

ENSIGN COLLEGE OF PUBLIC HEALTH
KPONG, EASTERN REGION

KNOWLEDGE ATTITUDE AND BEHAVIOUR TOWARDS ANALGESIC USAGE AMONG
STUDENTS OF THE UNIVERSITY OF MINES AND TECHNOLOGY IN TARKWA –
NSUAEM MUNICIPALITY IN THE WESTERN REGION

BY
ISAAC HANSON

A THESIS SUBMITTED TO THE DEPARTMENT OF COMMUNITY HEALTH IN
THE FACULTY OF PUBLIC HEALTH IN PARTIAL FULFILMENT OF THE
REQUIRMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH

JUNE, 2019

DECLARATION

I, **Hanson Isaac**, hereby declare that, except for references to other literature which has been dully acknowledged by appropriate reference to the authors. This work is the result of my own investigation and that no previous submission for a degree had been made here or elsewhere.

Hanson Isaac (ID- 177100107)
(Student)	Signature	Date

Certified by:

Dr. Reuben Esena
(Supervisor)	Signature	Date

Certified by:

Dr. Stephen Manortey
(Head of Academic Program)	Signature	Date

DEDICATION

I dedicate this work to the memory of my late father, Mr. Samuel Kofi Hanson and my mother Margaret Ekua Hanson who is still alive for their support and encouragement throughout the time spent on this Master of public Health programme.

ACKNOWLEDGEMENT

I am most grateful to Jehovah God for protection throughout the stay at this programme. I am also grateful to my supervisor Dr. Reuben Esena, whose expert advice and criticism saw to the completion of this work. I say Jehovah God bless you for your understanding and patience. I also thank all lecturers at Ensign Collage of public Health for the invaluable knowledge imparted to me.

Special thanks go to the Western Regional Manager of Pharmacy Council and the entire staff for their support in administering the questionnaires and their criticism for a successful work completion.

Another special thank go to the Chancellor of the University of Mines and Technology (Professor Kuma), The Registrar (Mr. Andrews Kinsley Doku). The entire staff of University clinic, Mr. Nyane and Mr. Andoh - Robertson all for their patience and guidance during my stay at University of Mines and Technology for this research. To the entire respondent who did not hesitate to partake in the research, Jehovah God bless you all. I appreciate the support and contributions of my study mates especially Kenneth Missah ,Camara Abubahkar Sadick, Rashida Rashid and Elizabeth Gbeze.

I finally share my last appreciation to my bone in blood friend and a brother Yaw Ankomah for his earnest hard work in helping completing this thesis work.

ACRONYMS:

NSAIDs: Non-Steroidal Anti-inflammatory Drugs

MOH: Ministry of Health

GPS: Ghana Pharmaceutical Society

UMaT: University of Mines and Technology

CNS: Central Nervous System

GHS: Ghana Health Service

WHO: World Health Organization

OTC: Over The Counter

GIT: Gastro Intestinal Track

FDA: Food and Drug Authority

CWA: Cumulative Weighted Average

ADR: Adverse Drug Reaction

AGS: American Geriatrics Society

ICSI: Institute for Clinical System Improvement

IASP: International Association for the Study of Pain

Table of Content

Declaration.....	i
Dedication.....	ii
Acknowledgment	iii
Acronyms.....	iv
List of tables.....	viii
List of figures.....	viii
Abstract	x
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Background information.....	1
1.2 Problem Statement.....	3
1.3 Justification of the Study.....	4
1.4 Hypothesis of Study.....	5
1.5 Research Questions.....	5
1.6. General Objective.....	5
1.6.1 Specific Objectives.....	6
1.7 Scope of Study.....	6
1.8 Organization of the Thesis.....	6
CHAPTER TWO.....	8
LITERATURE REVIEW.....	8
2.1 Importance of analgesics.....	8
Paracetamol (Acetaminophen).....	8
Mechanism of action.....	8
Adverse effects.....	9
Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)	9
NSAIDs and Ulcer.....	9
Opioid Analgesics.....	10
Strong opioid analgesics.....	10

Weak Opioid Analgesics.....	10
2.2 Causes of irrational use of Analgesics.....	11
Overuse drugs and injections.....	12
Multi – drug use or poly pharmacy:.....	12
In correct drug use:.....	13
Limited efficacy:.....	13
Antibiotics resistance:.....	13
Drug dependence:.....	13
2.3 Knowledge and Attitude towards Analgesic Usage.....	13
2.4 Availability and Source of Information about Analgesic (Painkillers).....	15
2.5 Effect of Social-Demographic Characteristics on Analgesic.....	19
2.6 Definition of pain	22
2.7 The nature of pain	22
2.8 Types of pain.....	23
2.9 Acute Pain.....	23
2.10 Chronic pain.....	23
2.11 Complications of pain.....	23
Cardiovascular system.....	23
Endocrine system.....	24
Gastro-intestinal system.....	24
Respiratory system.....	24
Nervous system.....	24
2.12 The absence of pain.....	25
2.13 Loesers model of pain.....	25
2.14 The WHO Analgesic Ladder.....	27
CHAPTER THREE.....	28
METHODOLOGY.....	28
3.1 Research methods and design.....	28
3.2 Data Collection Techniques and Tools/ Instruments.....	28
3.3 Study Population.....	28
3.4 Study Area.....	28

3.5 Inclusion Criteria.....	29
3.6 Exclusion Criteria	29
3.7 Study variables.....	29
Demographic variables.....	29
Dependent variables.....	29
3.8 Sampling Techniques and Sample Size.....	29
3.9 Pretesting.....	30
3.10 Data Handling.....	31
3.11 Data Analysis.....	31
3.12 Ethical Considerations.....	31
3.13 Assumptions.....	31
3.14 Limitation of the study.....	32
CHAPTER FOUR.....	33
RESULTS.....	33
4.1 Demographic Characteristics of Respondents.....	33
4.4 Knowledge and Attitude toward Analgesics Use.....	37
4.5 Pain Killer User and Non User	38
4.6 Respondents Knowledge on Type of Painkillers they know.	40
4.7 Period for Taking Painkillers.....	41
4.8 Chronic and Non Chronic Users of Analgesics.	42
4.9 Reason for Taking Analgesic, Side Effect And Source Of Information on Analgesic Use. ..	43
4.10 The Frequency that Respondents Read Leaflet before Taking Painkillers.....	46
4.11 Source of Information on Analgesics	49
CHAPTER FIVE	49
DISCUSSION.....	49
CHAPTER SIX.....	52
CONCLUSION AND RECOMMENDATION.....	52
6.1 Conclusion	52
6.2 Recommendations.....	53
REFERENCES	54
APPENDICES.....	64

List of Tables

Table 1: Demographic Characteristics of Respondents	34
Table 2: Knowledge and attitude towards analgesic use.	37
Table 3: Reason to take, side effect and source of information about analgesic use.....	44
Table 4: Association between demographic and source of information about the use and side effect of analgesic use.....	48

List of Figures

Fig. 1. Loesser model of pain (1982).....	26
Fig .2: The WHO Analgesic Ladder.	27
Figure 3: Painkiller users and non-users.	39
Figure 4: Respondent Knowledge on Type of Pain Killers They Know.	40
Fig 5: Period for Taking Pain Killers.....	41
Figure 6: Chronic and non-chronic users.....	42
Figure 7: The frequency that respondent read leaflet before taking the painkillers.	46
Figure 8: Respondent source of information on analgesic.....	47

List of Appendices

Appendix 1: Research Questionnaires.....	64
Appendix 2: Ethical Approval.....	70

Definition of Terms

Analgesics : For this study, it refers to painkillers which the students in the university use in various ways to relieve different type of pain they experienced in their body.

Knowledge: For this study, it refers to the correct responses of the students regarding analgesic usage elicited by structured questionnaire.

Attitude: For this study, it refers to students feeling about analgesic use as elicited by the structured questionnaire.

Behavior: For this study, it refers to students conduct on analgesic use as elicited by structured questionnaire.

University Student: For this study, it refers to both undergraduate and postgraduate students who study in the university of Mines and Technology at the time of data collection regarding analgesic usage.

ABSTRACT

Background: Analgesics commonly known as pain killers are substances which work in various ways to relieve different types of pain experienced in the body. Analgesics have been reported to be very widely used and abused set of drugs globally.

Objectives: This study is to assess the knowledge, attitude and behavior towards analgesic usage among students of the University of Mines and Technology in the western region of Ghana.

Materials and methods: A cross sectional study was carried out among 400 students both undergraduate and postgraduate learners at the University of Mines and Technology. Convenience and purposive sampling method was used. Data were collected using questionnaire. The questionnaire were divided into three sections containing questions about demographics characteristics of respondents, knowledge and attitude towards analgesic use and reason of taking the painkillers, side effect and source of information on analgesic Data were analyzed using STATA statistical software package and results presented in the form of tables, frequencies and percentages.

Results: All the respondents (100% believed they have heard about painkillers. Paracetamol was the common analgesics used (83.10%) then Ibuprofen (6.20%). Majority of the respondents (97.74% agreed that analgesic must be taken with water. There was a significant association between type of painkillers used and side effects ($p = 0.003$).

Conclusion: Majority of the respondent use analgesics drugs for many reasons such as headache, fever, dental pain, muscle pain and menstrual pain. The most common analgesic used by students of University of Mines and Technology is paracetamol. Irrational trends in prescribing practices and pharmaceutical advertising contributing to the current analgesic epidemic in the identified aged group of 15-45 years were critically observed. More male students used analgesics than female students. Most of the respondent relied on pharmacist as reliable source of information about analgesic use and its safety.

CHAPTER ONE

INTRODUCTION

1.1 Background information

Analgesics, commonly known as painkiller are substances which work in various ways to relieve different types of pain experienced in the body (Rang et al., 2003). Analgesics are the most frequently consumed products in the treatment groups (Pozkan et al., 2009).

Analgesics could be Opioid or non-Opioid. Opioids analgesics are one derived from Opium and are used for the management of mild to severe pain. They include morphine, codeine and tramadol (Pathan, et al., 2012). Non-opioid analgesics are a diverse group drugs that are commonly used for headaches, they relief mild to moderate pain and flu because they have pain relieving antipyretic, and anti- inflammatory properties.

Non-opioid analgesics include Non- Steroidal Anti- Inflammatory Drugs (NSAIDs) which include aspirin, ibuprofen, and diclofenac which are easily obtained over- the –counter (OTC) (Plantinga et al., 2011). The most common ailment that takes people to the health professional and hospital is pain. This is because pain is a frequent manifestation (symptom) of many disease states. Paracetamol (acetaminophen) which is also a common over the counter (OTC) drug is not classified as Non-steroidal inflammatory drugs (NSAIDs) because it has relatively little anti-inflammatory activity, unlike aspirin and Ibuprofen (Fedrick et al., 2009).

In Ghana, medicines are categorized into prescription only, OTC and pharmacist prescribed. Based on the increasing knowledge of Non- Steroidal Anti- Inflammatory Drugs (NSAIDs), some are used without prescription , such as Ibuprofen , ketopren and naproxen and available as

over the counter (OTC) medicines. This does not imply that Non- Steroidal Anti- Inflammatory Drugs (NSAIDs) are not associated with adverse effects that are threats to life (Scheiman et al., 2002). Some Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) however require a prescription before acquisition and use, such as Celecoxib, Diclofenac, Idomethacin and Sulind'ac. Lack of knowledge on Non-Steroidal Anti- Inflammatory (NSAIDs) may impair their rational use which in turn will affect patient outcome (Whitten et al., 2005). The downside to the use of NSAIDs is varied and their widespread use has meant that the prevalence of adverse effects of these drugs has become increased. Direct and Indirect initiation of the Gastro Intestinal Tract (GIT) remains the main adverse drug reactions (ADRs) associated with NSAIDs use (Rossi et al., 2006). The adverse drug reactions induced by NSAIDs vary based on the particular NSAIDs used and degree of use abuse. The common gastrointestinal ADRs are Nausea/ Vomiting, Dyspepsia, Gastric Ulceration or bleeding and Diarrhea (Traversal et al., 1995). An estimated 10-20 of NSAIDs patients experience dyspepsia (Traversa et al., 1995) . NSAIDs aside from (low - dose) aspirin are associated with a doubled without a history of Cardiac disease (Bhala et al., 2013). In people with such a history, use of NSAIDs (aside from low-dose aspirin), was associated with a more than 10-fold increase in heart failure (Henry, et al, 2000). The medicines regulatory authority Ghana is the Food and Drugs Authority (FDA), formerly known as the Food and Drugs Board. Recently, the FDA introduced warnings of increased heart attack and stroke risk associated with NSAIDs. Aspirin is an NSAID but is not affected by the new Warnings (FDA, 2005). The Ghana Pharmacy Council (GPC) was established by an act of parliament in 1994(Act 489). It is a statutory regulatory body that seeks to secure the highest level of pharmaceutical care by ensuring that competent pharmaceutical care providers deliver services within agreed standards. Additionally, the Ghana Pharmaceutical Council Collaborates with

related local agencies and international pharmaceutical organizations to enhance the effectiveness of rational drug use in the Country. Health care professionals are expected to be abreast with the Adverse Drug Reaction (ADR) spectrum of these drugs and to provide appropriate drug information and counseling to their patients to eliminate or reduce adverse drug reactions.

Studies from the United States of America (USA), Canada, Portugal, Denmark and Australia suggest an increased use of analgesics over the years especially by adults. Serious adverse effects may be experienced with the use of analgesics even with recommended doses over short periods of time.

Analgesics use and its effects have been widely researched in developed countries, where a few studies exist in some African countries. The purpose of this study determines the knowledge, attitude and behavior towards analgesics usage among students of the University of Mines and Technology in the Western of Ghana.

1.2 Problem Statement

An estimated 15.5 million people depend on analgesic globally. The global burden of analgesic is particularly high in North America, Eastern Europe and sub – Saharan Africa. Around the world, analgesic overdose kills 69,000 people including University Student annually (Global Mental Health Program.,2016) More than 2.5 million people in the United State suffering from substance disorders related to prescription analgesic pain relievers.

According to the National Institute on Drug Abuse(NIDA), the main causes of prescription analgesic pain relievers includes, a drastic increase in the number of prescriptions written and dispensed, greater social acceptability for using medications for different marketing by

pharmaceutical companies including both wholesalers, retailers, over the counter medicine seller and hospitals as well.

According to the report by the University of Mines and Technology clinic (2018); about 0.5% of the students consume analgesic annually. The report revealed that self – medication including analgesic misuse and abuse was found among the students. The report also stated that the clinic staff normally worked on Mondays to Fridays from 8:00_{AM} to 5:00_{PM} and none of the hospital staff worked on the weekend. This allow some students to source for medication themselves and somewhere without prescription. The report also showed that, there was no morbidity and mortality case of analgesic abuse and misuse recorded at the University Clinic.

1.3 Justification of the Study

Analgesics are the mainstay of management of pain. They are the most used and abused set of drugs globally. This is dependent on how rationally they are used and adherence to prescription in conjunction with adequate patient knowledge (Whitten et al., 2005). Patient knowledge of pain killer use, pattern and reasons for its used is critical to patient safety. The study purpose was to assess the knowledge, attitude and behavior towards analgesic usage among students of University of Mines and Technology and to develop guidelines for preventing the burden of analgesic abuse. In Ghana, studies have investigated the anti-inflammatory and anti-pyretic properties of various plant roots and barks (Boakye et al., 2008). However, very little research exists on the use of Over-the Counter (OTC) analgesics in Ghana. The recent study form the basis for further research, especially at the national level. The findings of the recent study contribute to the immense benefit to Ghana Pharmacy Council (GPC), Food and Drug Authority

(FDA), Ghana Health Service to mention a few. Finally, the research work conducted serve as point of reference for learning institutions and health promotion activities.

1.4 Hypothesis of Study

The study attempt to examine the following hypothesis,

H1: there is significant association between selected demographic characteristics and source of information on analgesic.

H2: there is significant association between selected demographic characteristics and side effects of analgesic use.

H3: there is significant association between knowledge and selected demographic variable.

1.5 Research Questions

1. What is the student knowledge and attitudes towards analgesic usage?
2. What is the source of information and availability of analgesic?
3. What are the common types of painkillers used?

1.6. General Objective

The general objective of this study is to assess the knowledge, attitude and behavior towards analgesic usage among students of the University of Mines and Technology in the Western region of Ghana.

1.6.1 Specific Objectives

The specific objectives of the study are to;

1. To determine the level of knowledge and attitude of students regarding analgesic usage.
2. To find out the association between selected demographic characteristics, side effects and source of information on analgesic use.
3. To determine the availability and source of information about the use of analgesic by the students.

1.7 Scope of Study

The study focused on knowledge, attitude and behavior towards analgesic usage among student in the University of Mines and Technology and to develop guidelines for preventing the burden of analgesic abuse among students in the University.

This study includes undergraduate and postgraduate students who study in the University.

1.8 Organization of the Thesis

The outline of this thesis is in other of appearance of the title page, dedication, acknowledgement, the table of content, list of table and figures, acronyms, definition of terms, and abstract. Chapter one begins with an introduction, a statement of the problem, the study rational, research questions and objectives. It ends by describing the hypothesis and the scope of the study. Chapter two gives an account of analgesic and pain in broader perspective and various studies than on analgesic among larger population including University students. Chapter three begins with the description of the study type and design; it gives an account of how the study

was conducted. It ends with a description of the statistical processes and used to arrive at the results presented. In chapter four, the findings of the study were presented. Chapter five is a discussion of the findings in comparison with the findings of other works presented in the literature review. The last chapter six details the conclusions from the study and recommendations necessary to help and develop guidelines for preventing the burden of analgesic abuse among students in the University. The references used in this study are outlined in detail after chapter six.

LITERATURE REVIEW

2.1 Importance of analgesics

Analgesics represent the mainstay of pain management and control. They are classified as non-opioid and opioid analgesics (Aguwa.,1998). Non-opioid analgesics may include; Paracetamol, Aspirin, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). Non-opioid analgesics are ones that control pain without depressing the Central Nervous System (CNS).

Paracetamol (Acetaminophen): This is used in managing pains in the symptomatic treatment of various musculoskeletal and joint disorders (Rang et al., 2003). Paracetamol is used most as non-opioid analgesic and antipyretic medication. Paracetamol is often distributed through OTC sale and prescription medication when compounding with other medicines (Pamela et al., 2008).

According to the Royal Pharmaceutical Society and the British Medical Association, paracetamol can be sold to the public provided packs contain no more than 32 tablets where pharmacist can sell multiple packs up to a total quantity of 100 tablets in justifiable circumstances.

Mechanism of action: The exact mechanism for reducing fever and pain by paracetamol remains a source of debate. It greatly reduces the production of prostaglandins like aspirin but unlike aspirin it has little anti-inflammatory action and does not inhibit the production of thromboxanes. Also the mechanism of action of paracetamol is not clearly known although one theory suggests that it acts as a selective inhibitor of the cyclooxygenase enzymes isoform, cox-3, found in the brain and spinal cord. However the COX enzyme is also highly active only when appropriately oxidized and paracetamol has been shown to reduce the oxidized form of the cox enzymes and this prevent the formation of pro-inflammatory compounds (Aronoff et al., 2005).

At the toxic dose, paracetamol saturates the liver pathway normally involved in its metabolism, causing paracetamol to be metabolized by an alternative pathway, which produces a toxic metabolite which is inactivated by glutathione, rapidly preventing any harm.

Adverse effects: The adverse effects from paracetamol are rare. They include an allergic reaction, which cause a rash and swelling. Flushing, low blood pressure and fast heartbeat; this usually happen when paracetamol is given in hospital into a vein in your arm. Also adverse effects could also lead to blood disorders, such as thrombocytopenia (low number of platelet cells) and leukopenia (low number of white blood cells). Liver and kidney damage if you take too much (overdose) and this can be fatal in severe cases. Significant hepatotoxicity in over dosage or long term use of doses above the therapeutic dose can occur (Anum., 2007).

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs): NSAIDs are another group of analgesics. The term NSAIDs is an abbreviation for “non-steroidal anti-inflammatory drugs”. Non-steroidal anti-inflammatory drugs (NSAIDs). They include ibuprofen, piroxicam, diclofenac and they are used to control biliary pain, acute pain of renal colic, mild pain of sickle cell crisis (Merskeys et al, 1997). NSAIDs are very important in the management of pain in adult and adolescents because of their dual anti-inflammatory and analgesic actions. The inhibitory of cox-1 and cox-2 by NSAIDs Causes inhibition of the biosynthesis of prostaglandins. This produces the anti-inflammatory effect of NSAIDs with a decrease vasodilatory prostaglandins. Prostaglandins are responsible for increasing the body’s core temperature set point during fever. NSAIDs reverse this effect by causing inhibition of prostaglandin production (Rang et al., 2003).

NSAIDs and Ulcer: NSAIDs in general exhibit adverse effects on the gastrointestinal tract including nausea, vomiting and diarrhea. The most serious adverse effect attributed to prolonged

used is however the development of gastric ulceration (Mehana., 2008). This property is due to their structure as organic acid and also due to their inhibitory effect on prostaglandins synthesis. Naturally, prostaglandins stimulate the production of mucin, a mucosal secretion which acts as an endogenous cytoprotective substance against the digestive effects of trypsin and hydrochloric acid. Reduced mucin secretion leads to an increased risk of ulceration. Gastro duodenal ulceration and bleeding are the major limitations to the use of non-steroidal anti-inflammatory drugs (NSAIDs). The development of safer NSAIDs or of effective therapies for the prevention of the adverse effects of existing NSAIDs require a better understanding of the pathogenesis of NSAIDs-induced ulcer disease. NSAIDs can cause damage to the gastro duodenal mucosa via several mechanisms, including the topical irritant effect of these drugs on the epithelium, impairment of the barrier properties of the mucosa, suppression of gastric prostaglandin synthesis, reduction of gastric mucosal blood flow and interference with the repair of superficial injury.

Opioid Analgesics: They reduce pains experience by the individual. They are subdivided into strong opioid analgesics and weak opioid analgesics.

Strong opioid analgesics: They are mainly used in the treatment and management of serve acute opioid sensitive pain and chronic opioid sensitive cancer pain. They include; Morphine, Oxycodone, diesoline and fentanyl etc.

Weak Opioid Analgesics: They are often given with non-opioid analgesics for the treatment of moderate to severe opioid sensitive pain. In other way round weak opioid analgesic are often used to treat severe pain or when paracetamol or a Non-Steroidal Anti-Inflammatory Drug (NSAID) proves inadequate. Compare to morphine, the efficacy of these drugs varies more from

one patient to another and their multiple pharmacokinetic interactions can be difficult to manage. The rational use of safer cardio protective opioid analgesics like buprenorphine is promoted (Rahul et al., 2010). There is also a sometimes unpredictable risk of serious over – dose. Adverse effects unrelated to its opioid effects. Weak opioids require at least as much vigilance as morphine, despite the major differences in their reputation and regulation. Also, tramadol may be especially useful as an alternative analgesic in high-risk patients (Smith et al., 2012).

2.2 Causes of irrational use of Analgesics.

Russell in 1994 carried out a study and reveals that prescribers lack of education and training is one of the factors influencing irrational use of analgesics. The result showed that physicians with patterns of higher appropriateness rating were found to be younger than recently trained with fewer years of professional experience. University students are constantly under pressure to work hard to achieve their academic success and goals, leaving little room for minor illness, together with a Student's social lifestyle could therefore lead to misuse of analgesic (Golar et al., 2011).

Continuous analgesic use and the factors influencing use this behavior had been investigated. The result had it that women generally have a higher intake of analgesics than men, and also that increasing analgesic use (Hargreaves et al., 2010).

Advertising may play an important role in the consumer's choice of analgesic product misleading advertisement, Pressure and promotion from pharmaceutical companies (Le Grand et al., 2001). In the same way, this not only to influence choice of analgesics but to encourage people to use drugs in situations where they may not be needed and unnecessarily use of expensive analgesics (Builder et al., 2012).

Irrational use of painkillers can cause damage in many organs, especially the kidneys and liver. Drugs used as painkillers can have chemical and physical properties that can show quite different from each other. These all have different purposes compared to each other with different pattern of use and different dosages. Drug which one can have a good result as a pain reliever may even damage another. Therefore it's very risky to recommend a painkiller to another.

A study carried out showed that pain prevalence was high in those with analgesics treatment that did not adhere to guidelines than those considered as having appropriate adherence to guidelines. Adherence to analgesics reduce cost and educate prescribers (Kamaldeen et al., 2012).

Irrational drug use is a global phenomenon. Medically inappropriate, ineffective and economically inefficient use of drugs occur all over the world. According to report, Indian researcher's irrational drug use is a widely pervasive, irrational practice of medicine and is a matter of serious concern, especially for a developing countries (WHO, 2002). It was reported that worldwide, more than 50% of all medicines are prescribed, dispensed, or sold inappropriately while 50% of patients fail to take them correctly. Moreover, about one-third of the world's population lacks access to essential medicines. Common examples of irrational medicine use are;

Overuse drugs and injections: They normally occur as a consequence of over prescribing as well as over consumption. It concerns particularly the use and prescription antibiotics, antidiarrheal, painkillers, injections and cough and cold preparation.

Multi – drug use or poly pharmacy: The number of drugs per prescription is often more than need, with an average of 2.4 up to ten drugs, while generally one or two drugs would have

sufficed. Multi-drug use is also common among consumers who purchase their drugs (over the counter drugs).

In correct drug use: The use of drugs in the wrong dosage. Incorrect drugs use in occurs in the sense of incorrect prescribing as well as inappropriate use by consumer. Some of public health and economic consequences of irrational use of drugs are; Adverse possibly lethal effect due to antibiotic misuse or inappropriate use of drugs in self-medication (Rashid., 1986).

Limited efficacy: In the case of under therapeutic dosage of antibiotics, tuberculosis or leprosy drugs.

Antibiotics resistance: Due to widespread overuse of antibiotics as well as their use in under-therapeutic dosage (Taylor et al., 1988).

Drug dependence: Due to daily use of painkillers and tranquilizers (Grand et al., 1993).

2.3 Knowledge and Attitude towards Analgesic Usage

In a study carried out in the Northern part of India (Uttar Pradesh) among the students of U.P Technical University, 87% of the respondents agreed that they were involved with self-medication in various diseases like headache, fever, cough, cold, gastro-intestinal infection ulcer and throat infection, the drugs commonly used to treat these ailments includes analgesics. The reasons behind this practice was lack of knowledge; they considered it time saving and less expensive. The descriptive survey showed that the majority of professional students had a poor knowledge about appropriate self-medication (Verma et al., 2010).

A study conducted among first-year medical students of the Arabian Gulf University, Bahraim found that knowledge about appropriate self-medication was usually poor, attitude towards self-

medication was positive, and the practice of self-medication was common and often in appropriate (Handus et al., 2006).

In the country of Malaysia, There was a research study conducted regarding attitude and awareness about self-medication among urban population. From the study, it was found that half of the people adoption the practices of self-medication were students while other half being the employed public. From the study, it was also noticed that practices of self-medication among the Malaysian population was very common. Commonly used OTC medications were vitamins, painkillers, cough or the remedies, sore throat products. It was observed that the knowledge about self-medication among the population was moderate to low.

A research conducted by Marcia (2007), suggests that medication misuse and abuse are mostly common among students and most adolescents. This is due to knowledge deficits which may predispose them to medication misuse and adverse effects.

A cross-sectional study conducted on assessment of medication misuse and abuse among medical, pharmacy, and health science students in Gondar University, Ethiopia. The result reveal that respondents had a positive attitude favoring medication abuse (Abbay et al., 2010).

Studies have shown that health care professionals have little knowledge of inadequate attitudes towards the assessment of pain and its treatment with analgesics. These deficiencies include misconceptions about pain assessment and the erroneous belief that patients exaggerate their pain, in appropriate beliefs about drug tolerance and addiction, inadequate knowledge of analgesic drugs pharmacology and a difficulty in assessing pain in children (Ger et al., 2000).

A study was conducted among nursing students and indicated that Iranian nursing student seem to have the least knowledge of pain assessment and management in comparison with international standards (Rahimi et al., 2010).

A study done in two Brazilian Universities showed that only about half of dentistry and nursing students reported that the course of pharmacology provided them with satisfactory knowledge about medication abuse and misuse (Pereira et al., 2012).

A study from Alexandria, Egypt, Egypt, found that most of their adults who attended pharmacies had poor knowledge about self-medications (Sallam et al.,2009).

A study done among basic years medical students from Ain shams University, Cairo, Egypt, revealed that only 18.4% of their students had adequate knowledge about self-medication (El et al., 2011).

A study conducted among medical students in Nagpur, it was reveal that the students lacked in awareness regarding dose and adverse effects but had a fair knowledge about expiry date and importance of completing the course of medicines (Kasulka et al., 2015).

2.4 Availability and Source of Information about Analgesic (Painkillers)

Availability and source of information about analgesics could be very important in health care delivery to communities, societies and nationalities. In other way round, availability and source of information about analgesic could be seen as a major cause of abuse and misuse in larger populations.

In Ghana, medicine including analgesic could be obtained from registered pharmacy shops, over the counter medicine seller if only is prescribed or recommended by registered medical doctor.

A narrative study conducted to review the literature relating to misuse of drugs practice with nonprescription medication among University students in University Sains Malaysia library. In general, the review showed that self-medication practice with nonprescription medication was highly prevalent among University students. The common were Analgesics, Antipyretic products, cough and remedies, anti-allergy and vitamins or abuse and misuse practice could have many problems (Alma's et al., 2011).

Beck et al, (2014) found that students who lives in a community where availability of substance abuse including analgesics is common one at a higher risk of substance abuse and misuse.

In view of this, Gathuru et al, (2015) criticize the proximity of substance market to University campuses as it promotes substance abuse among students in the University.

A study conducted in Dresden, Germany, on medication, fifty-six percent age of the students had taken at least one medication during the previous two (2) weeks with the most common agents being Analgesics and antipyretics. Despite relative frequency of medication use; there student had little understanding of common medication information. Sixty-two percent of the students said they read the package insert for prescription drug information, with physicians listed as the second most commonly used information source. Survey was conducted among eighty-six (86) adolescents between 10 and 14 years of age about their medication use. Eight present of the subjects reported having access to medicine in their household. Despite their 64% reported that they had asked a parent or guardian for the last dose of medicine that they took, while 36% took medicine independently.

In Wazaify et al, (2005) investigated the social perspectives on OTC medicines. They demonstrated that of 1000 people in Northern Ireland 74.6% visited a pharmacy at least once a month, 32.2% once per month and 86.4% would always or often follow the directions on the product.

Bannink et al, (2015) claim that large availability of addictive substances in a community where university campus is included puts adolescents and young adults at higher risk of substance abuse. A research conducted among European students, Beck et al (2014) found that students.

A study was conducted on the use of medication among adolescent in Kuwait. The result showed that few students consulted pharmacist for information on drugs (Abahussian, 2005). The WHO (Sa) states that, if substances are legally available, they are more likely to be accepted or normalized in the general society.

WHO (2004) report stated that teenagers and college students are among the largest group who abuse prescription pain medications. This is due to the fact that they are usually easy to access, they are fairly inexpensive compared to many kinds of street drugs because they are often prescribed by a doctor. Live in a community where substance use is common are at a higher risk of substance abuse.

Jaouahir et al, (2015) also add that student's engagement with substance abuse including over-the-counter analgesics is highly associated with their living in a community where substance abuse is largely available.

O'CAT (2014) also claim that the ease to access make substance abuse more appealing to young people. Lee et al, (2015) criticize the proximity of substance market to University campuses as it promotes substance among University students.

Susannah et al, (2004) conducted a research on the internet and drug availability and found that about half of all adult Americans take a prescription medications regularly, and one in four have used the internet to learn about prescription medications. The research review that majority of Americans have greater confidence in their local pharmacy than internet-based pharmacies and only about 4% reported having purchased medication online. Undergraduate college students are usually responsible for their own medication management and thus, prescription drugs may be readily diverted.

In addition, a recent study suggests there is considerable availability among adolescents and young adults of abusable prescription drugs on the internet (Califano., 2004).

While the internet can provide easier access to prescription medication for individuals who need them for legitimate medical purposes there are few mechanisms in place to block individuals from purchasing drugs on the internet without a prescription. To date there is limited research regarding diversion of prescription drugs and this has contributed to an incomplete understanding of how young adults are obtaining these prescription drugs. The study conducted in Kathmandu valley, Nepal showed that non-steroidal analgesic, anti-inflammatory and antipyretic drugs were mostly preferred for the treatment of fever and headache. Community pharmacies and pharmacist recommendation were main sources of obtaining and selecting particular medicine and its dose while friends and family were the main sources of information. (Bhattarai et al., 2014).

Study on reproductive age women was conducted to understand severity of self-medication study concluded that mostly women practice self-medication when they suffer from headache, dyspnea, leg pain, cold, fever, indigestion and their primary source of information about medicines are health magazines, advertisements along with information by friends (Nair et al., 2013).

2.5 Effect of Social-Demographic Characteristics on Analgesic

Socio economic characteristics of a population is expressed statistically such as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage. In this case the study will explore some related literature and surveys on the effects of socio- demographic factors that influence the use of Analgesics.

A survey conducted by Viney (2012) found strong correlation between drug use and education and employment. Those with only a primary school education or less were most likely to become drug abusers. The unemployed, trade laborers and artists also represented the highest percentage of addicts.

A research conducted by Advisory Council on Misuse of Drugs (ACMD) (1998) reported that although drug abuse can affect all socioeconomic groups, deprivation and social exclusion are likely to make a significant contribution to the maintenance of drug abuse.

A study conducted among female undergraduate students in Universities of South Nigeria, medication misuse and abuse were identified level of education to be the most significant factor. The study reveals that more educated the female was, lesser self-medication was seen (Sapkota et al., 2010).

Studies in Riyadh Kingdom of Saudi Arabia among adolescents between the age group of 13 to 18 years showed that analgesics were the most commonly used medication and harmonies were the least (Albatti et al., 2017).

Shepard et al, (2016) found that medication misuse is largely seen in lower educated people as it results in less awareness about the negative outcome of repeating prescribed drugs for same symptoms or disease.

Rozenbroek et al, (2011) reported that students of age 20 and above were more likely than younger ones to engage in prescribed drugs abuse. Moreover, the risk of substance abuse among vocational education student in Netherlands was found to increase with their age (Bannink et al., 2015).

Gender disparity regarding other substances abuse is reported in several literatures indicating that females consume substance less than their male counterparts.

Chaiton et al, (2014) indicate that substance abuse among females is less compared to their male counterparts.

A study conducted by Maier et al, (2013) indicates that male university students in Switzerland abuse methylphenidate, a neuro-enhancer drug, and more than female students.

A study conducted by Goreish et al, (2013) on Iranian University students reveals that substance abuse was higher in male students than female students.

Beck et al, (2014) concluded that gender is an important factor regarding risk perception and substance abuse.

A study conducted by Salameh et al, (2014) on Lebanese public and private University students revealed that toxic substance consumption was significantly higher among males students compared to females.

A study at Hawassa University reveals that the prevalence of substance abuse among men students outnumbered women students by three fold (Kassa et al., 2014).

A study conducted in Hong-Kong students reveals that girls were slightly more likely to avoid problem behaviors with regard to substance abuse than boys (Lee et al., 2010).

Becker et al, (2012) further accentuate that men are more likely to engage in risk taking behaviors including experimentation with addictive substances.

Moreover, childhood abuse predispose to substance abuse during adulthood in women but not in men (Becker et al., 2012). But Salameh et al, (2014) agree that females perceive substance abuse risk more than males.

Reports included in sorsdahl et al, (2012) indicate that substance abuse among women is negatively perceived by many societies across the world compared to men.

Becker et al, (2012) further claim that when society is permissive, women are more affected by substance abuse than men. Age is an important demographic factor in many health related behaviors including substance.

Young University students go through physical, psychological and social changes which predispose them to be involved in substance experimentation. NIDA (2014) also noted that the euphoria created by the substance interaction with neuro-chemicals in the brain motivates young students to abuse substances.

Hargreave et al, (2010) indicated that women generally have a higher intake of analgesics than men, and also that increasing age was associated with continuous analgesic use.

2.6 Definition of pain

The International Association for the Study of Pain defined pain as “an unpleasant, subjective, sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage” (IASP, 2007).

The American pain society goes further by stating that it is not the responsibility of clients to prove they are in pain; it is the nurse’s responsibility to accept the client’s report of pain (2005). Pain is complex mechanism with physical, emotional and cognitive components. Pain is subjective, and highly individual. Because pain is such a strong motivator for action, it is considered one of the body’s most important protective mechanisms. Pain is much more than a physical sensation caused by a specific stimulus.

2.7 The nature of pain

Pain is a universal human experience and usually most common reason people seek medical care. In general, pain explains something is wrong and in effect some tissue in our body has been damaged and that remedy to improve the circumstance is very critical to address.

2.8 Types of pain

Pain is classified as acute and chronic.

Acute pain: it has an identifiable cause and occurs soon after an injury to tissues in the body such as bone, skin, or muscle. Acute pain is understood and treatment is short-term and curative (ICSI, 2008).

Acute pain is temporary, lasts less than six month, and subsides as healing takes place. Severe acute pain activate the sympothethetic nervous system, causing diaphoresis, increased respiratory and pulse rates and elevated blood pressure. Acute pain is protective in that it motivates a person to take action: it onset may be sudden or slow and it severe.

2.9 Chronic pain: It is non-protective in that it serves no purpose and may not have an identifiable cause. They may last six month or longer and could limit normal functioning. Severity of chronic pain like prolonged stress activities the parasympathetic nervous system, resulting in muscle tension, decreased heart rate and blood pressure, and failure of body defenses. Lack of purpose and uncertainty of duration of chronic pain may lead to depression, fatigue, insomnia, anorexia, apathy and learned helplessness.

2.10 Complications of pain

According to Gray (2008) on his recent studies on complications of pain and analgesics use clearly stated that pain have profound impact on the human body. Pains mostly affect system of the endocrine, immune, cardiovascular and nervous system etc.

Cardiovascular system : Analgesic use and abuse to control pain in the cardiovascular system has led to many health problems which include increase stroke, Hypertension (high blood

pressure), Tachycardia (increase heart rate), Reduces the flow of blood to the skin and visceral organs leading to delayed wound healing.

Endocrine system : The use of analgesic to control pain in the endocrine system have resulted in serious public health problems which include, decrease testosterone level, reduces insulin production and retention of fluids.

Gastro-intestinal system : Continuous use of analgesics and misuse have been associated with many serious gastro intestinal tract health related problems which includes, nausea and vomiting, delayed gastric emptying, reduces gastric and intestinal mobility which can cause paralytic ileus.

Respiratory system: Misuse of analgesics to control chronic and acute pains in the affected respiratory system has led many people to respiratory health concerns such as Hypostatic pneumonia (infection in the chest) and Rapid respiration leading to hypocapnia and respiratory alkalosis.

Nervous system: Constant depression, attention deficit, cognitive decline and insomnia are among the nervous system health problems regarding pain management.

2.11 The absence of pain

According to the American pain foundation declaring the relief of pain a “basic human right (2001)” and the American Bar Association called it a “basic legal right (2000)”. Pain always seem to be an important obstacle to individual comfort and happiness. Pain generally alters the quality of life more than any other health-related problem. It is mostly interferes with sleep, mobility, nutrition, thought, several activity, emotional well-being, creativity and self-actualization.

2.12 Loesser model of pain

As shown in (figure 1),to get the full meaning of complexities of chronic pain it is important to differentiate between nociception and pain (Loeser, 1982). Nociception refers to the physiological activation of sensory transmission of stimulus information through the nerves. Pain perception refers to the modulated outcome of neurophysiological processes and requires conscious awareness of an individual. Neurophysiological models of pain incorporate both these dimensions and reveal that physiological factors interact with pain nociception prior to pain perception at both lower and higher order level of the body. Pain suffering involves the emotional reactions to nociception and Pain perception such as feelings that pertain to the meaning that is attached to the pain by the individual.

The final dimension, pain behavior involves all behavior associated with pain that is visible to people around the person suffering from pain. All the four dimensions of pain have to be taken into account to be able to fully grasp and successfully treat an individual suffering from pain (Gatchel et al., 2007).

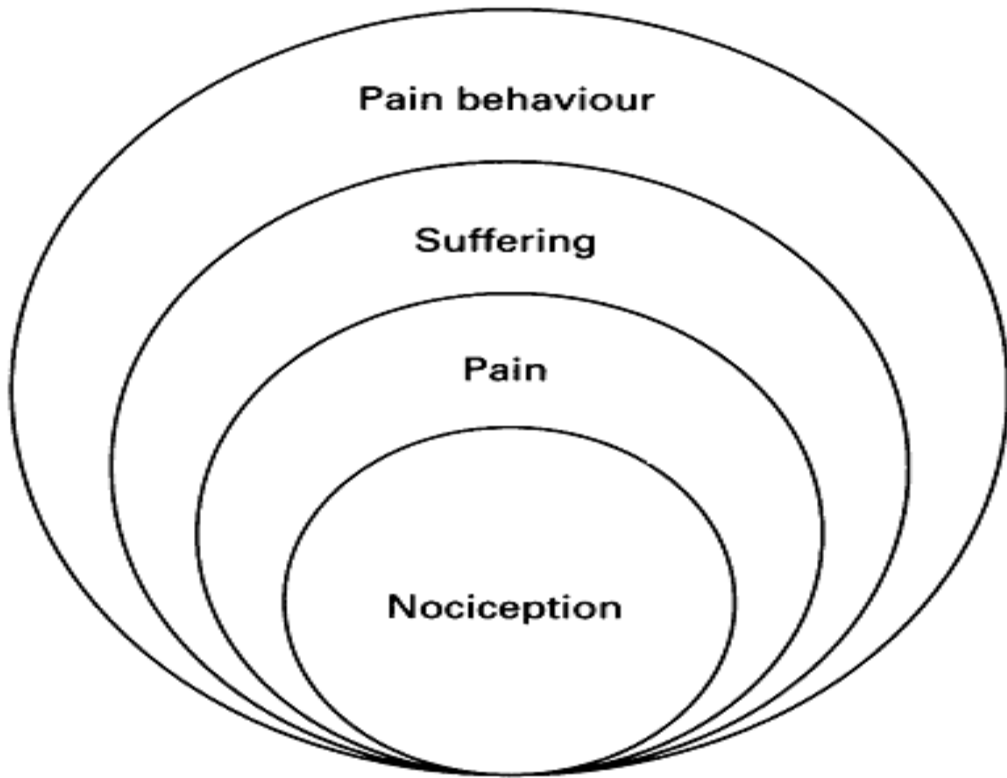


Fig. 1. Loesser model of pain (1982).

2.13 The WHO Analgesic Ladder

As shown in (fig 2), the WHO analgesic ladder has three steps based on each choice of analgesic.

Step One: comprises of mild pain and the choice of analgesic includes, paracetamol and NSAIDs.

Step Two: comprises of mild to moderate pain and its choice of analgesic include paracetamol and NSAIDs plus weak opioid example codeine or dihydrocodeine.

Step Three: comprises of severe pain and its choice of analgesic includes paracetamol and NSAIDs plus strong opioids example morphine, alfentanil , diamorphine, fentanyl or oxycodone.

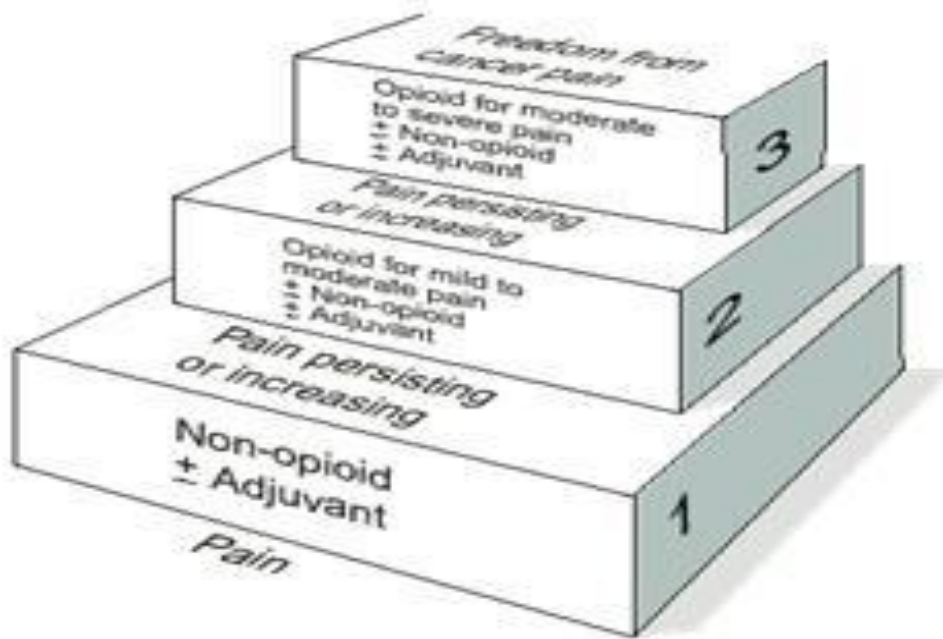


Fig .2: WHO Analgesic Ladder.

CHAPTER THREE

METHODOLOGY

3.1 Research methods and design

A cross-sectional study design was used. A quantitative method was used to elicit responses from the study participants. Since the researcher was able to provide more information as possible and describes analgesic abuse and misused in the university campus.

3.2 Data Collection Techniques and Tools/ Instruments

Questionnaire was the major instrument used for the collection of data. The questionnaire has some open-ended questions as well as closed or multi-choice questions that require respondents to choose from already listed possible answers. The questionnaire was in English but interviews were conducted in the preferred language of the respondents. English and local language (Twi).

3.3 Study Population

In this study the target populations were the university students.

3.4 Study Area

The area of study is the University of Mines and Technology found in Tarkwa. Tarkwa is the capital of the Tarkwa- Nsuaem Municipal Assembly , a mining community in the Western Region of Ghana and located in the South-West of Ghana and is 160m above mean sea level (Seidu, 2004). The Town is about 85km from Takoradi, which is the regional capital , 233km from Kumasi and about 317 km from Accra (Kesse, 1985; Yakubu et al., 2011). The University campus covers an area of approximately 1.39km² of undulating land and pleasant surroundings,

about 2 km South of Tarkwa. The mean rainfall is approximately 1500mm with peaks of more than 1700mm in June and October. The mean annual temperature is approximately 25 degrees Celsius with small daily temperature variations.

3.5 Inclusion Criteria

Only students studying in the university who were available at the time of data collection were included for study.

3.6 Exclusion Criteria

Non- University students were excluded.

3.7 Study variables

Demographic variables: age, gender, marital status, religion, education level, student grade point, nationality and program offered.

Dependent variables: knowledge and attitude towards analgesic usage among university students.

3.8 Sampling Techniques and Sample Size

The study area and unit were selected based on convenience and purposive sampling. Convenience sampling is a type of non-probability sampling where units of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability, at a given time, or the willingness to participate are included for the purpose of the study (Etikan., 2016). Purposive sampling is also a non- probability sampling method and it occurs when “element selected for the sample are chosen by the judgment of the researcher,

where the researcher believe that they can obtain a representative sample by using a sound judgment which will result in saving time and money. (Black., 2010).

In determining the sample size, the single proportion rate formula by Rexroat et al, (1992) will be used.

$$n = N / 1 + N (a^2)$$

Where n= sample size, 1= constant, N= sampling frame, a= margin of error.

The formula above was used because of the data availability for all variables. With a confidence level of 95%, and a margin of error (a) of 5 % (0.05), the result of the sample size is as follows;

$$n = N / 1 + N (a^2),$$

$$n = 2,417, / 1 + 2417(0.05)^2$$

$$n = 399.83$$

Rounded up to 400 for precision

n =400 respondents, N=2,417 a=5% (0.05) and 1=constant.

The researcher chose this sample size due to cost, and time constraints as well as to achieve higher response rate.

3.9 Pretesting

Pretesting of the questionnaire was done at the Takoradi Technical University in the western region of Ghana with thirty (30) participants. The data obtained were analyzed to determine if the findings can be used to answer the research questions or the specific objectives of the study.

3.10 Data Handling

Data collected were checked for completeness and correctness on regular basis by the researcher.

This was done to ensure questionnaires filled properly and meet the standard for data entry.

An excel sheet was created to group the raw data to enable easy analysis of the data. Finally to ensure the confidentiality of the participants, the participants were not asked to indicate their names and anything that can easily exposed them.

3.11 Data Analysis

Data were analyzed using STATA statistical software package (Stata Corp.2007.stata statistical software. Release14. Stata Corp LP, college station, (TX, USA) for analysis. The results were presented in the form of tables, frequencies and percentages. Chi square test was used to detect the association between demographic, side effect, and source of information about the analgesic use (p 0.05) was considered statistically significant.

3.12 Ethical Considerations

Ethical clearances were obtained from the Institution Review Board (IRB) of the Ensign College of Public Health. Permission was also obtained from the University authority of the study area and the Municipal Health Directorate.

The consent of the participant was sought before administering the questionnaire and they were informed that all the information provided will be handled confidentially.

3.13 Assumptions

1. University students may have some knowledge regarding analgesic usage.

2. University students may have more interest to know about ill effects of analgesics.

3.14 Limitation of the study

The study was conducted only at one purposefully selected university in Ghana. This is seen as limitation because prevalence and nature of analgesic use and abuse among university students in Ghana may vary depending on the environment where the universities are found. Also, the current study may not be generalized to all universities in Ghana.

CHAPTER FOUR

RESULTS

4.1 Demographic Characteristics of Respondents

The study included 400 respondents from the University of Mines and Technology. The total 400 respondents completed the questionnaire appropriately. More than half of the respondent were male (80.75%) and (19.25%) were female. Majority of the respondent were from Ghana (95.00%) since the university are found in the country, Nigeria (1.50%) , Burkina (1.25%) , Gabon (0.75%), Sierra lone (0.50%) Benin (0.50%) and Congolese (1.25%). The education level, the Age, Marital status, Religion and the Program of study of the respondent are more detailed in table 1.

Table 1: Demographic Characteristics of Respondents.

Characteristics	Number (%)
Age	
15-20	214(53.50)
21-25	156(39.00)
26-30	20(5.00)
31-50	10(2.50)
Gender	
Male	323(80.75)
Female	77(19.25)
Marital Status of Respondent	
Single	383(95.75 %),
Married	14(3.50 %)
Divorced	1(0.25 %)
Cohabiting	2(0.50 %)
Religion of Respondent	
Christian	354.88(88.72 %)
Muslim	41.12(10.28 %)
Traditional	2(0.50 %)
other	2(0.50 %)

Education

Level 100	210(52.50)
Level 200	85(21.25)
Level 300	47(11.75)
Level 400	46(11.50)
Masters/PhD	12(3.00)

Nationality

Ghana	380(95.00)
Nigeria	6(1.50)
Burkina Faso	2(0.50)
Gabon	3(0.75)
Benin	2(0.50)
Congolese	5(1.25)
Sierra Lone	2(0.50)

Program of study

Geometric Engineering	59(14.75)
General Drilling	3(0.75)
Mechanical Engineering	59(14.75)

Petroleum Engineering	17(4.25)
Computer Engineering	24(6.00)
Electricals and Electronic Engineering	18(4.50)
Environmental And Safety Engineering	35(8.75)
Geological Engineering	45(11.25)
Mathematical Engineering	30(7.50)
Mineral Engineering	40(10.00)
Mining Engineering	59(14.75)
Renewable Engineering	11(2.75)

Table 1: Demographic Characteristics of Respondents

4.4 Knowledge and Attitude toward Analgesics Use.

All the respondents (100%) believed they heard about painkillers. Majority of the respondents (85.0%) use paracetamol, ibuprofen (5.5%), Diclofenac Sodium and potassium (2.75%) tramadol (2.00%) and other (4.75%) respectively. Many of the respondent (75.0%) used the analgesic only as needed, Daily (2.75%), weekly (2.00%), monthly (18.5%) and yearly (1.75%). Majority of the respondent (85.75%) use from two tablet of analgesics per day, one tablet (12.00%), three tablet and above (2.25%) respectively. Majority Of the respondents (95.0%) agreed that analgesics must be taken with water. Table 2.

Table 2: Knowledge and attitude towards analgesic use.

Items	Number (%)
Do you know pain killers	400(100)
Analgesic and NSAIDs	
Diclofenac sodium and Potassium	11(2.75)
Ibuprofen	22(5.5)
Paracetamol	340(85.0)
Tramadol	8(2.00)
Other	19(4.75)
Frequency use of the tablet per day	
1	48(12.00)
2	343(85.75)
3 and above	9(2.25)

What do you usually take pain killer

with

Water	380(95.0)
Milk	1(0.25)
Fruit juice	17(4.25)
Tea	1(0.25)
Others	1 (0.25)

Taking pain killer before

Yes	351(87.75)
-----	------------

How often do you take analgesics

As needed	300(75.0)
Daily	11(2.75)
Weekly	8(2.0)
Monthly	74(18.5)
Yearly	7(1.75)

Table 2: Knowledge and attitude towards analgesic use.

4.5 Pain Killer User and Non User

Majority of the respondent (87.75 %) believed to be taken pain killers before and (12.25 %) have not use analgesic before (fig 3).

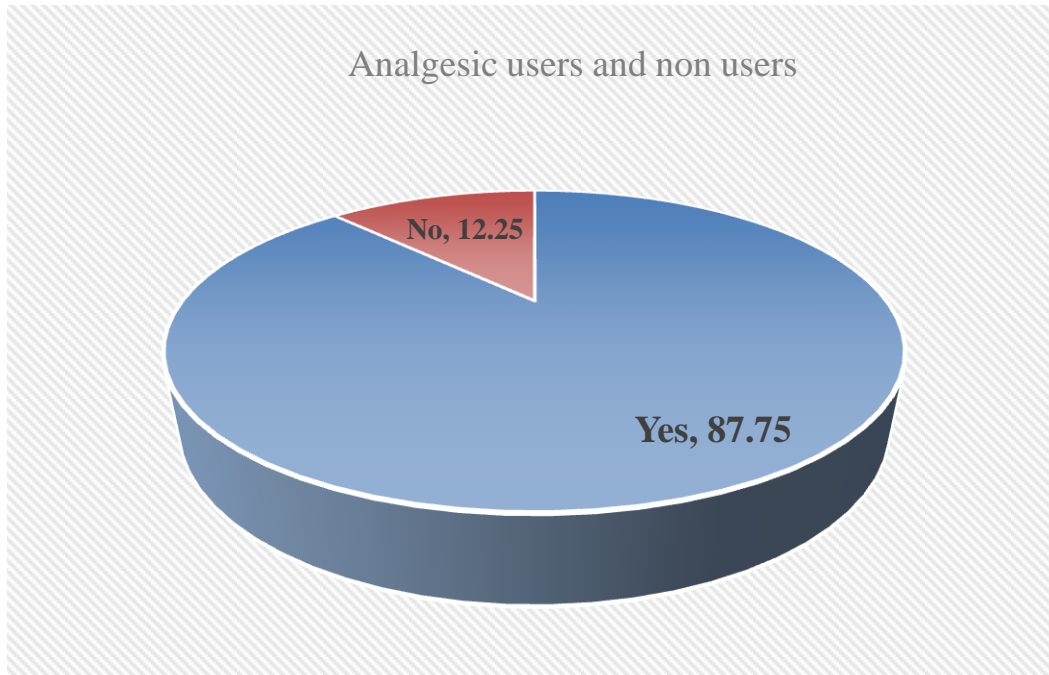


Figure 3: Painkiller users and non-users.

4.6 Respondents Knowledge on Type of Painkillers they know.

On what type of painkillers do they know, many respondent (66.50%) know paracetamol, ibuprofen (9.75%) , diclofenac sodium and potassium (7.75%), tramadol (9.00%) and other (7.00%) (fig 4).

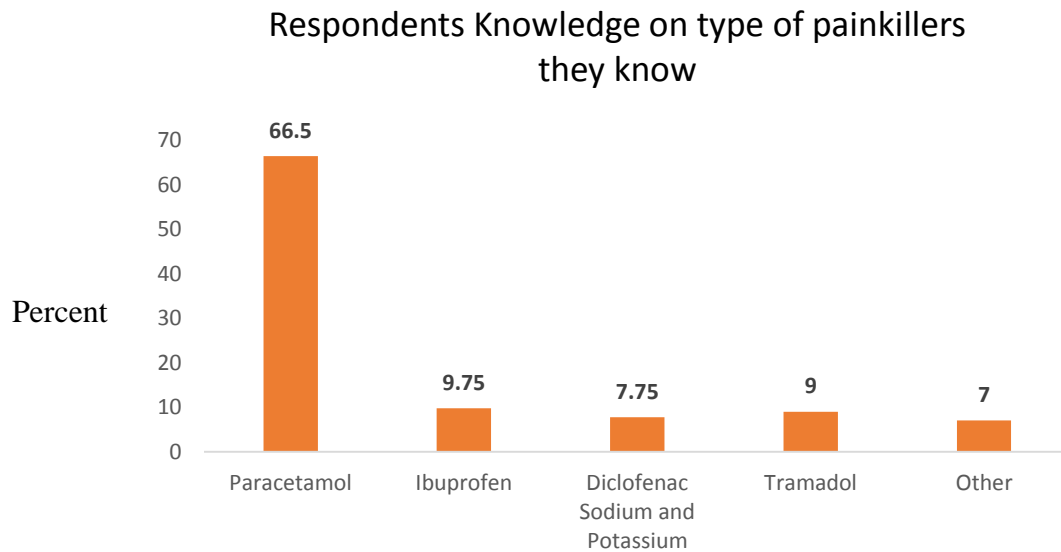


Figure 4: Respondent Knowledge on Type of Pain Killers They Know.

4.7 Period for Taking Pain killers

Most of respondents (45.79 %), believed that analgesic must be taken after meals, before meals (7.87 %), time of pain (37.35%) and no specific time (8.99%). (fig 5).

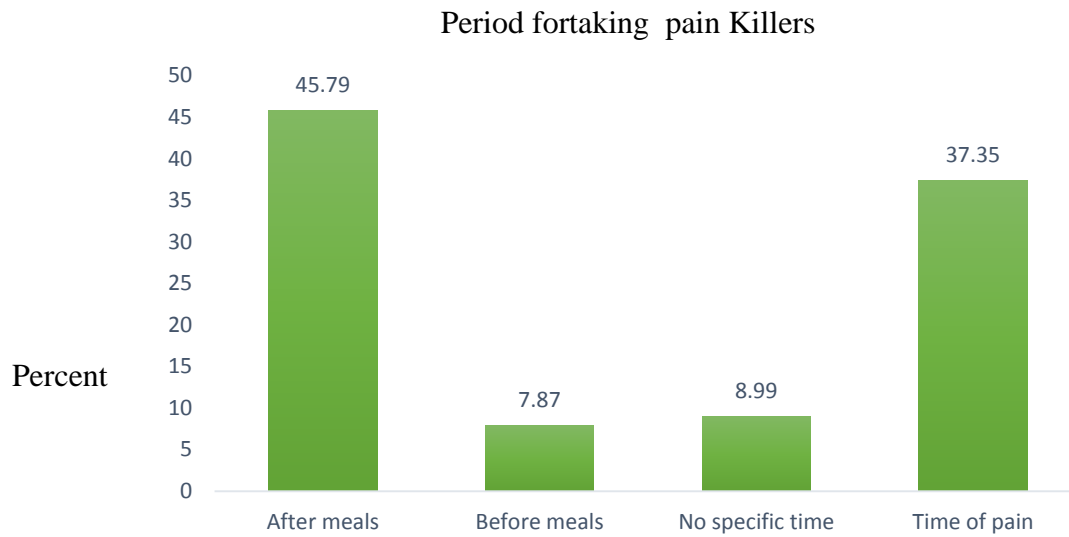


Fig 5: Period for Taking Pain Killers.

4.8 Chronic and Non Chronic Users of Analgesics.

Majority of the respondent (88.06%) do not use analgesic on regular basis for any chronic illness and (11.94%) of the respondent use analgesic on regular Basis for any chronic illness they encounter (fig 6).

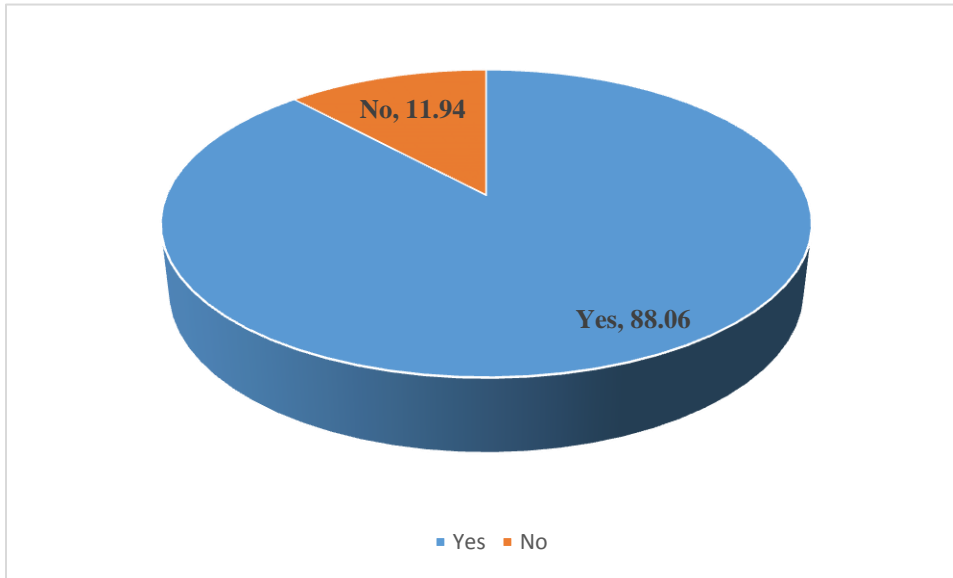


Figure 6: Chronic and non-chronic users of analgesics.

4.9 Reason To Take Side Effect And Source Of Information About Analgesic Use.

The most common reasons for taking analgesics were headache (57.5%) fever (8.50%), flu (0.75%), menstrual pain (4.00%), and Muscle pain (7.00%). General pain (18.75%) and Dental pain (3.50%). Majority of the respondent (75.0%) did not face any side effect after taking painkillers but (13.33%) of them had nausea and vomiting, stomach burn (2.00%), shortness of breath (0.75%) and Dizziness (3.75%) respectively.

Most of the respondent (67.13%) believed to not taken painkillers in the past 12 months without a doctor's prescription.

On how many days in the past one month they believed taken painkillers without prescription , none (16.00%) , 1-2 days (58.75%) , 3-5 days (15.25%) 6-9 days (3.50%) , 10-19 days (1.00%) and 20 and more days (5.50%).

On whether taken analgesic because a doctor told than to take them, majority of the respondent (80.75%) believed yes but for less than 3 weeks, (4.50%) for 3 weeks and more, and No, Never (14.75%) . Table 3.

Table 3. Reason to take, side effect and source of information about analgesic use.

Reason to take	Number (%)
Headache	230(57.5)
Flu	3(0.75)
Muscle pain	28(7.00)
Dental pain	14(3.50)
Fever	34(8.50)
Menstrual pain	16(4.00)
General pain	75(18.75)
Side effect	
Nausea and vomiting	8(2.00)
Stomach burn	74(18.5)
Shortness of breath	3(0.75)
Dizziness	15(3.75)
Nothing	300(75.0)
Taking analgesic for the past 12 month	
without prescription	
Yes	241(67.13)
No	119(32.87)

Days in the past one month of taking

analgesics without prescription

Non	64(16.00)
1-2 days	235(58.75)
3-5 days	61(15.25)
6-9 days	14(3.50)
10-19 days	4(1.00)
20 or more days	22(5.50)

Taking analgesic on a doctor's prescription

No, never	59(14.75)
Yes, for less than 3 weeks	323(80.75)
Yes, for 3 weeks and more	18(4.50)

Table 3. Reason to take, side effect and source of information about analgesic use.

4.1 The frequency that respondents read leaflet before Taking the painkillers.

Around (66.12%) believed they sometimes read the leaflet before taking the tablet, always (17.90%) and never (15.98%. fig (7).

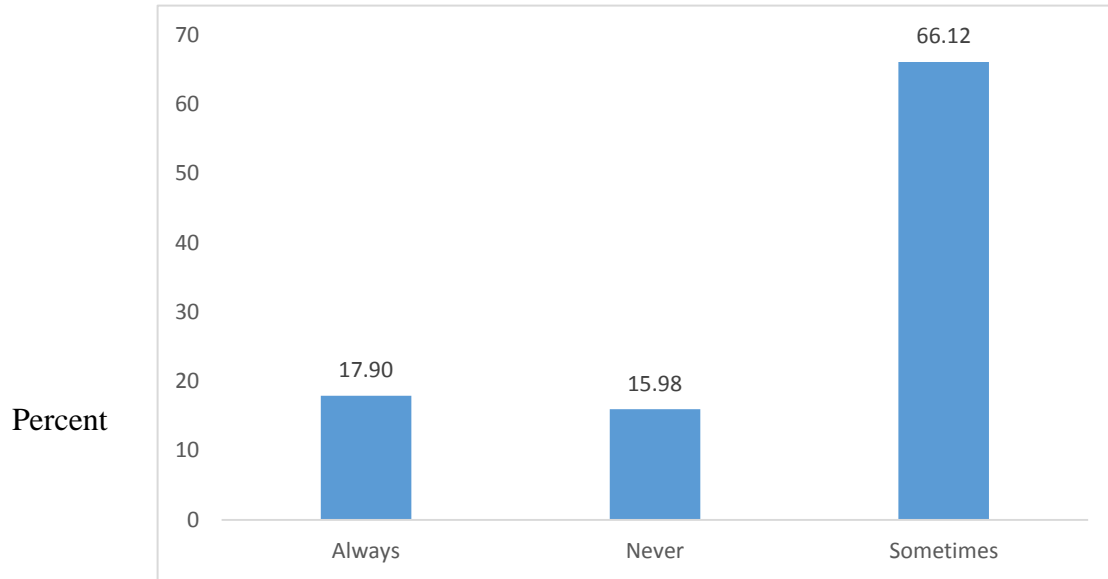


Figure 7: The frequency that respondents read leaflet before Taking the painkillers.

4.11 Source of Information on Analgesics

Most of the respondents (74.65%) consult pharmacist when sourcing for analgesics, doctor (10.31%), over the counter (7.52%), internet (2.23%), family and friends (3.90%), and advertisement (1.39 %) respectively (fig 8).

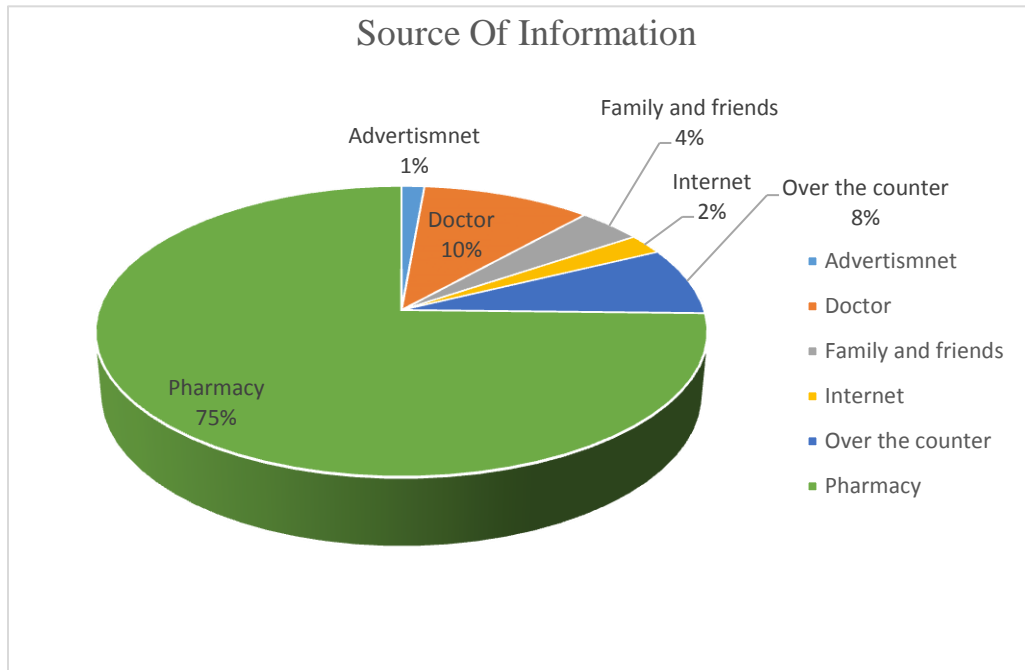


Figure 8: Source of Information on Analgesics

4.12 Association Between Demographic and Source of Information about the Use and Side Effect of Analgesic Use. Table 4.

There was a significant association between the type of painkillers the respondents know, the marital status of respondents and side effects. There was also a significant association between program study by respondents and source of information. ($p= 0.003$) and ($p=0.001$).

Table 4. Association between demographic and source of information about the use and side effect of analgesic use.

Item	Gender	Age	Marital status	Religion	Education	nationality	Program offered	Reason of taking the painkillers	Type of pain killers
Source of information (<i>p</i> -value)	0.558	0.008	0.443	0.998	0.086	0.464	0.003	0.257	0.263
Side effect (<i>p</i> -value)	0.955	0.075	0.001	0.230	0.136	0.342	0.324	0.023	0.003

P value calculated through chi-square test. **P<0.05** considered statistically significant. P-values presented in bold.

Table 4: Association between demographic and source of information about the use and side effect of analgesic use.

CHAPTER FIVE

DISCUSSION

This recent study found that the most common used analgesic in the University of Mines and Technology is Paracetamol. This coincides with the result from previous studies conducted in Norwegian population (Dale et al., 2015).

The current study revealed that the young population among the students aged 15 to 25 years used analgesic more than older population among the students. The reason could be that student admitted in the University aged from 15 to 25 years are more than those who are 30 to 45 years. This is in contrast to many previous epidemiological studies which estimated that approximately 20% of elderly people are using analgesics compared to the younger one (AGS, 2009).

Also in this recent study, male students use analgesic more than the female students.

This disagrees with a study conducted by Hargreave et al, (2010) which indicated that women generally have a higher intake of analgesics than men.

In this recent studies, the major reasons for taking analgesics are to treat headache, general body pain, where similar finding was also reported by Builder et al (2012).

Majority of the analgesic users in this study are taking one to two tablet per day which indicate lack of information about appropriate adult dose which agrees with a study done in Norwegian which says that those respondent in that study taking a lower dose of Over the counter (OTC) drug had not exceeded the maximum dose (Samuelson et al., 2015).

Most respondents in this current studies believed they have not experienced any side effect that comes with analgesics compared to fewer respondents that responded they have experienced side effect. Similar studies conducted in Poland confirms same (Stoic et al., 2011).

Also, Matoulkova et al, (2013) on their studies, where 16% of the respondents agreed on the same belief.

The current study revealed that respondents rely on pharmacist as a valuable source of information about analgesic use and its safety. This result agrees with the result of the study conducted in Saudi Arabia (Elburn et al., 2016). Also in this current studies the respondent considered pharmacist and doctors as top source of information on analgesic use but the respondent answers on pharmacist is greater compared to doctors. This coincides in the study conducted in New Zealand, where the public preferred the doctor and pharmacist as top source of information on analgesic used (Brouneus et al., 2012).

Again in this current study, the respondent did not mostly considered Over the Counter Medicine Sellers, family and friends, advertisement and internet as their major source of information on analgesic use. This is opposite to the study in Iran that shows the most common source of information relied on by respondents was family and friends (Golar e t al., 2011).

The findings of this current study revealed significant association between selected demographic characters such as marital status and program offered by respondents but no significant association in male and female .This coincides with a previous study in Germany where no significant association between male and female reported (Sarganas et al., 2015).

Our findings generally revealed no significant association between age and analgesic use as the previous studies conducted in United States have shown an association between age and

analgesic use (Kaufman et al., 2002). Female students in this study feel shy to indicate they use analgesic for menstrual pains.

Finally, students in this current study also feel intimidated to indicate their Cumulative Weighted Average (CWA).

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Majority of the respondents use analgesics drugs for many reasons such as headache, fever, dental pain, muscle pain and menstrual pain. The most common analgesic used by students of University of Mines and Technology is paracetamol. Irrational trends in prescribing practices and pharmaceutical advertising contributing to the current analgesic epidemic in the identified aged group of 15- 45 years were critically observed. In addition, more male students used analgesics than female students. However, the students of this study have inadequate knowledge on analgesic usage. Most of the respondent relied on pharmacist as a valuable source of information about analgesic use and its safety.

6.2 Recommendations

- 1.** It is recommended that pharmacists, doctors and all health professionals' should involved in health education and counseling about proper use and side effects of analgesics.
- 2.** It is recommended that irrational trends in prescribing practices and pharmaceutical advertising, contributing to the current analgesic epidemic in the identified aged group of 15-45 years need to be restricted.
- 3.** Future research should be carried out in other universities to confirm these results to reduce the analgesic misuse and abuse among students.

REFERENCES

Abahussain.E, Matowe LK, Nicholls PJ. Self-reported medication use among adolescents in Kuwait. *Med princ Pract* 2005. 14 (3):161-164 available from

<http://www.ncbi.nlm.nih.gov/pubmed/15863989>.

Abay SM, Amelo W. Assessment of self-medication practices among medical, pharmacy and health science students in Gondar University, Ethiopia. *J Young Pharm.* 2010 ; 2(3):306-310..Availablefrom:<http://www.ncbi.nlm.nih.gov/pubmed/21042491>.

Abbott FV, Fraser MI. Use and abuse of over-the counter analgesic agents. *J Psychiatry Neurosci.* 1998; 23(1):13-34.

Advisory Council on the Misuse of Drugs you ([ACMD], 1998). Drug Misuse and the Environment. London: Stationery Office.

Aguwa MI. Anagesics.In; A hand book of pharmacology and allied health professions. African – FEP.Pub. Ltd, Onitsha: Nigeria, 1998; pp.72-74.

Albatti, T. H., Alawwad, S., Aldueb, R., Alhoqail, R., & Almutairi, R. (2017). The self-medication use among adolescents aged between 13-18 years old; Prevalence and behavior, Riyadh Kingdom of Saudi Arabia, from 2014-2015. *International Journal of Pediatrics and Adolescent Medicine*, 19-25.

American Geriatrics Society Panel on the Pharmacological Managementof Persistent Pain in Older Persons. Pharmacological management of persistent pain in older persons. *J Am Geriatr Soc.* 2009; 57(8):1331-46.

Almasdy D, Sharrif A. Self-medication practice with non-prescription medication among university students; a review of literature. *Archives of pharmacy practices*.2011; 2(3): 95-100.

Available from: <http://www.archivepp.com/resources/files/110201115933118>.

Araoye MO. Research methodology with statistics for health and social sciences. Ilorin: Nathadex Publishers, 2003, 117-118. Wikipedia, 2016 Wikipedia. Ijaw People. 2016. *Asian Journal of Pharmaceutical and Clinical Research*, 60-64.

Bannink, R, Broeren, S, Heydelberg, J, Klooster, E & Raat, H. 2015. Depressive symptoms and clustering of risk behaviours among adolescents and young adults attending vocational education: A cross-sectional study. *Bio-Medical Centre-Public Health* 15(396):1-9.

Beck, F, Legleye, S, Chomynova, P & Miller, P. 2014. A Quantitative Exploration of Attitudes Out of Line with the Prevailing Norms toward Alcohol, Tobacco, and Cannabis Use among European Students. *Substance Use & Misuse* 49:878–890.

Builders MI, Aguwa CN. Patients' attitudes towards analgesic usage in Nsukka community. *Pharm Lett* 2012; 4(2):641-8.

Becker, JB, Perry, AN & Westenbroek, C. 2012. Sex differences in the neural mechanisms mediating addiction: a new synthesis and hypothesis. *Biology of Sex Differences* 3(14):1-35.

Bhala N, Emberson J, Merhi A, Abramson S, Arber N, Baron JA et al. 2013. "Vascular and upper gastrointestinal effects of non-steroidal antiinflammatory drugs: meta-analyses of individual participant data from randomised trials." *Lancet*, 382(9894): 769–79.

Black K. (2010) "*Business Statistics.: Contemporary Decision Making*" 6 Edition, John Wiley & Sons. *Students from the City of Rio Grande, Brazil. BMC Public Health symptoms and*

clustering of risk behaviours among adolescents and young adults attending vocational education: a cross-sectional study. Bio-Medical Centre-Public Health 15(396):1-9.

Boakye-Gyasi E, Woode E, Ainooson GK, Obiri DD, Ansah C, Duwejua M, et al. Anti-inflammatory and antipyretic effects of an ethanoic extract of *Palisota hirsuta* K. Schum roots. *African Journal of Pharmacy and Pharmacology* 2008; 2(9):191-9.

Builders MI, Ogbole E, Peter JY. Assessment of antimalarial drug Use among the patients in a tertiary hospital in Northern part of Nigeria. *Int J Trop Dis and Hlt* 2013; 3: 283-291.

Builders MI, Aguwa CN. (2012), Patients attitude towards analgesic usage in Nsukka community. *Der PharmaciaLettre* 2012; 4:

Califano J. Prescription drug pushers on the Internet. A CASA white paper. The National Center on Addiction and Substance Abuse; New York, Columbia University: 2004.

El Ezz NF, Ez-Elarab HS. Knowledge, attitude and practice of medical students towards self-medication at Ain Shams University, Egypt. *Journal of Preventive Medicine and Hygiene.* 2011; 52(4):196-200.

Brounéus F, Macleod G, Maclennan K, Parkin L, Paul C. Drug safety awareness in New Zealand: Public knowledge and preferred sources for information. *J Prim Health Care* 2012; 4:288-93.

Dale O, Borchgrevink I P C, Fredheim OM, Mahic M, Romundstad P, Skurtveit S, Department of Pharmacopidemiology, *Prevalence of use of non-prescription analgesics in the Norwegian*

HUNT3 population: Impact of gender, age, exercise and prescription of opioids. BMC Public Health 2015; 15:461.

Elbur A, Almalki NH, Alghamdi AA. Knowledge, attitudes and practices on medication use and safety among Saudi people: A public-based versus an internet-based survey in Taif; Kingdom of Saudi Arabia. *Saudi J Med Pharm Sci* 2016;2:99-103.

Etikan, I.(2016) ‘Comparison of convenience sampling and purposive sampling ‘ *American Journal of Theoretical and Applied statistics*, 5(1).

"FDA Strengthens Warning of Heart Attack and Stroke Risk for Non-Steroidal Anti-Inflammatory Drugs".2015.Available from <http://www.fda.gov/ForConsumers/>

Fendrick AM, Greenberg BP. A review of the benefits and risks of nonsteroidal anti-inflammatory drugs in the management of mild-to-moderate osteoarthritis. *Osteopathic medicine and primary care*. 2005;49 (9):1360-6.

Gathuru, IM, Tarter, RE & Klein-Fedyshin, M. 2015. *Review of hand book on tobacco smoking among college students: policy implications and research recommendations. The American Journal of Drug and Alcohol Abuse* 41(4):272-280.

Ger LP, Ho ST, Wang JJ. *Physicians' knowledge and attitudes toward the use of analgesics for cancer pain management: a survey of two medical centers in Taiwan. J Pain Symptom Manage*. 2000;20(5):335–44.

Golar SK, PJ Hanson, *Use and understanding of analgesics (painkillers) by Aston University students. Bioscience Horizons* 2011; 4 ; 71-6.

Hargreave. Anderson TV, Nielsen A, Munk C , Liaw KL, Kjaer SK. Factors associated with a continuous regular analgesic use—a population based study of more than 45 000 Danish women and men 18–45 years of age. *Pharmacoepidemiology Drug Safety* 2010; 19: 65–9.

Jaiswal S, Keche NY, Yegnanarayan R, Gajendra G, Chandanwale K, Lanke V,. Pattern of self-medication use of analgesics in Pune, Maharashtra, *India.Int J Res Med Sci.* 2014;2(3):1092–96.

James H, Handu SS, AJ, Khaja A, KS, Otoom, and RP, Sequeirar. (2006). Evaluation of the knowledge, attitude and practice of self-medication among first year medical students. *Med Princ Pract.* 270-275.

Jaouahir, I, Azzaoui, FZ, Lotfi, S, Ahami, A, Faid, M & Rusinek, S. 2015. Listening Withdrawal Psychotherapy from Psychoactive Substances Addiction among Young Moroccan Trainees. *International Journal of Multidisciplinary Approach and Studies* 2(6):158-165.

Kamaldeen A. Evaluation of analgesics usage in pain management among physicians. *J Appl Pharma Sci* 2012; 2 : 19.

Kaufman DW, Kelly JP, Rosenberg L, Anderson TE, Mitchell AA. *Recent patterns of medication use in the ambulatory adult population of the United States: The Slone survey. JAMA* 2002;287:337-44.

Kassa, A, Taddesse, F & Yilma, A. 2014. Prevalence and factors determining psychoactive substance (PAS) use among Hawassa University (HU) undergraduate students, Hawassa Ethiopia. *Bio-Medical Centre-Public Health* 14(1044):1-7.

Kasulkar, A. A., & Gupta, M. (2015). Self-Medication Practices among Medical Students of a Private Institute. *Indian Journal of Pharmaceutical Sciences*, 178-182.

Kesse G.O. (1985), *The mineral and Rock Resources of Ghana*. Balkema Publishers. Rotterdam, pp: 610.

Le Grand, A. *Intervention research in rational use of drugs: a review*, *Health Policy and Planning* 1999; 14: 89-13.

Lee, R, Loke, AY, Wu, CS & Ho, AP. 2010. The lifestyle behaviours and psychosocial well-being of primary school students in Hong Kong. *Journal of Clinical Nursing* 19:1462-1472.

Lee, TK. 2014. Addiction Education and Training for Counselors: A Qualitative Study of Five Experts. *Journal of Addictions & Offender Counselling* 35:67-80.

Legeby M, Sandelin K, Wickman M, Olofsson C. Analgesic efficacy of diclofenac in combination morphine and paracetamol after mastectomy and immediate breast reconstruction. *Anesthesia Scand*. 2005;49 (9):1360

Maier, LJ, Liechti, ME, Herzig, F & Schaub, MP. 2013. *Neuroenhancement with Prescription Drugs and Drugs of Abuse among Swiss University Students*. *PLoS ONE* 8(11):1-10.

Marcia L.Buck. Self-medication by adolescents. *Pediatric Pharm*. 2007; 13(5):1-4. Available from: <http://www.medscap.com>.

Ministry of Health, Republic of Ghana.; 2016. Available from: www.moh.gov.gh.

Matoulkov P, Dosedel M, Ryeková B, Kubana A. *Information and awareness concerning ibuprofen as an ingredient in over the counter analgesics: a questionnaire-based survey of residents retirement communities*. *Acta Pol Pharm* 2013;70:333-8.

Nair, M. S., Rajmohan, T., & Kumaran, J. (2013). *Self Medication Practices of Reproductive Age Group Women in Thiruvananthapuram District, South India: a Questionnaire –Based Study*. *Journal of Pharmaceutical Sciences and Research*, 220-225.

National Institute on Drug Abuse (USA). 2014. *Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide*. Washington DC: NIDA publication.

Page J, Henry D. 2000. "Consumption of NSAIDs and the development of congestive heart failure in elderly patients: an under recognized public health problem" of *Internal Medicine*, 160(6): 777–84.

Pamela M, David R, Suellen W. *Clinical Pain Management Acute Pain*. 2nd ed. Boca Raton, FL: CRC Press; 2008. p. 85.

Pereira CM, Farias Alves V, Freire Gasparetto P, Carneiro DS, Rocha de Carvalho D, Ferreira Valoz FE. Selfmedication among health students from two Brazilian universities. 2012;9(4):6

Plantinga L, Grubbs V, Sarkar U, Hsu CY, Hedgeman E, Robinson B, et al. Nonsteroidal anti-inflammatory drug use among persons with chronic kidney disease in the United States. *Ann Fam Med*. 2011;9(5):423-30.

Rahimi-Madiseh M, Tavakol M, Dennick R. *A quantitative study of Iranian nursing students' knowledge and attitudes towards pain: implication for education*. *Int J Nurs Pract*. 2010;16(5):478–83.

Rang, HP. *Pharmacology*,.; Churchill Livingstone, London, 2003; pp.588-609.

Royal Pharmaceutical Society and British Medical *British National Formulary (BNF)*, 2009 London BMJ Group and RPS publishing.

Rozenbroek, K & Rothstein, WG. 2011. Medical and Nonmedical Users of Prescription Drugs Among College Students. *Journal of American College Health* 59(5):358-363.

Russel RN. Dosage and choice of parenteral strong analgesics. *Am J Hosp Pharm* 1994; 131: 780.

Salameh, P, Jomaa, L, Issa, C, Farhat, G, Zeghondi, H, Gerges, N, Sabbagh, TM, Chaaya, M, Barbour, B, Waked, M, Salamé, J, Saadallah-Zeidan, N & Baldi, I. 2014. *Assessment of health risk behaviours among university students: a cross-sectional study in Lebanon. International Journal of Adolescence and Youth* 19(2):203-216.

Samuelsen P, Slordal L, Mathisen U, Eggen AE. Analgesic use in a Norwegian general population: Change over time and high-risk use - The Tromso Study. *BMC Pharmacol Toxicol* 2015;16:28-33.

Sallam SA, Khallafallah NM, Ibrahim NK, Okasha AO. Pharmacoepidemiological study of self-medication in adults attending pharmacies in Alexandria, Egypt. *Eastern Mediterranean Health Journal*. 2009;15(3):683-91

Sarganas G, Buttery AK, Zhuang W, Wolf IK, Grams D, Rosario AS, Prevalence, trends, patterns and associations of analgesic use in Germany. *BMC Pharmacol Toxicol* 2015;16:28.

Sapkota, A R., Coker, M. E., Goldstein, R. E., Atkinson, N. L., Sweet, S. J., Sopeju, PO, Ojo, KK, (2010). *Self-medication with antibiotics for the treatment of menstrual symptoms in southwest Nigeria: a cross sectional study. BMC Public Health*.

Seidu M. (2004), "GIS as a tool in water monitoring for Public Health and Safety Management" BSc Project Report, unpublished, University of Mines and Technology, Tarkwa, Ghana, 6 pp.

Silva, M. G., Soares, M. C., & Muccillo-Baisch, A,(2012). Self-medication in University Students from the City of Rio Grande, Brazil. *BMC Public Health*.

Smith, HS. *Management of neuropathic pain: current insights and future perspectives. US Neurology* 2012; 8: 57-4.

Stosic R, Dunagan F, Palmer H, Fowler T, Adams I. Responsible self-medication: Perceived risks and benefits of over-the-counter analgesic use. *Int J Pharm Pract* 2011;19:236-45.

Sorsdahl, K, Stein, DJ & Myers, BM. 2012. Negative attributions towards people with substance use disorders in South Africa: Variation across substances and by gender. *Bio-Medical Centre-Psychiatry* 12(101):1-8.

Traversa G, Walker AM, Ippolito FM, Caffari B, Capurso L, Dezi A, Koch M, Maggini M, Alegiani SS, Raschetti R, 1995. "Gastroduodenal toxicity of different nonsteroidal antiinflammatory drugs". *Epidemiology (Cambridge, Mass.)*, 6(1): 49–54.

Verma, R. K., Mohan, L., & Pandey, M. (2010). Evaluation of self-medication among professional students in North India: proper statutory drug control must be implemented. *Asian Journal of Pharmaceutical and Clinical Research*, 60-64.

Viney S (2012). Advisory Council on the Misuse of Drugs you ([ACMD], 1998). Drug Misuse and the Environment. London: Stationery Office.

Wazaify M, Shields E, Hughes CM, McElnay JC. Societal perspectives on Over- the Counter (OTC) medicines, *Fam Pract*, 2005, vol.22 (pg. 170 -176).

WHO (2004) *Neuroscience of psychoactive substance use and dependence. Geneva: World Health World Health Organization. Sa. Working With Street Children: module 3-understanding substance use among street children. Geneva: WHO publication.*

Yakubu Issaka and Bernard Kumi-Boateng (2011), “Control Position Fix using Single Frequency Global Positioning System Receiver Technique-A Case Study” *Research Journal of Environmental and Earth Sciences* 3(1): pp32-37.

APPENDICES

Appendix 1: Questionnaire on Knowledge, Attitude and Behavior towards Analgesic usage among Student of University of Mines And Technology in the Western Region of Ghana.

My name is Isaac Hanson and a Master of Public Health Student at Ensign College of Public Health, Kpong. I/we are undertaking a research on knowledge, attitude and behavior towards analgesic usage among student of university of mines and technology in Tarkwa - Nsuaem municipality in the western region.

The purpose of this study is to assess the knowledge, attitude and behavior towards analgesic usage among students in the University of Mines and Technology and to develop guidelines for preventing the burden of analgesic abuse among students in the University.

All information provided will be treated with strict confidentiality. As such, individual response to this questionnaire will not be identified. The filling of the questionnaire will take approximately 20-30 minutes and your participation is highly appreciated.

Do you agree to participate?

Yes [] No []

Date...../.....2019.

Signature.....

Section A: Demographic Characteristics

1. Your age (Years).
a. 15-20 [] b. 21-25 [] c. 26-30 [] d. 31-35 [] e. 34-40 [] f. 41-45 [] g. 46-50 []
h. 51-55 []

2. Your gender.
a. Male [] b. Female []

3. Your marital status.
a. Single [] b. Married [] c. Divorced [] d. Co habiting []

4. Your religion?
a. Christian [] b. Muslim [] c. Traditional [] d. Other (Specify) []

5. Your level of education?
a. Level 100 [] b. Level 200 [] c. Level 300 [] d. Level 400 []
Masters and PhD []

6. Your Nationality? Please state.....

7. What was your CWA in the last semester? Please describe.....

Section B: Knowledge and attitude towards Analgesic use.

8. Have you heard about painkillers _

Yes [] No []

9. If yes, which type of painkillers do you know

a. paracetamol [] b. Ibuprofen [] c. Diclofenac sodium and potassium [] d. Tramadol []
[] e. other(specify).....

10. Do you take painkillers (Analgesic)? Or Have you been taking painkillers before

a. Yes [] b. No []

11. If yes, what type of painkillers (analgesic do you take?)

a. Paracetamol [] b. Ibuprofen [] c. Diclofenac sodium and potassium [] d. tramadol [] e.
other (specify).....

12. With this painkiller, how many tablets do you usually take for dose or per day, Please choose from the following.

a.1 [] b. 2 [] c. 3 [] d. 4 [] e. above []

13. At what time do you take the analgesics?

a. Before meal [] b. After meal [] c. Time of pain [] d. No specific time [].

14. What do you usually take the painkiller tablet with? Please choose

From the following;

a. Water [] b. Milk [] c. Fruit juice [] d. Tea [] e. Other (specify)

15. Generally, how often do you take painkillers? Please choose one from the following;

a. Daily [] b. Weekly [] c. Monthly [] d. Yearly [] e. As needed [].

16. Do you take painkillers on a regular basis for any chronic illness you may have?

a. Yes [] b. No []

Section C: The reason of taking the painkillers, side effect and source of information about analgesic

17. What is the reasons for taking the analgesic?

a. Fever [] b. Flu [] c. Menstrual pain [] d. headache [] e. muscle Pain [] f. Any pain []
g Dental pain. []

18. Before taking the painkiller, do you read the leaflet before taking the tablet? Please choose from the following.

a. Always [] b. Sometimes [] c. Never []

19. Have you ever experienced any side effect?

Yes [] No []

20. If yes, select the side effect listed below

- A. Nausea and Vomiting []
- B. Stomach burn []
- C. Shortness of breath []
- D. Doziness []
- E. Nothing []

21. Whom do you consult when sourcing for the analgesics ?

- a. Pharmacy shop's [] b. Doctor [] c . Over the counter medicine sellers []
- c. Internet [] d. Family and friends [] e. Advertisement [] .

22. Have you taken analgesics in the past 12 months without a doctor's prescription?

- a. Yes [] b.No []

23. If yes, how many days in the past 1 month have you taken analgesics without prescription?

- A. None []
- B. 1-2 days []
- C. 3-5 days []
- D. 6-9 days []
- E. 10-19 days []
- F. 20 or more days []

24. Have you ever taken analgesic because a doctor told you to take them?

- a. No, never [] b. Yes, but for less than 3 weeks [] c. Yes, for 3 weeks of more []

25. How do you buy the analgesics?

a. Myself [] b. Somebody [] c. Both A and B []

If someone, who?

26. How old is the person?

27. How difficult do you think it would be for you to get analgesics if you wanted? a. Impossible [] b. Very difficult [] c. fairly difficult d. fairly easy [] e. Very easy [] f. don't know []

Appendix 2: Ethical Approval

ENSIGN COLLEGE OF PUBLIC HEALTH - Kpong

OUR REF: ENSIGN/IRB/M4
YOUR REF:
Tel: +233 245762229
Email: irb@ensign.edu.gh
Website: www.ensign.edu.gh



P. O. Box AK 136
Akosombo
Ghana

Tuesday, 13 November 2018

INSTITUTIONAL REVIEW BOARD SECRETARIAT

Isaac Hanson
Ensign College of Public Health

Dear Mr. Hanson,

OUTCOME OF IRB REVIEW OF YOUR THESIS PROPOSAL

At a meeting of the INSTITUTIONAL REVIEW BOARD (IRB) of Ensign College of Public Health held on 1st November, 2018 your proposal entitled “**Knowledge, Attitude and Behavior towards Analgesic Usage among Students of the University of Mines and Technology in the Western Region of Ghana**” was considered.

Your proposal has been approved for data collection in the following settings:

1. Include Student ID number and name of Supervisor.
2. All abbreviations should be expanded in a list of abbreviation.
3. Review questionnaire by making it detailed and rephrase question 8 and 9.
4. Arrange for a resource person to educate students on drug abuse.

We wish you all the best.

Sincerely,

Dr (Mrs) Acquaaah-Arhin
(Chairperson)

Cc. President, ECOPH
Cc: Academic Registrar, ECOPH
Cc: Head of Academic Program, ECOPH

BOARD OF TRUSTEES:

Mrs. Lynette N. Gay – Chair, Prof. Agyeman Badu Akosa- Vice Chair, Dr. Stephen C. Alder, Prof. Michael Hardman, Dr. Kwesi Dugbatay (Emeritus), Prof. Tsiri Agbenyega, Dr. Daniel Ansong, Togbe Afede XIV, Mr. Kyle Gay

ENSIGN COLLEGE OF PUBLIC HEALTH - KPONG

OUR REF: ECOPH/AR/EL/UMT/ST107/001
YOUR REF:
Tel: +233 245762229
Website: www.ensign.edu.gh



P. O. Box AK 136
Akosombo
Ghana

12th October, 2018.

The Registrar,
University of Mines and Technology
Tarkwa

Dear Sir,

LETTER OF INTRODUCTION


We write to respectfully introduce to you **Isaac Hanson** (Student Identification number 177100107), a second year student of the Master of Public Health (MPH) degree program of the College.


As part of his graduation requirements, he is writing a thesis on: **Knowledge, Attitude and Behavior Towards Analgesic Usage Among Students of the University of Mines and Technology in The Western Region of Ghana** and would like to obtain some baseline information including the student population, the current prevalence rate of analgesic usage from the school.

We would be grateful if you kindly accede him any assistance he may require in the collection of this data in your facility for the thesis.

Thank you.

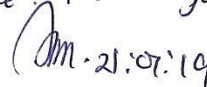
Respectfully yours,


Patrick Kuma
Academic Registrar


Ph. F. A.
Registrar

③ Mr Isaac Hanson

Approval has been given for you to collect the needed information from the students. Pls, you may contact Mr Andoh-Robertson, the Head of Guidance and Counselling Unit for assistance. Thank you.


21.07.19

BOARD OF GOVERNORS:

Dr. Lynette N. Gay - Chair, Prof. Agyeman Badu Akosa-Vice Chair, Togbe Afede XIV, Prof. Stephen C. Alder, Prof. Michael Hardman, Prof. Tsiri Agbenyega, Dr. Daniel Ansong, Kyle Gay, Dr. Kwesi Dughatey (Emeritus)