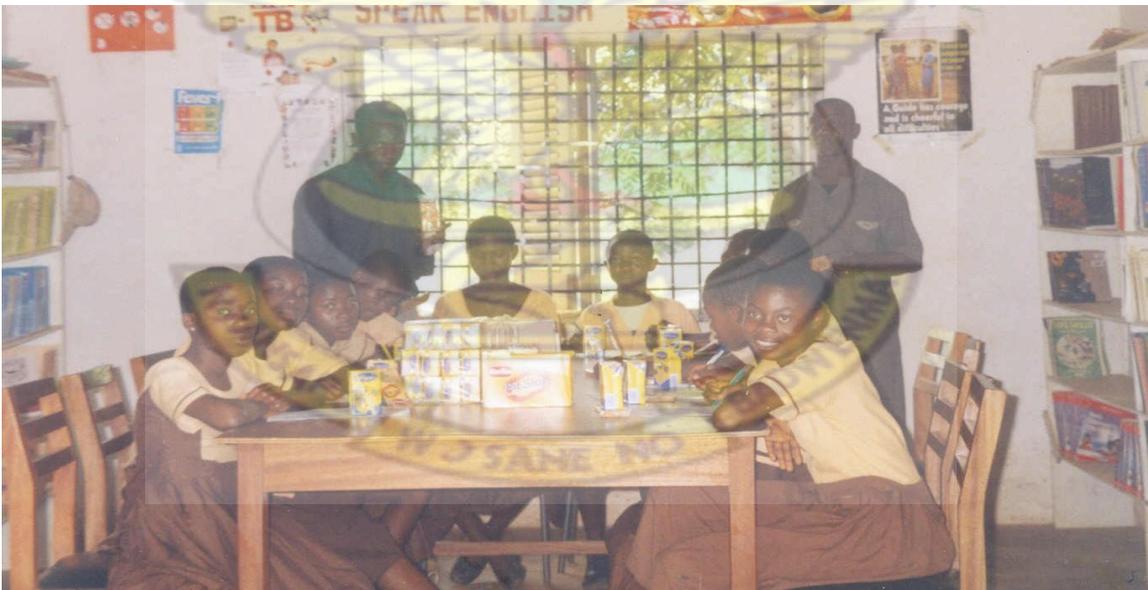


Plate 3.2 A group of JHS Students being motivated with incentives after responding to questionnaires at Beposo (Far West Zone).



Plate 3.3 A group of SSS Students of Afia Kobi Ampem Girls Senior High School to be motivated with incentives after answering the questionnaire (Far East Zone)

3.3 Sampling Procedure

Based on the total population of students and the distribution of the schools in the Far East, Far West and Central, thirteen schools from all the public junior and senior high schools in the two Districts were selected. Six hundred (600) students were then randomly selected from the three zones (Table 3.1).

In each of the 13 schools, a class was randomly selected and each student was given a serial/identity number. These numbers were also written on pieces of papers with the name of the student. Additionally, the gender ratios of students were used as a basic guide in the selection process. The names of students picked at random from each class in the selected schools were folded and kept in a separate empty box. The content

of each box was reshuffled. A paper was picked at random from the pool of the reshuffled ones in the box representing the different classes. The name of any student picked at random was then recorded and transferred to stand-by separate empty boxes for the males and females respectively. The picking process was continued until the required number of students per class was obtained from all the classes in each school. The representative samples from all the classes (i.e. SHS one to three and JHS one to three sub-groups) from each school were then regrouped and made to seat in one class room to answer the questionnaires independently in all the 13 selected schools.

The structured questionnaires focused on pertinent issues relating to the use of some psychotropic substances such as caffeine, alcohol, marijuana, etc. Additionally, the questions were designed to probe reasons accounting for the use of the psychotropic substances, the age at first use and source of supply of the drugs etc (Refer to Appendix 4.36). The questionnaires were also administered based on the key assumptions that:

- All the respondents understood the questions asked and answered them correctly.
- The information given by the students only reflected their practices and experience in drug use and;
- The survey was limited to students who were also present in school at the time the study was conducted.

3.4 Statistical Analyses

The responses to the questionnaires were analyzed using the Statistical Package for Social Scientists (SPSS) Version 13 and the percentages, chi-square values and correlation figures of the various findings were represented by tables and figures.

CHAPTER FOUR

RESULTS

4.1 Psychotropic substances identified to be used by students

Out of the 600 students interviewed, 562 (93.6%) drink coffee whilst 250 (41.6%) drink alcohol. The percentage consumption was relatively low for all the other substances; cigarette (11.7%), marijuana (7.0%), amphetamine (8.0%), cocaine (3.0%) and heroine (1.5%) (Figure 4.1).

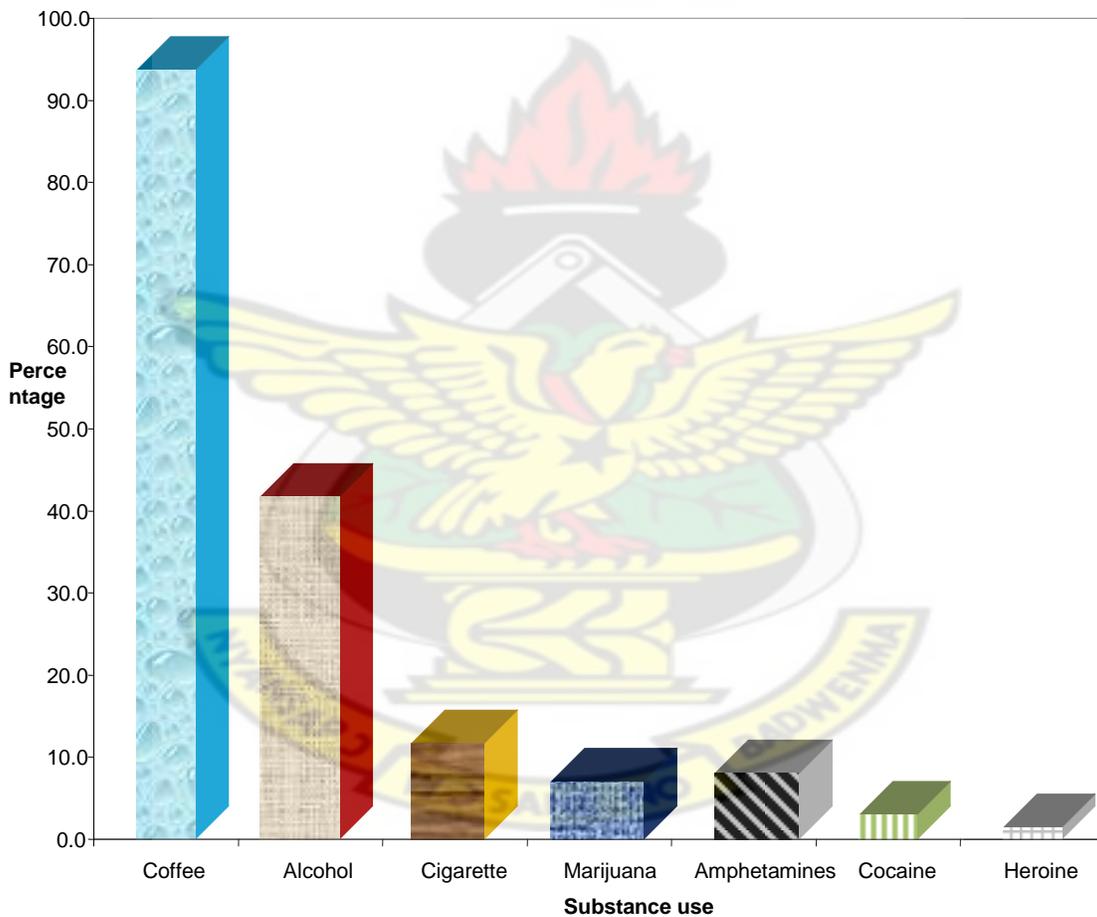


Figure 4.1: Percentage use of different psychotropic substances by students in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region

4.2 Prevalence rate of substance use

Almost all the students (96.8%) were involved in the use of the psychotropic substances.

Table 4.1: Prevalence rate of substance use among student

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No response	2	.3	.3	.3
Substance users	581	96.8	96.8	97.2
Non-users	17	2.8	2.8	100.0
Total	600	100.0	100.0	

The prevalence rate of substance use among students in the two Districts was high (96.8%).

4.3 Introduction of psychotropic substances to students

Cross tabulation, chi-square tests and the symmetric measures on level of substance use are shown in appendix Table 4.12. Majority (63%) of the students acquired these substances from their homes (45%) and friends (18%) (Figure 4.2). Other sources of substance acquisition were from drug dealers (6.2%), hospitals (4.5%), pharmacy shops (7.5%), drinking bars (8.5%) and others unspecified sources (14.2%).

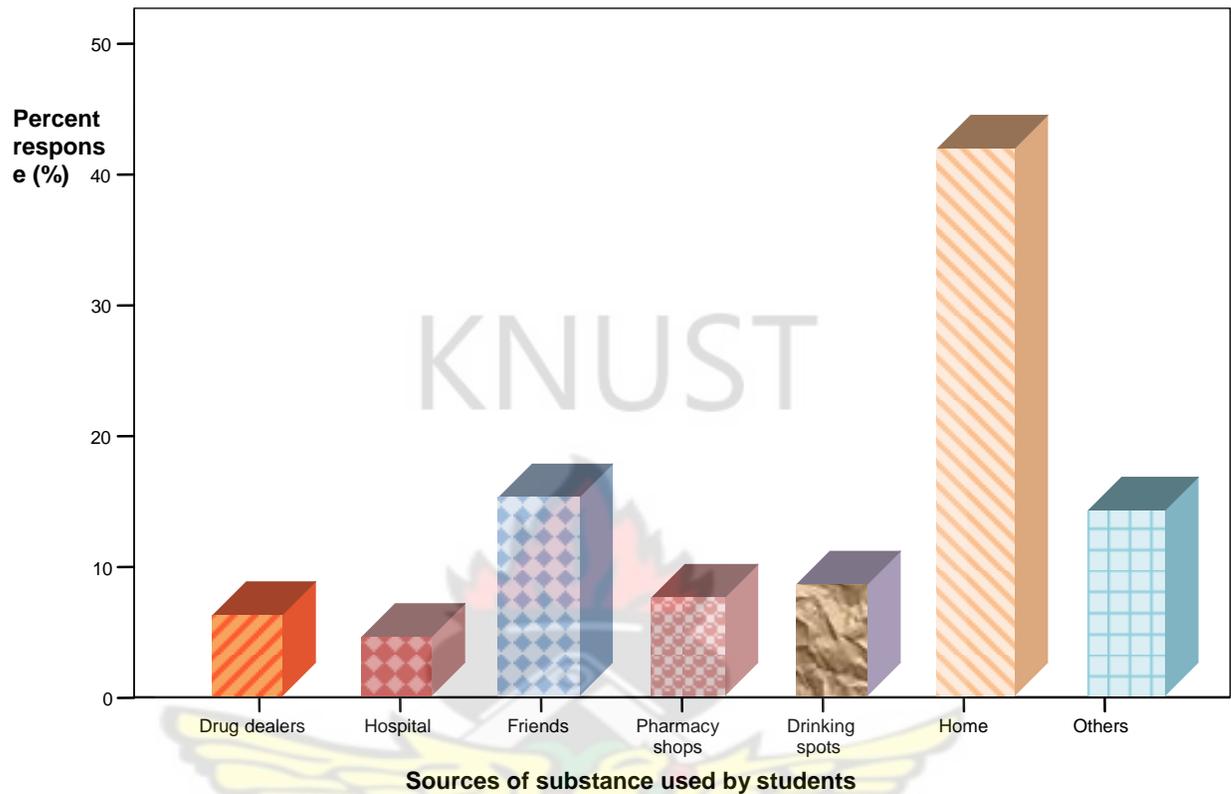


Figure 4.2: Sources of substance supply to student users in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region

4.4 Effects of substance use on academic performance

The effects of substance use on the level of academic performance have been shown in appendices 4.13 and 4.14 with their cross tabulations, chi-square tests and symmetric measures in tables of appendices 4.1, 4.2 and 4.3 respectively. The results indicate that 55.8% of the students interviewed believe the use of these drugs have an effect on their academic performance.

Majority (55.8%) of the pupils claimed that substance use had an influence on their academic performances. A relatively high number (47.7%) of the pupils claimed their academic performances were also enhanced (36.5%) or on the average (11.2%) as against a few (7.5%) whose performance were either low (4.0%) or the same (3.5%) following the use of these substances. Additionally, the chi-square tests on likelihood ratio and the linear-by-linear association of substance effect on the academic performance of pupils was asymptotically significant ($p < 0.000$ based on normal approximations) and the symmetric measures of substance use on academic performance interval-by-interval Pearson's R and ordinal-by-ordinal Spearman Correlation on number of valid cases were also approximately significant ($p < 0.000$ based on normal approximations).

4.5 Awareness level of the uses and effects of various substances.

Out of the 600 pupils, 562 (93.7%) drink coffee. Out of the number who drink coffee, 43.7% of them were fully aware of the health effects of abusing it whereas 27.3% were partially aware (Appendices 4.15 and 4.16).

A good number (42.0%) of the pupils use alcohol. Additionally, 34.5% of them were fully aware and 17.0% partially aware of the effects of alcohol (Appendices 4.17 and 4.18).

About 12.0% of the pupils use cigarettes. Additionally, 26.5% out of the 600 pupils interviewed were fully aware of the effects of cigarette smoking and 17.5% partially aware (Appendices 4.19 and 4.20). Similarly, about 39.9% of the pupils use marijuana of which 19.7% were fully aware and 14.2% partially aware of its health effects (Appendices 4.21 and 4.22).

About 8.0% of the pupils use amphetamine but only 14.3% of them were fully aware of its health effects (Appendices 4.23 and 4.24). Surprisingly, about 3.0% of the pupils use cocaine of which 17.8% were fully aware of the health effects (Appendices 4.25 and 4.26). About 1.5% of the pupils use heroine out of which 12.8% were fully aware of the effects of heroine (Appendices 4.27 and 4.28).

4.6 Some Predisposing factors influencing access to use of various psychotropic substances.

The kind of family in which a pupil is nurtured was identified to be a major predisposing factor influencing the use of the various psychotropic substances. The cross tabulations of the family association in terms of whom each of the respondents stayed with, the chi-square test on likelihood ratios and linear-by linear association and symmetric measures are shown in the tables of appendices 4.4, 4.5 and 4.6 respectively. The chi-square value ($p < 0.59$), on likelihood ratio and linear-by-linear association of pupils who abused any of the substances identified in two parent families was insignificant compared to the chi-square value ($p < 0.43$) in the single parent families. This implies that the pupils in single parent families were more likely to use drugs compared to those living with both parents. However, majority (54.2%) of the pupils were staying with both parents (Appendix 4.4).

4.7. Age distribution of substance users against substance use

The cross tabulation on the age distribution of substance use and the chi-square tests revealed that majority (95.5%) of the pupils who had access to psychotropic drugs

were between the ages of 11 and 20 years and the likelihood ratios among the various age groups were asymptotically insignificant ($p < 0.9$) (Appendices 4.7 and 4.8).

4.8. Sex distribution of substance users against the level of substance use.

The cross tabulation on the sex distribution of substance users, the chi-square tests and symmetric measures revealed that majority (51.8%) of the pupils who had access to the psychotropic drugs were males with females being 45%. The likelihood ratios among the various sexes were asymptotically insignificant ($p < 0.07$) or linearly insignificant ($p < 0.4$). Their symmetric measures interval by interval ($p < 0.4$) and ordinal by ordinal ($p < 0.4$) were all approximately insignificant (Appendices 4.9, 4.10 and 4.11).

4.9 The mode of introduction of psychotropic substance to student users

Majority (60.7%) of the students were introduced to the psychotropic substances in hospitals (30%) and by parents (30.7%) whereas a good number of them representing 18% got involved in the use of these drugs through self contacts (Figure 4.3).

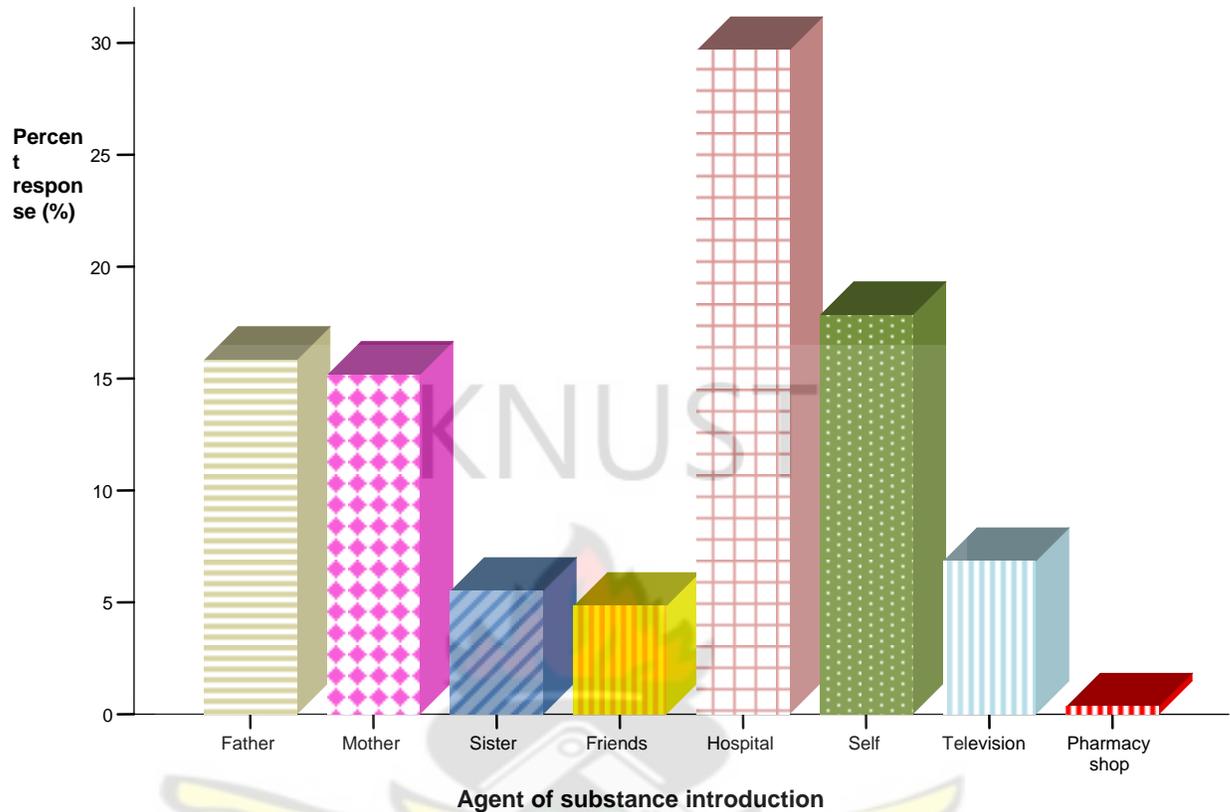


Figure 4.3: Percentage illustration of mode of introduction of psychotropic substances to student users in the two Districts of Ashanti Region

4.10 Sources of money for purchase of the psychotropic substances

Majority (72.2%) of the students who purchased these substances had money from parental remittances (39.0%) and pocket money (33.2%) (Figure 4.4).

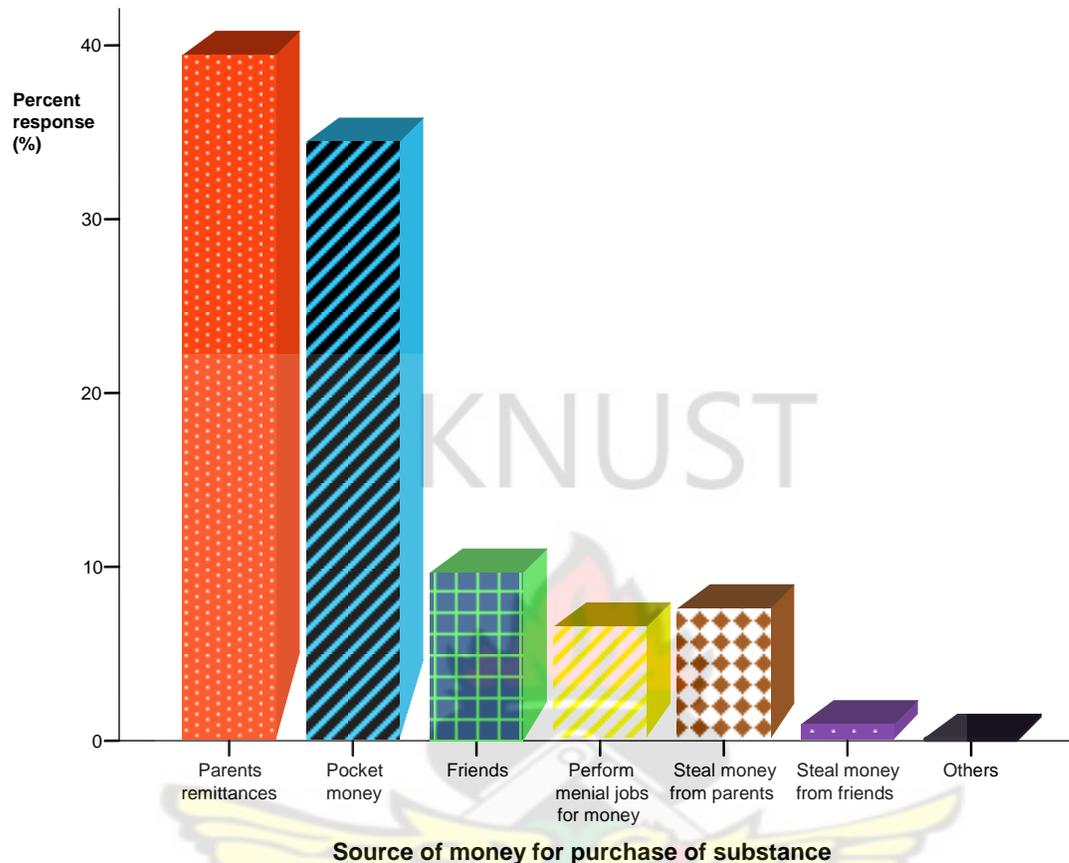


Figure 4.4: Source of money for purchase of the substances in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region

4.11 Frequency tables on the various psychotropic substance use based on access

The frequencies and percentages of psychotropic substance use by students based on access revealed that majority of the students (79.7%) preferred the use of only coffee (Appendix Table 4.29). However, majority (69.8-87.0%) did not want to use alcohol (69.7%), cigarette (81.5%), marijuana (83.3%), amphetamines (83.7%), cocaine (86.2%) and heroine (87.0%) even if they had access to it (Appendices Tables 4.30, 4.31, 4.32, 4.33, 4.34 and 4.35).

CHAPTER FIVE

DISCUSSION.

This study identified amphetamines, coffee, cigarette, cocaine, marijuana, alcohol, and heroine as the main psychotropic substances used most by students in the Bosomtwi and Atwima Kwanwoma Districts. Among the drugs, coffee (90%) and alcohol (45%) were the leading drugs abused.

This compares with a study in the Upper West Region of Ghana which showed coffee and alcohol as the most common drugs abused by students in second cycle institutions in the region (Tettey, 1991). However, about 31.2% of the total population expressed knowledge about the combined use of cigarette, marijuana, amphetamine, cocaine and heroine. Studies done by Yangyuoru (1987) on prevalence of drug use among the youth in Ghana ranked marijuana (65%), alcohol (40%) and cigarette (20%) among eight drugs commonly abused. Knowledge of the use of drugs in the Bosomtwi and Atwima Kwanwoma Districts was rather low and contradicted the trends shown by Yangyuoru (1987).

Additionally, research conducted in USA on substance abuse among students shows that 80% of high school kids have tried alcohol, with about 1.3% of people aged between 16 and 19 years falling victims of amphetamine abuse whilst 4% of school children aged 11-15 have tried amphetamines in UK. Further, about 22% of the American youth are found to experiment with marijuana as teenagers (Crowley *et al.*, 1998). The use of cocaine and heroine appears not to be known by the students even though few of them who lived in the developed urban parts of the country had known

these drugs. The total prevalence rate of substance use among students in the Bosomtwi and Atwima Kwanwoma Districts is very high (97.2%).

However the effects of the substance use on level of academic performance in tables of appendices 4.1 and 4.2 with their cross tabulations, chi-square tests and symmetric measures in appendix 4.3 and Appendices tables 4.5 and 4.6 respectively proved that the majority (55.8%) of the students used the substance because it probably had positive influence on their academic performances. About 48% of students who participated in the survey claimed their academic performances improved (36.5%) or on the average (11.2%) as against the few (7.5%) whose performances still remained low or even poorer when the victim students experimented with the drugs (Appendix 4.2).

The use of alcohol, tobacco, cigarette, and marijuana is common in many developed countries. The study of trends and prevalence of these drugs among Ontario students revealed that alcohol, marijuana and tobacco were also the major drugs being abused (Reginald *et al.*, 1990). Similar results were obtained in studies conducted in Costa Rica and the Bahamas when comparing the students' attitude towards drugs (Reginald *et al.*, 1990). In all, coffee and alcohol were the most significantly abused drugs among the students. The high consumption of alcohol in particular among the youth has been found to be associated with juvenile delinquencies resulting in unplanned and unprotected activities such as sexual intercourse (Chambrie *et al.*, 1983). In a Swedish study involving 71 sexually active adolescents, 40% of young men and 60% young women reported they had been drunk at the time of first sexual intercourse.

Additionally, studies on the effects of the use of hard drugs such as marijuana by students and peers in the USA as attempts to improve upon academic performances or deal with the struggles and trials of everyday life has rather caused truancy and increased level of school drop outs (Eduardo, 1990).

Numerous risk factors have been implicated in the initiation and maintenance of drug use. From this study for all the schools, the main reason for student's abuse of drugs was to enhance academic performance. Other reasons include need for courage to undertake an adventure, the influence of peer groups, for pleasure, curiosity and when sick, (this has been stated by those who use marijuana, coffee, cigarette and alcohol in particular). Studies done in some tertiary institutions in Ghana have implicated a number of risk factors which vary from place to place (Newcomb *et al.*, 1986). A study done in the University of Ghana Medical School in 1972 by Jayson and Roger (1972) revealed that amphetamine, caffeine and marijuana were used for the specific purposes of aiding students in academic work. In his analysis, Eduardo (1990) also found support for the hypothesis that youths use marijuana in particular, as a means to deal with their daily problems and to manage the negative affects that accompany them, such as depression and stress. This is in conformity with this study in which the greater proportion of the students used the drugs to enhance their academic performance. The risk factors investigated in a study can be used as tools to help in solving the problems of drug menace.

Additional efforts made to identify the first time the students started using the drugs revealed that a greater proportion (95.5%) of the students had access to the substances and also abused them at their teen ages of between 11 and 20 years with

likelihood ratios among the various age groups asymptotically insignificant ($p < 0.9$) (Appendices 4.9 and 4.10). Also, the greater proportion about 52% of the male students were those found to abuse drugs at the adolescent age of less than 15 years but the female addicts account for about 45%. The differences in likelihood ratio of drug abuse among male and females were generally asymptotically insignificant ($p < 0.07$) or linearly insignificant ($p < 0.4$).

It has been confirmed by studies in the US on stages of progression in drug involvement from adolescence to adulthood and further evidence from the gateway drugs that the average first use of any drug in our communities (USA) today is 11.5 years with male youths serving as the dominant group compared to their female counterparts (University of Michigan, 1998). This indicates that education and counseling on drug use should start at the primary level and then, intensified at the Junior and Senior High School levels. Thus although 3 and 4-year olds would not be ready to learn the facts about alcohol or other drugs, they can begin to develop the decision-making and problem solving skills they would need later on and drug education should take place at all levels of education on the hazards of drug abuse (Kandel *et al.*, 1992).

The student's responses show that majority (60.7%) of them were introduced to the substances by hospitals and parental contacts (Figure 4.3). On the contrary, the data in figure 4.2 shows that the main distribution channels (63%) of the substances rather comprise of the family and friends. The responses further confirm the fact that, personal contacts and probably other unknown point sources could not be ruled out completely. In the USA for instance, there are legislative instruments to prevent

teenagers from drug abuse. However, the family and friends have still been identified as the major sources of substance introduction to child abusers from a social learning perspective. Besides, the focus is directed toward intimate groups and the acquisition of values and certain beliefs that favor deviance and crime relating to drug abuse (Ligouri *et al.*, 1998).

Additionally, a greater proportion (72%) of responses show that the student's main source of money for the purchase of these drugs is through parents remittances which also constituted their pocket money. This situation is rather aggravated in the families where parents are not permanently residing with their school going children but entrusts their children's welfare with relatives and keep providing the basic needs usually in terms of money (Fig. 4.4). Similar cases have been detected where such students in associations with other peer groups generate attitudes which favor frequent and more intense abuse of marijuana among the less protected youths (Ligouri *et al.*, 1998).

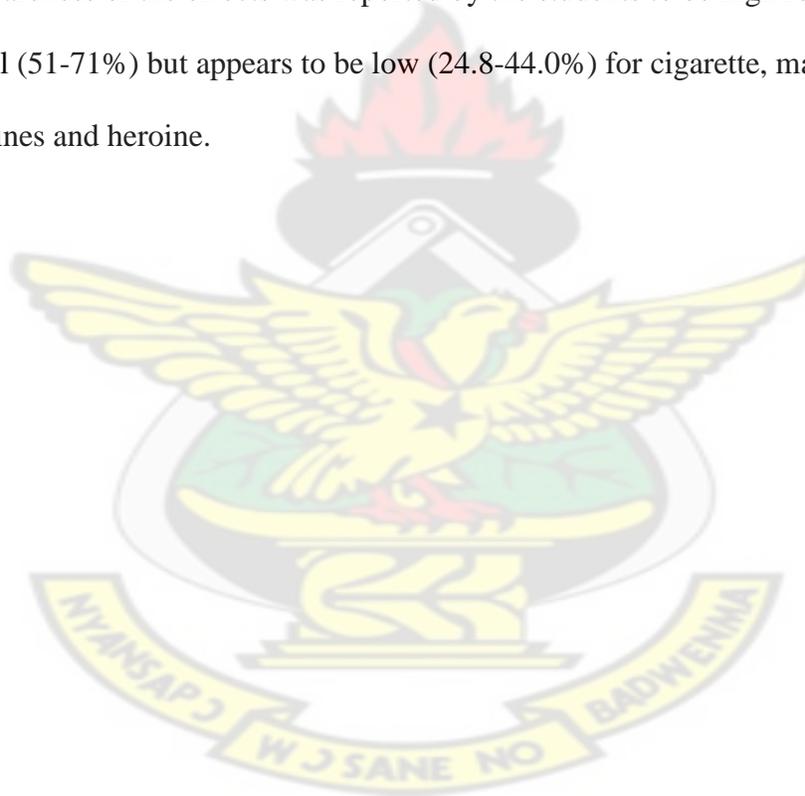
The kind of family attachment was a major predisposing factor influencing the use of the various psychotropic substances. The cross tabulations on the family association in terms of whom each of the respondents stay with, the chi-square test on likelihood ratios and linear by linear association and symmetric measures shown in tables of appendices 4.6, 4.7 and 4.8 respectively revealed that majority (54.2%) of the students stay with both parents as opposed to the few (40.33%) who are either attached to a single parent (26.7%) or a relative (13.7%). However, the likelihood ratios, and linear-by-linear associations of student/family attachment as against the level of substance abuse were not asymptotically significant ($P < 0.4$ and $P < 0.2$) (Appendix 4.5).

This could buttress the fact that students who even stay with their parents or relatives and are carefully monitored at home or school could still maneuver to acquire and abuse drugs through their personal efforts. Despite the debates over the nature, value, and importance of the family, there is substantial evidence that not only is marriage beneficial to both men and women, but also that all sorts of undesirable experiences and behavior related to drug abuse are more common among youths whose parents experience marital disruption (Furstenberg, 1990; Seltzer, 1994).

Additionally, youths from families with married parents live in much better economic environments compared to those from single parent families and youths in households with stepparents often they do not perform as well in school as those growing up with both biological parents (Downey, 1994; Astone *et al.*, 1991; Hao, 1996). However, drug use among youths has been found to be lowest in mother-father families (Hoffman *et al.*, 1998). Thomas, *et al.*, (1996) report the highest rates of delinquency and substance abuse to be among White males in single mother households without the support of a nonresident father in the USA. Additionally, delinquency risk for males in stepfamilies and single parent families is double that of those living with both parents (Coughlin *et al.*, 1996).

Generally, the level of drug abuse was very high for coffee (93.7%) high for alcohol (50%) (Appendices 4.15 and 4.17) but low in the range of 1.5% - 39.9% for cigarette, marijuana, amphetamines and heroine (Appendices 4.19, 4.21, 4.23 and 4.25 respectively) in terms of preferences to these drugs and based on access and the various predisposing factors among the students.

The psychotropic drugs most children use first are called “Gateway Drugs”. This is because these children learn to accept and embrace the high feelings associated with its use (Kandel *et al.*, 1992). It has been established that the preferential use of coffee and Gateway Drugs (alcohol, tobacco and marijuana and inhalants) is also a strong predictor for the future use of other drugs (Kandel *et al.*, 1992). In recent times the phenomenon of illicit use of drugs, especially, cocaine discussion on both the print and the electronic media attest to the seriousness of the drug menace. However, the level of awareness of the effects was reported by the students to be high for both coffee and alcohol (51-71%) but appears to be low (24.8-44.0%) for cigarette, marijuana, amphetamines and heroine.



CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

The effort to improve student behavior and increase the quality of academic performances in first and second cycle educational institutions in the Bosomtwi and Atwima Kwanwoma districts and the Ashanti Region in general is gaining widespread attention with greater participation and involvement of the Ghana Education Service, Government Agencies, beneficiary communities and Non Governmental Organizations in Ghana, leading to the implementation of several school infrastructural and curriculum development programmes. However, the problem of rampant drug abuse with the negative impression of gaining improved academic performance on the part of some stressed or frustrated youths who are either less informed or so prone to peer pressure in the midst of several predisposing factors has rather resulted in truant behaviors and destruction of school properties, teenage pregnancies, school drop outs etc. The study generally revealed that 93.7% of students in Bosomtwi and Atwima Kwanwoma Districts consume coffee apparently for increased concentration and to stay awake during examinations. About 42% of students in Bosomtwi and Atwima Kwanwoma Districts consume alcohol apparently for mental alertness in class. The study revealed relatively low percentage of students who use other drugs such as cigarette, marijuana, amphetamines, cocaine and heroine. The study also revealed that 55.8% of the students in the two Districts who use drugs had effect on their academic performances; of this 36.5% responded an improved academic performance after using the drugs while 7.5% responded their academic performances worsened or remained the same after using the drugs. Surprisingly, 42% of the substance abusers had their

point source supplies from home and 15% of the students got their supplies from friends. This study established that 51.8% of the drug abusers in Bosomtwi and Atwima Kwanwoma Districts public schools were males while 45% were females. Interestingly the age distribution of the drug abusers in the two Districts public schools range from 11 years to 20 years and the kind of family association was a major predisposing factor for drug use. The study generally revealed little improvement on academic performances in schools with increased drug use even though the extent of abuse has significantly increased for coffee and alcohol, and is most likely to involve the intensive use of cocaine, marijuana and heroine if appropriate measures are not adopted to curb current trends in the first and second cycle schools in the two districts.

RECOMMENDATION

It is therefore strongly recommended that School Management Committees (SMCs), Parent Teacher Associations (PTAs) and all stake holders in Education in the two districts need to be seriously involved in school management programs to assist in the implementation of the Free Compulsory Universal Basic Education (FCUBE) and monitor the child's progress and programmes at home and school levels in order to find a lasting solution to the rampant drug abuse problems. Another most effective strategy for preventing drug use is keeping drugs out of home, neighborhood and schools.

Schools must occasionally organize lectures and symposia to highlight the negative effects of drug abuse, spelling out its devastating effects on the human body. Guidance and counseling departments in the second cycle institutions must set out their

activities and counsel students to eschew drug abuse. Drug abuse should be treated as a topic in integrated science and Social studies at first and second cycle Institutions. It is recommended that the teaching of the topic should start at Basic level four (P.4) in the primary schools since 11 years old children experiment with drugs. Rewards must be made to schools whose students stayed clear of drugs. The church must also lend its support to the effect. Preachers must incorporate in their sermons, hints on the dangers of drug abuse. The media, television, newspapers must all join the crusade against drug abuse. At home, teenagers must be made to go through proper socialization for a personality build up which could discourage them from taking of drugs. Additionally, all forms of advertisements which tend to promote the use of drugs such as alcohol, marijuana etc. must be banned.

Marriage counseling seminars and workshops should be organized in the beneficiary schools and communities with Parent Teacher Associations as the main target groups to address the problem of divorce which indirectly affect school children depriving them of the rightful care in the form of sound moral and financial support needed to develop their future ambitions. In the long run, this could help prevent the stress and indiscipline such deprived children go through and thus reduce their likelihood to depend on drugs.

REFERENCE

- Asperheim, M. K. (2002). Substance Abuse. Pharmacology an Introductory Text. *Journal of Southwest Tennessee Community College*, 7: 273-278.
- Astone, N. M., and McLanahan, S.S (1991). Family structure, parental practices and high school completion. *American Jour. of Sociological Review*, 56: 309 – 320.
- Ayerst, S.L. (1999): Depression and stress in street youth. *The wall street Journal*, 34: 52-94.
- Bailey, S.L., Camlin, C.S. and Ennett, S.T. (1998). Substance use and risky behavior among homeless and runaway youth. *Journal of Adolescent Health* 23: 378-388.
- Baker, E., and Tually, S. (2002). Australian Institute of Health and Welfare (AIHW) *Australian Journal of Social Issues*, 37: 56-75.
- Bammer, G. and Weekes, S. (1994). Becoming an ex-user: Insights into the process and implications for treatment and policy. *Drug and Alcohol Review* 13: 285-292.
- Bessant. J., Coupland, H.T., Dalton, T., Maher, L., Rowe, J. and Watts, R. (2002). Heroin users, housing and social participation: Attacking social exclusion through better housing. Australia: Australia Housing and Urban Research Institute (AHURi) Position Paper, Royal Melbourne Institute of Technology (RMIT) Research Centre and the University of New South Wales (UNSW)—The University of Western Sydney (UWS) Research Centre. (*Never published*)
- Biernacki, P. (1986). *Pathways from Heroin Addiction: Recovery without Treatment*. Philadelphia, PA: Temple University Press.

Blomqvist, J. (1996). Paths to recovery from substance misuse: Change of lifestyle and the role of treatment. *Substance Use and Misuse* 31: 1807-1852.

Blue Moon Research and Planning (BMR) (AUS) (2000). Illicit drugs: Research to aid in the development of strategies to target youth and young people. Canberra, Australia: Commonwealth Department of Health and Aged Care, Population Health Social Marketing Unit.

Bosomtwi Atwima-Kwanwoma District Assembly Profile,. (2001)

National Centre for Social Research and the National Foundation for Educational Research. *Ghana Book Publishers Association*. 1: 1-5

Bumpass, L.L., and Lu, H.H. (2000). Trends in cohabitation and implications childrens' and adolescents' maladjustments. *American Jour. of Population Studies*, 54: 29 – 41.

Chambrie, D., and Dewey, L. (1983). Behavioral patterns of alcohol use among young adults in Britain and Zimbabwe. *British Jour. of Addiction* 78(3): 311 – 316.

Cornelius, M. D.; Taylor, P. M.; Geva, D.; and Day, N. L. (1995). Prenatal tobacco and marijuana use among adolescents: effects on offspring gestational age, growth, and morphology. *Pediatrics*, 95: 738-743.

Coughlin, C., and Vuchinich, S. (1996). Family experience in preadolescence and the development of male delinquency. *American Jour. of Marriage and the Family*, 58: 491 – 501.

Crowley, T. J.; Macdonald, M. J.; Whitmore. E. A.; and Mikulich, S. K. (2007). Cannabis Dependence, Withdrawal, and Reinforcing Effects among Adolescents With Conduct Symptoms and Substance Use Disorders. *Drug and Alcohol*

- Dependence. *Universit De Lyon, PhD Thesis 1*: 1-114.
- Dittus, P.J., and Jaccard, J. (2000). Adolescents' perception of maternal disapproval sex: Relationship to sexual outcomes. *American Jour. of Adolescent Health*, 26: 268 – 278.
- Dorius, C.J., Bahr, S.J., Hoffman, J.P., and Harmon, E.E. (2004). Parenting practices as moderators in the relationship between peers and adolescents marijuana use. *American Jour of Marriage and the Family*, 66: 163 – 178.
- Downey, D.B. (1994). The school performance of children from-single and single-father families: Economic interpersonal deprivation? *American Jour. of Family* 15: 128 – 147.
- Eduardo, A.M.(1990). Drug abuse in Costa Rica. A review several studies. *Bulletin of PAHO* 21(1): 12 – 21.
- Emmanuel, S.C., Ho, C.K., and Chen, A.J. (1990). Cigarette smoking among school Children in Singapore. PMID: 2392697 [PubMed - indexed for MEDLINE. *Singapore Med. Journal June*. 31(3) 211-6
- Fletcher, J. M.; Page, J. B.; Francis, D. I.; Copeland, K.; Naus, M. J.; Davis. C. M.; Morris, R.; Krauskopf, D.; and Satz, P. (1996).Cognitive correlates of long-term cannabis use in Costa Rican men. *Arch. of General Psychiatry*, 53: 1051-1057.
- Furstenburg, F.F. Jr. (1990). Divorce and the American Familiy. *Annual Review of Sociology in Los Angels*, 16: 379 – 403.
- Ghana Statistical Service (GSS 2002). Ghana Population Census. *Summary Report on Final Report*. March. Medial ties Co. Ltd.
- Hao, L. (1996). Family structure, private transfers and the economic well-being of

- families with children. *American Jour. Social Forces*, 75: 269 – 292.
- Harder, S. and Reitbrock, S. (1997). Concentration-effect relationship of delta-9-tetrahydrocannabinol and prediction of psychotropic effects after smoking marijuana. *International Journal of Clinical Pharmacology and Therapeutics*, 35(4): 155-159, 1997.
- Haynie, D.L., and Osgood, D.W. (2005). Reconsidering peers and delinquency. How do peers matter? *American Jour. of Social Forces*, 84: 1109 – 1130.
- Hoffman, J.P., and Johnson, R.A. (1998). A national portrait of family structure and Adolescent substance use. *Journal of marriage and the family*. 60 : 633-645.
- Jayson, O. and Roger, A. L. (1972). Drug abuse Among Ghanaian Medical Students. *Ghana Med. Jour.* 11(3): 307.
- Jones, R.T. Benowitz, N.L. and Herning, R I. (1981). Clinical relevance of cannabis tolerance and dependence. *Journal of Clinical Pharmacology*, 21(Suppl): 143- 152.
- Kandel, D.B., Yamaguchi, K. and Chen, K. (1992). Stages of Progression in Drug Involvement from Adolescence to Adulthood. Further Evidence for the Gateway Drug Theory. *American Journal of Alcohol Studies*, 45: 447 – 457.
- Kirby, J.B. (2006). From single-parent families to step families: Is the transition associated with alcohol initiation? *American Jour. of Family Issues*, 27: 685 – 711.
- Liguori, A., Gatto, C. P., and Robinson, J. H. (1998). Effects of marijuana on equilibrium psychomotor performance and simulated driving. *Behavioral Pharmacology*, 9: 599-609.
- McLanahan, S. and Adams, J. (1987). Parenthood & psychological well-being. *Annual*

Review of Sociology, America, 5: 327 – 357.

National Criminal Justice Services on Drugs and Crime Source:

<http://www.whitehousedrugpolicy.gov/prevent/index.html>

National Institute on Drug Abuse. (1998). National Survey Results on Drug Use from the Monitoring the Future Study, 1975-1997, Volume I/Secondary School Students.

NIH Publication No. 98-4345.

Newcomb, M. D., Maddahain, E. and Bentler, M. P. (1986). Risk factors of drug use among adolescents, concurrent and longitudinal analyses. *American Jour. of Public Health* 76(5): 525 – 531.

Parcel, T.L., and Dufur, M. J. (2001). Capital at home and in the school: Effects on students achievement. *American Jour. of Social Forces*, 79: 88 – 912.

Pong, S. (1997). Family structure, school context, and eighth-grade maths and reading achievement. *American Jour. of Marriage and Family*, 59: 734 – 178.

Pope, H. G. and Yurgelun -Todd, D. (1996). The Residual Cognitive Effects of Heavy Marijuana Use in College Students. *Journal of the American Medical Association*, 275 : 521-527.

Regenerus, M.D., and Luchies, L.B. (2006). The parent-child relationship and opportunities for adolescents' first sex. *American Jour. of Family Issues*, 27: 159 – 183.

Reginald, G.S. and Edward, M.A.(1990). Drug use in Ontario, Canada, *Bulletin of PAHO* 24(1): 12 – 21.

Reginald, D. S. and Sandra, D.P. (1990). Comparison of alcohol, tobacco, and illicit drug use among Students and Delinquents in Bahama. *Bulletin of PAHO* 24(1):

- Rehm, J. Rehn, N. and Room, R. (2003). The global distribution of average volume of alcohol consumption and patterns of drinking. *Eur Addict Res* 9: 147—56.
- Rockville, M.D. and Smock, P.J. (1997). Substance Abuse and Mental Health Service Administration, Office of Applied Sciences (SAMSHA). Preliminary Results from The 1996 National Household Survey on Drug Abuse. DHHS (SMA) 97: 31-49.
- Rodriguez de Fonseca, F.; Carrera, M. R. A.; Navarro, M.; Koob, G. F.; and Weiss, F. (1997). Activation of Corticotropin-Releasing Factor in the Limbic System During Cannabinoid Withdrawal. *Science*. 276: (5321) 2050-2054.
- Seltzer, J.A. (1994). Consequences of marital dissolution for children. *Annual Review of Sociology*. America, 20: 235 – 266.
- Simons, R.L., Simons, L.G., and Wallace, L.E. (2005). *Families, delinquency and crime*. Oxford University press, USA. 1: 1-232.
- Tettey, M.M. (1991). Drug abuse—A study of second cycle institutions in the Northern Region of Ghana. UNIVERSITAS (Kwame Nkrumah University of Science and Technology). Theses (*work not published*).
- Thomas, G., Farrel, M.P., and Barnes, G.M. (1996). The effects of single-mother families and nonresident fathers in delinquency and substance abuse in Black and White adolescents. *American Jour. of Marriage and the Family*, 58: 884 – 894.
- Triplett, R., and Payne, B. (2004). Problem solving as reinforcement in adolescent drug use: Implications for Theory and Policy. *American Jour. of Criminal Justice*, 32: 617 – 630.
- University of Michigan. News and Information Services. Drug use among American

teens show signs of leveling after a long rise. December 18, 1997.

UNODCCP Studies of Drugs and Crime, Global Trends Annual Report 2002

Valium Facts 26th September 2006) <http://www.reliable-online-drugs.com/buy-online/buy-Valium-online/buy-Valium-online.html>.

William J. and Bailey, M.P.H. (1995). Fact-line on Non-Medical use of Ritalin (methylphenidate). The Indiana Prevention Resource. Copyright 1995, the Trustees of Indiana University.

Yangyouru, Y. (1987). The social correlates of psychotropic substance use by contemporary youth of Ghana. UNIVERSITAS (University of Ghana) 9: 154 – 171.



APPENDICES

Appendix 2.1 Table of Prevalence of smoking among adults and youth in selected countries.

Country	Annual per capita consumption of cigarette	Prevalence of smoking (%)			
		Adults		Youth	
		Males	Females	Males	Females
Argentina	1495	46.8	34.4	25.7	30.0
Bolivia	274	42.7	18.1	31.09	22.0
Chile	12.0	26.0	18.3	34.0	43.4
China	1791	66.9	4.2	14.0	7.0
Ghana	161	28.4	3.5	16.2	17.3
Indonesia	1742	59.0	3.7	38.0	5.3
Jordan	1832	48.0	10.0	27.0	13.4
Kenya	200	66.8	31.9	16.0	10.0
Malawi	123	20.0	9.0	18.0	15.0
Mexico	754	51.2	18.4	27.9	16.0
Nepal	619	48	29.0	12.0	6.0
Peru	1849	41.5	15.7	22.0	15.0
Poland	2061	44.0	25.0	29.0	20.0
Singapore	1230	26.9	3.1	10.5	7.5
Sri Lanka	374	25.7	1.7	13.7	5.8
USA	2255	25.7	21.5	27.5	24.2

Source: Mackay and Eriksen, 2002.

Appendix 4.1 Cross tabulation of substance effect on academic performance

		has the use of the substance had any effect on your academic performance?			Total
SUBSTANCE USE	No response	2			2
	Positive	1	335	245	581
	Negative	17			17
Total		20	335	245	600

Appendix 4.2 Table of chi-square test on substance effect on academic performance

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	569.019 ^a	4	.000
Likelihood Ratio	160.646	4	.000
Linear-by-Linear Association	75.743	1	.000
N of Valid Cases	600		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .07.

Appendix 4.3 Table of symmetric measures of substance use on academic performance

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	-.356	.072	-9.304	.000 ^c
Ordinal by Ordinal Spearman Correlation	-.275	.057	-6.983	.000 ^c
N of Valid Cases	600			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix 4.4 Cross tabulation indicating whom the various respondents

		Whom do you stay with				Total
		Both parents	Single parent	A relative	Alone	
SUBSTANCE USE	No response	2				2
	Positive	325	160	82	14	581
	Negative	13	3	1		17
Total		340	163	83	14	600

Appendix 4.5 Table of chi-square tests on whom the various respondents stay with

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.578 ^a	6	.599
Likelihood Ratio	5.897	6	.435
Linear-by-Linear Association	1.501	1	.221
N of Valid Cases	600		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .05.

Appendix 4.6 Table of symmetric measures on whom the various respondents stay with

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	-.050	.032	-1.226	.221 ^c
Ordinal by Ordinal Spearman Correlation	-.051	.035	-1.244	.214 ^c
N of Valid Cases	600			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix 4.7 Cross tabulation of the age distribution of respondents against substance abuse

		Age group				Total
		11 - 15	16 - 20	21 - 25	26 - 30	
SUBSTANCE USE	No response	1	1			2
	Positive	301	272	7	1	581
	Negative	9	8			17
Total		311	281	7	1	600

Appendix 4.8 Table of chi-square tests on age distribution of respondents against substance abuse

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.272 ^a	6	1.000
Likelihood Ratio	.525	6	.998
N of Valid Cases	600		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .00.

Appendix 4.9 Cross tabulation of sex distribution of respondents of substance abuse

		SUBSTANCE USE			Total
		No response	Positive	Negative	
sex	male		311	6	317
	female	2	270	11	283
Total		2	581	17	600

Appendix 4.10 Table of chi-square tests of sex distribution of respondents against substance abuse

	Value	df	Asy mp. Sig. (2-sided)
Pearson Chi-Square	4.452 ^a	2	.108
Likelihood Ratio	5.233	2	.073
Linear-by-Linear Association	.797	1	.372
N of Valid Cases	600		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .94.

Appendix 4.11 Table of symmetric measures on sex distribution of respondents against substance abuse

	Value	Asy mp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	.036	.041	.893	.372 ^c
Ordinal by Ordinal Spearman Correlation	.037	.041	.907	.365 ^c
N of Valid Cases	600			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix 4.12 Table of Cross tabulation on the introduction of psychotropic substances to student users.

		SUBSTANCE USE			Total
		No response	Positive	Negative	
who introduced you to the substance?	No response	2	5	17	24
	Father		95		95
	Mother		91		91
	Sister		33		33
	Friends		29		29
	Hospital		178		178
	Self		107		107
	Television		41		41
	Pharmacy shop		2		2
	Total		2	581	17

Appendix 4.13 Table of Effect of substance use on academic performance of pupils in Bosomtwi and Atwima Kwanwoma Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	20	3.3	3.3	3.3
	Yes	335	55.8	55.8	59.2
	No	245	40.8	40.8	100.0
	Total	600	100.0	100.0	

Appendix 4.14 Table of Percentage level of academic performance of pupils using drugs in the two Districts

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No response	269	44.8	44.8	44.8
Better	219	36.5	36.5	81.3
Average	67	11.2	11.2	92.5
Lower	24	4.0	4.0	96.5
Same	21	3.5	3.5	100.0
Total	600	100.0	100.0	

Appendix 4.15 Table of Percentage response of students who uses coffee in the two Districts

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No response	2	.3	.3	.3
Yes	562	93.7	93.7	94.0
No	36	6.0	6.0	100.0
Total	600	100.0	100.0	

Appendix 4.16 Table of Percentage level of awareness of the effects of coffee by student users in the two districts

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No response	39	6.5	6.5	6.5
Fully aware	262	43.7	43.7	50.2
Partially aware	164	27.3	27.3	77.5
Not aware	135	22.5	22.5	100.0
Total	600	100.0	100.0	

Appendix 4.17 Table of Percentage responses indicating students who use alcohol in Bosomtwi and Atwima Kwanwoma Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	2	.3	.3	.3
	Yes	250	41.7	41.7	42.0
	No	348	58.0	58.0	100.0
	Total	600	100.0	100.0	

Appendix 4.18 Table of Percentage awareness of the effects of alcohol by student users in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	183	30.5	30.5	30.5
	Fully aware	207	34.5	34.5	65.0
	Partially aware	102	17.0	17.0	82.0
	Not aware	108	18.0	18.0	100.0
	Total	600	100.0	100.0	

Appendix 4.19 Table of Percentage of students who use cigarette in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	2	.3	.3	.3
	Yes	70	11.7	11.7	12.0
	No	528	88.0	88.0	100.0
	Total	600	100.0	100.0	

Appendix 4.20 Table of Percentage awareness of students about the effects of cigarette in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	274	45.7	45.7	45.7
	Fully aware	159	26.5	26.5	72.2
	Partially aware	105	17.5	17.5	89.7
	Not aware	62	10.3	10.3	100.0
	Total	600	100.0	100.0	

Appendix 4.21 Table of Percentage of students who use marijuana in BAK District

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	2	.3	.3	.3
	Yes	42	7.0	7.0	7.3
	No	556	92.7	92.7	100.0
	Total	600	100.0	100.0	

Appendix 4.22 Table of Percentage awareness of the effects of marijuana by student users in BAK District

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	287	47.8	47.8	47.8
	Fully aware	118	19.7	19.7	67.5
	Partially aware	85	14.2	14.2	81.7
	Not aware	110	18.3	18.3	100.0
	Total	600	100.0	100.0	

Appendix 4.23 Table of Percentage of students who use amphetamine in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	3	.5	.5	.5
	Yes	48	8.0	8.0	8.5
	No	549	91.5	91.5	100.0
	Total	600	100.0	100.0	

Appendix 4.24 Table of Percentage awareness of the effects of amphetamine by students in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	312	52.0	52.0	52.0
	Fully aware	86	14.3	14.3	66.3
	partially aware	83	13.8	13.8	80.2
	Not aware	119	19.8	19.8	100.0
	Total	600	100.0	100.0	

Appendix 4.25 Table of Percentage of students who use cocaine in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	4	.7	.7	.7
	Yes	18	3.0	3.0	3.7
	No	578	96.3	96.3	100.0
	Total	600	100.0	100.0	

Appendix 4.26 Table of Percentage awareness of the effects of cocaine by student in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	308	51.3	51.3	51.3
	Fully aware	107	17.8	17.8	69.2
	Partially aware	75	12.5	12.5	81.7
	Not aware	110	18.3	18.3	100.0
	Total	600	100.0	100.0	

Appendix 4.27 Table of Percentage of students who use heroine in the two District

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	4	.7	.7	.7
	Yes	9	1.5	1.5	2.2
	No	587	97.8	97.8	100.0
	Total	600	100.0	100.0	

Appendix 4.28 Table of Percentage awareness of the effects of heroine by students in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No response	326	54.3	54.3	54.3
	Fully aware	77	12.8	12.8	67.2
	Partially aware	72	12.0	12.0	79.2
	Not aware	125	20.8	20.8	100.0
	Total	600	100.0	100.0	

Appendix 4.29 Table of Percentage distribution of student coffee users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	66	11.0	11.0	11.0
	1	478	79.7	79.7	90.7
	2	56	9.3	9.3	100.0
	Total	600	100.0	100.0	

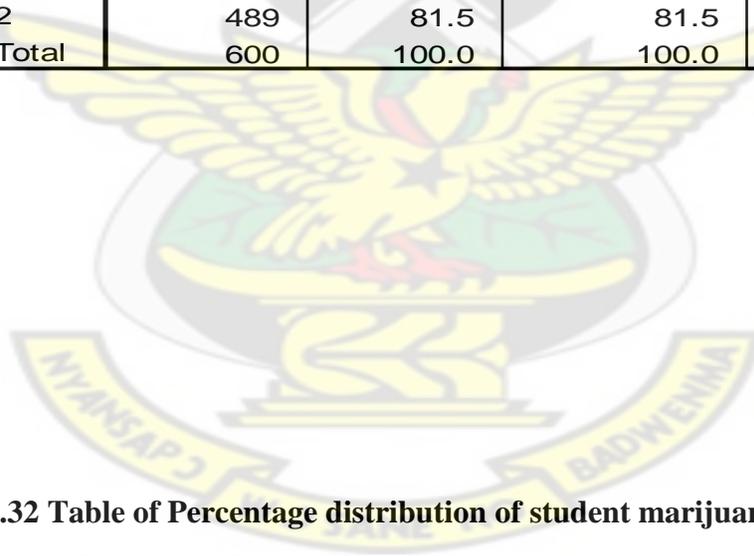
Appendix 4.30 Table of Percentage distribution of student alcohol users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	74	12.3	12.3	12.3
	1	108	18.0	18.0	30.3
	2	418	69.7	69.7	100.0
	Total	600	100.0	100.0	

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Appendix 4.31 Table of Percentage distribution of student cigarette users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	74	12.3	12.3	12.3
	1	37	6.2	6.2	18.5
	2	489	81.5	81.5	100.0
	Total	600	100.0	100.0	



Appendix 4.32 Table of Percentage distribution of student marijuana users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	76	12.7	12.7	12.7
	1	24	4.0	4.0	16.7
	2	500	83.3	83.3	100.0
	Total	600	100.0	100.0	

Appendix 4.33 Table of Percentage distribution of student amphetamine users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	76	12.7	12.7	12.7
	1	22	3.7	3.7	16.3
	2	502	83.7	83.7	100.0
	Total	600	100.0	100.0	

Appendix 4.34 Table of Percentage distribution of student cocaine users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	76	12.7	12.7	12.7
	1	7	1.2	1.2	13.8
	2	517	86.2	86.2	100.0
	Total	600	100.0	100.0	

Appendix 4.35 Table of Percentage distribution of student heroine users based on preference and access in the two Districts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	76	12.7	12.7	12.7
	1	2	.3	.3	13.0
	2	522	87.0	87.0	100.0
	Total	600	100.0	100.0	



Plate 1 Pictorial view of Marijuana packages prepared for use from leaves



Plate 2 Fine white cocaine used in powdered form



Plate 3 Typical cocaine leaves



Plate 4 Pictorial view of alcohol usually served for consumption with glass



Plate 5 Heroin packages in powdered crystalline and tablet form for use.



Plate 6 Pieces of cigarette samples often smoked by students

APPENDIX 4.36 SURVEY INSTRUMENT ON SUBSTANCE USE INSTRUCTIONS.

*Do not write your name on the sheet.
Fill in the spaces provide and just tick where necessary.*

SECTION A

1. Age:.....
2. Sex: Male Female
3. Name of School.....
4. Class/Form:
5. (a) Occupation of mother (guardian):.....
(b) Occupation of father (guardian)
6. Number of siblings in the family
7. Whom do you stay with? Both parents: One of the parents:
A relative

SECTION B

QUESTION ON SUBSTANCE USE

Knowledge of the use of substance (please tick)

	coffee	Alcohol	Cigarette	Marijuana	Amphetamine	Cocaine	Heroin
1. Ever heard of							
2. Know							
3. Ever used							
4. Never used							
5. Age at first use							
6. Still use							
7. Obtain from							
8. Awareness of effects							
9. Reasons for using							
10. Academic							
11. Who introduce you to the substance							
12. Where do you obtain the substance							
13. Source of money for substance?							

KNOWLEDGE OR AWARENESS LEVEL OF THE POSSIBLE EFFECTS OF SUBSTANCE USE ----- SECTION C

(Select the numbers of those applicable and put in the Table)

8. Awareness of effect of substance
1. Fully aware
 2. Partially aware
 3. not aware
9. Reasons for using substance-
1. It makes me feel good
 2. It “sharpens my brain”
 3. It gives me courage to act
 4. For relaxation
 5. Makes me feel high
 6. For energy
 7. Because of peer pressure
 8. Keeps me awake
 9. Other (specify) (6) For energy
10. Has the use of the substance had any effect on your academic performance?
- Yes: No:
- b. If yes, what was your former exam position and your present exams position?
- Better: Average: Lower: The same:
11. Who introduced you to the substance?
1. Father
 2. Mother
 3. Brother
 4. Sister
 5. Friends
 6. Hospitals
 7. Self
 8. Television
 9. Pharmacy shops
 10. House maid/Boy
 11. Others (Specify)
12. Where do you obtain the substance?
1. Drug dealers
 2. Hospital
 3. Friends
 4. Pharmacy shops
 5. Drinking spots
 6. Home
 7. Others (Specify)
13. How do get money for the purchase of these substances?
1. Parents remittances
 2. Pockets money
 3. Friends
 4. Perform menial jobs for money
 5. Balance money from parents
 6. Balance money from friends