UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE.

FACTORS INFLUENCING THE ABUSE OF TRAMADOL AMONG TRICYCLE (YELOYELO) DRIVERS IN THE TAMALE METROPOLIS

BY

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DECLARATION

I, Seidu Toufique do hereby declare that the information in this dissertation is my own original work conducted as a student of the school of public health, University for Development Studies Tamale. I also declare that this work is the result of my modest efforts, and that neither a portion nor its totality has been presented elsewhere in the pursuit of any degree. The reviewed literature, both published and unpublished, is duly acknowledged.

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SUPERVISOR

I hereby declare that the preparation and presentation of this dissertation was supervised following the guidelines on the supervision of the dissertation laid down by the University for Development Studies.

Supervisor's Name: DR. ABUKARI SALIFU

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ABSTRACT

Background: Tramadol abuse has become a major public health concern in Ghana, particularly among tricycle drivers in the Tamale metropolis. This study discussed the factors that influence the abuse of tramadol among tricycle drivers in the Tamale metropolitan area in the Northern Region.

Methods: The study employed both the qualitative and quantitative method. The multiple sampling using the simple random sampling, purposive and snowball sampling techniques were used to select 55 respondents for the qualitative aspect whereas the convenience sampling was used to employ 420 respondents from selected tricycle terminals in the Tamale Metropolis for the quantitative study. The results were analyzed using the Statistical Package for Social Sciences (SPSS) version 26.

Results: It was found that of all the participants using tramadol, while few participants were identified as using the drug under a physician's prescription, majority were identified as using tramadol without prescription from a physician which amount to abusing the drug. The study revealed that averagely, the daily milligram (mg) intake of tramadol among tricycle drivers in the Tamale metropolis was 155.5 ± 91.6 mg, with participants abusing tramadol by taking in various unapproved strength/dosages of 500, 250, 200 and 150 dosages (mg) respectively.

Conclusion: It was conclusively established that the three most compelling reasons why tricycle drivers use tramadol are; to reinvigorate themselves and become physically active, to relieve pains and peer group pressure. In conclusion, the study found out that nausea, road accident, sleepiness and dizziness are possible effects of tramadol use.

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DEDICATION

I dedicate this piece of work to my late father, my beloved family, supervisor and friends for their help and support all this time.

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LIST OF ABBREVIATIONS

ACMD	*Advisory Council on Misuse of Drugs*
APAP	*Acetominophen*
DNA	*Drug News Africa*
ECDD	*Expert Committee on Drug Dependence*
FDA	*Food and Drugs Authority*
IJAR	*International Journal of Advanced Research*
INCB	*International Narcotics Control Borad*
Mg	*Milligram*
MTTU	*Motor Transport and Traffic Unit*
NRSC	*National Road and Safety Commission*
ONS	*Office for National Statistics*
OTC	*Over the Counter*
QID	*Quarter in Die*
SAMHSA	*Substance Abuse and Mental Health Services Administration*
TMA	*Tamale Metropolitan Assembly*
UNODC	*United Nations Office on Drugs and Crime*
WCO	*World Customs Organization*
WHO	*World Health Organization*

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Commercial tricycle operations (yeloyelo) have replaced public transportation in several cities across Ghana in recent years. However, the majority of these operators still use illegal substances, which puts them, their passengers, and other road users in grave danger (Donkor, 2015). According to studies, psychoactive substance usage is a factor in 59.5% of road traffic accidents involving commercial drivers in Nigeria (Abiona et al., 2006).

A study conducted in Port-Harcout, Nigeria, revealed a strong correlation between the use of psychoactive substances including tramadol and accidents among commercial tricycle drivers (Pepple and Adio, 2014). According to Nelson et al. (2018), psychoactive drugs, particularly tramadol is often recommended to new entrants into commercial tricycle operation as remedies for stress and fatigue.

In the late 1970s, the German pharmaceutical manufacturer, Grünenthal, launched and promoted tramadol under the brand name "Tramal" (Sweileh et al., 2016), and it has since been released in over 100 countries in different forms including drops, oral preparations, rectal suppositories, and injectable (Grond & Sablotzki 2004). Since 1980, it has been approved in several nations and has become the most often prescribed opioid on the planet (Michaud et al., 1999).

Different academics have defined tramadol in various ways. For example, tramadol is a pain medication that is commonly accepted for the management of pain that ranges from mild to severe, according to Epstein et al. (2006). Also, Grond & Sablotzki (2004) asserted that, tramadol is a pain reliever that is both effective and well tolerated in treating labor pain, trauma, and renal or biliary

colic, as well as persistent discomfort from infectious or non-infectious causes, especially neurological discomfort. Similarly, tramadol, like many other prescription painkillers, stimulates opioid receptors in the brain and interacts with the serotonin and norepinephrine neurotransmitter systems in a manner similar to that of several opioids (Hassamal et al., 2018 as cited in Balogun et al., 2020). Tramadol, also known as Ultram, is a painkiller that is taken orally to help alleviate mild to severe discomfort (Epstein et al., 2006). According to Ansari and Kouti (2016), it belongs to the opioid analgesics class of medicines and is usually administered by a doctor to aid with pain management following surgery. Zhang & Liu (2013) suggested that, tramadol is an opioid agonist drug with a potency estimated to be 10% compared to that of morphine.

In being compared to other opiates that serve the same purpose, tramadol was formerly thought to be the cheapest and safest medicine with a minimal risk of addiction (Sansone and Sansone, 2009). However, in many circumstances, persons who require medical treatment and have been prescribed tramadol by a physician begin to use it in excess of the recommended medical dose, resulting in tramadol abuse. This is because, individuals who use tramadol may build a body tolerance to it with time, implying that they now require more tramadol than before, to have the same effects (Leo et al., 2000). Tramadol has substantial medicinal advantages when used properly, but when used without medical supervision, in higher doses than recommended, or in conjunction with illegal substances, alcoholic beverages, as well as various prescribed or over-the-counter (OTC) drugs, it can have serious health implications (Bush, 2015). According to medical specialists, the abuse of Tramadol, acts similarly to heroin and can create mental disorders as well as harm to important organs in the human body (Zhang & Liu, 2013).

The United Nations Office on Drugs & Crime (2004), defined drug abuse as the usage of drugs to the point at which they endanger the user's social or medical well-being. Everything that

individuals swallow, inhale, or absorb is included in this definition. Medicines, OTC medications, illicit substances, alcohol, cigarettes, flavor enhancers, chemical products, and even food, are all included.

The main reason advanced for tramadol abuse is that, it produces a wonderful surge of exhilaration, which is why most users abuse the medication from time to time (Gardner et al., 2000).

Tramadol is sometimes taken in combination with other drugs, a practice known as polydrug abuse. Bassiony et al. (2015) studied 204 high school pupils using drugs and discovered that 18 (8.8%) of them were taking tramadol, as evidenced by a urine test. 15 (83.3%) of those who used tramadol did so solely, while 3 (16.7%) used it in combination with another substance (marijuana, alcohol and tramadol).

Saapiire et al. (2021), observed that, users frequently mix tramadol with certain other medications to heighten the user's euphoria or to self-medicate. Sedatives, alcohol, and other painkillers such as sleeping pills and benzodiazepines medications, and medications for cold are all regularly mixed with tramadol (Jeffery, 2019). In Wassa Amenfi, Ghana, a survey of young people conducted by Elliason et al. (2018), found that the majority of respondents 62.3% take tramadol with an alcoholic beverage, while another 29% say they mix tramadol with an energy drink and consume it. Only 8.7% respondents say they swallow tramadol with water. Interestingly, tramadol together with some other opioids may have pharmacokinetic and pharmacodynamic interactions that increase their toxicity and lead to death (Häkkinen, 2015).

Hassamal et al. (2018) as cited in Osuh et al. (2021), concluded that, nausea, diarrhea, excessive sweating, disorientation, postural hypotension, seizures, stomach discomfort, change in blood pressure, dry mouth, hallucination, tiredness, sedation, and respiratory depression are all reported

tramadol's adverse effects, particularly when used in high dosages. Despite the severe adverse effects, many folks are still abusing tramadol for a variety of reasons, including physical, psychological, and sexual (Salm-Reifferscheidt 2018). Hatzimouratidis et al. (2010), however contested that there isn't enough data to back up tramadol's favorable effects in sexual enhancement.

As per the United Nations Office on Drugs and Crime (UNODC), the worldwide prevalence of substance abuse is at an all-time high and continues to be steady, with 246 million people, or around 5% of the world's population, using an illicit substance in 2013 (World Drug Report, 2015). According to the World Drug Report (2018), the extent to which prescribed-only drugs are abused is posing a serious threat to global health care and law enforcement concern across the world. Tramadol have recently been discovered as causing more harm to the global population, accounting for 76% of fatalities globally in 2018 when drug use problems were included (UNODC, 2018). A study on drug abuse and dependence potential of tramadol reported that the prevalence of tramadol abuse is 54% and over 65% of tramadol users are between 18-37 years of age, with an average age of commencement of usage being 24 years (Liu et al., 2014).

The United Nations Office on Drugs and Crime reported that prescription opioids were confiscated in 87 tons throughout the world in 2016, approximately the same amount as heroin. Pharmaceutical opioids, mostly tramadol, were confiscated in West and Central Africa, as well as North Africa, accounting for 87% of the global total in 2016. In 2016, Asia, which had previously accounted for more than half of worldwide confiscation, only reported 7% of the global total (UNODC, 2018). Similarly, the World Drug Report also revealed that in numerous subregions, notably in West, Central, and North Africa, tramadol, a synthetic opioid not under international control, has arisen as a source of concern. Equally so is Europe and North America, as well as the Middle East and

portions of Asia, the report said (World Drug Report, 2019). Chapter III of the International Narcotics Control Borad reports revealed that, tramadol seizures surged dramatically from 9 tons in 2013 to 125 tons in 2017. Between 2000 and 2012, global usage of tramadol climbed by 186%, despite the fact that it is illegal in some areas of the world (INCB, 2016).

In 2016, the African area reported substantial amounts of tramadol seizures, accounting for 87% of all prescription opioid seizures worldwide (World Drug Report, 2018). According to available data, annual tramadol discoveries in Sub-Saharan Africa has in 2013 increased from 300 kg to more of over 3 metric tons in recent years, with Ghana, Nigeria, Togo, Sierra Leone, Cameroon, and Côte d'Ivoire assisting as the primary transit or destination countries (Salm-Reifferscheidt, 2018). Furthermore, tramadol addiction is common in Nigeria, with 54.4% prevalence rate with over 91% of these dependents being able to access the medication without a prescription (Wakil & Ibrahim, 2017). This is enough data for the justification that tramadol abuse, particularly in Africa, requires immediate action.

As tramadol epidemic looms in Africa, a new phenomenon has been discovered: opioid addiction is on the rise (Merz, 2018). Following cannabis, which persists as the most well-known on the world stage, tramadol is one of the most extensively used substances for nonmedical purposes in various West African countries (Saapiire et al., 2021). The present trend of drug addiction among teenagers, according to Sapiire et al. (2021), is a serious national problem. It has a negative impact on the health and conduct of young people, and it may even result in death. Misuse of tramadol can lead to physical reliance on the medication, to the point that a person's day is "incomplete" without it. This is a warning sign of addiction (Ehrenreich and Poser, 1993).

In underdeveloped countries, the burden of morbidity and mortality from motor and tricycle accidents has risen (Nantulya and Reich, 2002). Motor and tricycle accidents have risen to the top of the list of killers of older children and working-age adults between the ages of 30 and 49 in practically all of Africa, Asia, and Latin America (Atubi, 2012). The World Health Organization (WHO) and World Bank predict that over the next 20 years, the rate of motor and tricycle accidents in high-income countries will drop by up to 28%, while it will rise by almost 92% to 147% in low- and middle-income nations (WHO, 2015). Pedestrians, cyclists, and users of tricycle and motor transportation were identified as the main targets of motor and tricycle accidents in Nigeria. Motor and tricycle accidents cost Nigeria over 80 billion naira a year, and of all those hurt, 29.1% become disabled and 13.5% are unable to find work as a result (Wakil & Ibrahim, 2017).

Despite the absence of data on the abuse of tramadol in Ghana, reports from the Food and Drugs Authority (FDA), the media, and relevant key players indicate that tramadol misuse in larger dosages is still a significant public health issue in the country (FDA, 2018), with stakeholders concerned about the rate at which people are abusing the drug (Hassan, 2018). In 2018, the Daily Guide newspaper reported that, the Ghana Health Service has announced the problem as a national emergency and it is taking drastic measures to controlling it, including confiscation of the drugs. Since 2017, approximately 500,000 tramadol pills have been recovered from licensed and unlicensed chemical stores, as well as drug dealers around the country (Okertchiri, 2018). A study on the factors that contribute to tramadol usage among Northern Ghana's youth reported that, genuinely, tramadol has gained recognition as one of the most often consumed narcotics in the Northern region, with the amount of tramadol usage among youngsters in the Tamale metropolis being frightening (Fuseini et al., 2019).

The current situation of tramadol addiction is not just a menace to the metropolitan's public health, but it's also a social ill and a destruction of the social moral fiber. This is confirmed by report from the national road safety commission which revealed that the introduction and use of tricycles in the Tamale metropolis has contributed to an increase in traffic accidents in the Northern region (NRSC, 2016).

Regardless of the extent of tramadol abuse, there are no recorded evidences to support the metropolitan condition. The study therefore seeks to determine the factors influencing the use of tramadol amongst tricycle drivers in the Tamale metropolitan area. Its goal is to determine the social and demographical features of tramadol users, as well as the perceived psychological and socioeconomical factors associated with its use and proffering recommendations and interventions to curb the situation.

1.2 Problem Statement

Motor and tricycle related accidents are a critical, yet underappreciated public health issue globally. They greatly increase the global burden of disease and are a main cause of mortality and disability (Arneratunga et al., 2006; Hazen & Ehiri, 2006). According to the Global Status Report on Road Safety, 50 million people have severe injuries and 1.3 million people die each year as a result of motor and tricycle related accidents (World Health Organization, 2015). According to estimates, Africa has the highest rate of motor and tricycle related fatalities in the world (26.6 per 100,000 people) (WHO, 2015).

Furthermore, the number of tricycle accidents, as well as the injuries and deaths that result from tramadol ingestion has lately surged in Africa (Coleman, 2014). Numerous studies have found that

some traffic accidents are caused by drivers driving under the intoxication of tramadol. Driving while under the influence of tramadol can endanger not just the driver, but also passengers and pedestrians (Danso and Anto 2021).

According to Drug News Africa (DNA), an estimated 1.25 million persons in Ghana had a substance addiction issue in 2012, with tramadol being the most common drug (DNA, 2012). Prescription drug abuse such as tramadol abuse, leads to higher morbidity and death, as well as increased indirect expenses for health care, prevention, and monitoring, as well as lower economic productivity (National Road Safety Commission, Road Traffic Crash Statistics 2016).

Due to the rising evidence of misuse and the seizure of considerable amounts of drugs in North and West Africa, the World Drugs Report characterized tramadol usage as a public health issue affecting the African continent (World Drug Report, 2019). Despite the paucity of epidemiological data on tramadol use in Africa, the World Health Organization and the International Narcotics Control Board point to a probable rising trend of tramadol addiction in Egypt, Ghana, and Nigeria, among other African nations (INCB, 2016).

According to the Police Motor Transport and Traffic Unit (MTTU) Northern regional office accident data of 2018 to 2019, two people die in road traffic accidents in the Tamale metropolis on average every day as of December 2019. This equates to more than 2,000 traffic fatalities annually. Additionally, traffic accidents in Ghana are getting increasingly serious. For instance, at the Korle-Bu Teaching Hospital in Accra, 62% of fatalities at the casualty unit of the emergency department were caused by traffic accidents. It's interesting to note that 50% of the accidents, were pedestrians, 31% were passengers, and 18.7% were drivers. It is noteworthy that 26% of those hurt in automobile accidents in this same survey were involved under the influence of

tramadol (Blankson et al., 2019). Haadi (2014), attributed the high number of traffic accidents in the North to substance abuse. According to him, driving while intoxicated can result in fatal road accidents, as drugs and alcohol can impair one's ability to drive. It is in line with this that Occupy Ghana and other pressure groups called for a law barring the use of motorbikes and tricycles for commercial purposes to be enforced (Modern Ghana 01 April, 2019). Clearly, one of several ills affecting Ghana today is the overuse of drugs, particularly tramadol, as well as other types of substances that are either poorly controlled or prohibited in the country (Agbesi, 2018).

In Northern Ghana, a qualitative investigation conducted on the factors of tramadol misuse among youths revealed that tramadol has recently obtained popularity among the youth in the Tamale metropolitan area and the most active individuals, particularly among the youth and some elderly groups. This phenomenon has become a national health issue, with community members worried about the abuse of tramadol and its consequences on the metropolitan's health (Fuseini et al., 2019). The Food and Drugs Authority of Ghana (FDA) revealed a large proportion of tramadol usage by certain adolescents, students, market women, and commercial drivers. This was contained in an investigation conducted throughout Ghana's administrative regions in 2016, 2017, and 2018 (World Drug Report, 2018).

Strategic searches undertaken in three target regions (Northern, Volta, and Western) in 2016 revealed alarming numbers of unauthorized tramadol dosages (120 mg, 225 mg, and 250 mg) to validate reported incidences of tramadol abuse in Ghana (Food and Drugs Authority (FDA), 2018). Despite the FDA's efforts to put regulatory mechanisms in place to check and regulate the illegal trade of tramadol, its availability and unauthorized accessibility continues to be a major problem and public health crisis.

In Ghana, there is a scarcity of data regarding tramadol abuse. However, records from the Food and Drugs Authority imply that tramadol addiction is widespread in Ghana, as evidenced by the Food and Drugs Authority's findings on the drug's widespread use **(**FDA**,** 2018**)** and multiple media publications on societal difficulties related to usage of illicit drugs**.**

Despite the factual indications of a high rate of tramadol use among young people, no scientific rigorous study has been conducted to determine the scope of the problem in the Northern region. As such, there is growing perception among the population in Tamale regarding the use of tramadol and careless driving, resulting in rampant accidents among Yeloyelo drivers in the Tamale metropolis. This necessitated this study to determine the factors that contribute to the rampant accidents, and careless driving and whether it could be attributed to tramadol use amongst tricycle drivers in the Tamale Metropolis.

1.3 Study Justification

Despite warnings regarding tramadol's possible side effects, academic data on the reason for the growing tramadol use in Ghana is lacking, making evidence-based policy difficult to implement. The overarching goal of this study is to provide qualitative evidence on narratives of the use of tramadol in Ghana especially among the tricycle drivers within the Tamale metropolis. The study is necessary owing to a scarcity of research and its significance for the health of young people in particular.

The findings of this study will aid authorities and policymakers in finding solutions to tramadol abuse by assisting them in developing policies to reduce tramadol use among yeloyelo driving population. The study's goal is to acquire a better understanding of the reality of tramadol usage by interviewing persons who have used it. It will also offer a thorough understanding of any socio-

economic determinants that may exist in this group, as well as measures that might reduce tramadol abuse prevalence. Furthermore, it is anticipated that this study will assist to a better understanding of the variables that influence tramadol abuse among tricycle drivers. It will also add to the corpus of knowledge and understanding of public health ideas among academic issues regarding tramadol use.

1.4 Research Question

1.4.1 Main Research Questions

What are the factors associated with tramadol abuse by some tricycle drivers in the Tamale Metropolis of Northern Ghana?

1.4.2 Research Questions

1. What are the determining factors associated with the use of tramadol by tricycle drivers?
2. What is the knowledge and attitude of tricycle drivers regarding tramadol use?
3. What are the perceived effects of tramadol use among tricycle drivers?
4. What is the perceived psychological state of tricycle drivers regarding tramadol use?

1.5 Research Objectives

1.5.1 General Research objective

The study seeks to examine the factors associated with tramadol use by some tricycle drivers in the Tamale Metropolis of Northern Ghana.

1.5.2 Research Objectives

1. To examine the factors associated with the abuse of tramadol by tricycle drivers.
2. To determine tricycle drivers' knowledge and attitude towards tramadol use.
3. To assess the perceived effects of tramadol use among tricycle drivers.

4. To examine the perceived psychological state of tricycle drivers regarding tramadol use.

1.6 Organization of the Study

This research is organized in five chapters. The first chapter is made up of the background to the study, problem statement, research justification, research questions, study objectives and the organization of the study. The second chapter presents the literature review which is composed of the conceptual framework, theoretical framework and related literature. Chapter three is the research methodology. It is made up of study area, research design, research population, sampling strategy or method, research tools used to gather data, and data collection and analysis procedures. The fourth and fifth chapter reports the analysis of the results and discussion of research findings respectively. The sixth chapter is the final chapter of the study. It includes summary, conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is basically literature review that provides insight into previous studies that have been carried out on the overview of tramadol, the health consequences of tramadol use and the factors influencing its use. The chapter comprises of four sections. The first section includes the conceptual framework and the theoretical framework. The second section gives an overview of tramadol, its pharmacology and theories. The third section presents literature on the factors associated with the use of tramadol and the knowledge and practice of tramadol while the last section speaks to health consequences of tramadol use.

2.1 Conceptual Framework

This refers to a collection of ideas interlinked and characterized by broad generalizations that are established by a researcher or an individual for a specific purpose. According to Miles and Huberman (1994), the conceptual framework provides a picture of what is being examined, displaying a representation of the fundamental concepts; essential elements, constructions, or variables as well as their hypothesized relationships. The study was led by the notion that many traffic accidents and casualties in the Tamale metropolis are caused by the tramadol intoxication of certain tricycle drivers. As indicated in the figure 1, Tramadol use has a variety of severe consequences for tricycle drivers.

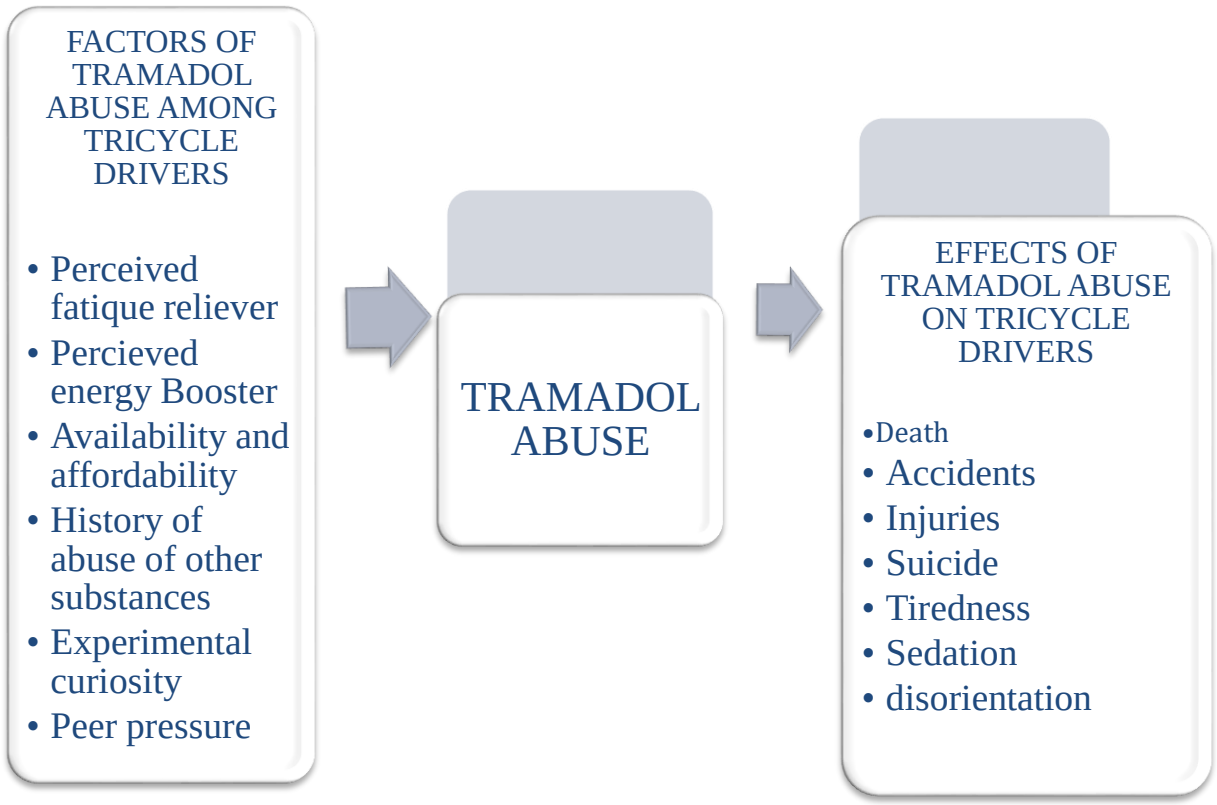

Figure 2.1: Conceptual framework of the study
Source: Author's Own Construct, 2021

The developed conceptual framework explains and describes the connections among the variables in this research. Tramadol use, whether it is a one-time basis or over a period of time, may have a substantial influence on your health. The intoxication of tramadol may result in sedation or sleepiness, tiredness or fatigue and disorientation or confusion which can **c**ause significant, even life-threatening consequences. As a result of the sedation, tiredness, or disorientation effect, drivers under the influence of tramadol experience visual impairments, limited reaction times, loss of concentration, increased relaxation and drowsiness, confusion processing sensory input, overconfidence, and difficulties multitasking such as staying in a queue of traffic, continuing to drive at the right speed, and simply focusing on traffic (Cossmann and Wilsmann, 1987).

Furthermore, these impacts combine to create a formula for car accidents and suicide. In reality, a variety of variables impact a person's decision to use tramadol, and all of these factors are statistically more problematic for tricyclists than for motorists.

Some of the primary contributors to tramadol use or associated factors as indicated in figure 1 are listed below: It is thought to be a tiredness reducer and an energy booster, it is affordability and accessibility, abusers of other drugs in the past and curiosity about new experiences.

2.2 Theoretical Framework

Social researchers have spent decades trying to understand why some youth abuse tramadol while others do not. However, understanding the reason for drug abuse has proven to be a challenging conundrum for social researchers leading to the establishment of various theories and frameworks with the goal of describing or forecasting drug usage in the community (Petraitis et al., 1995). According to Waltz (1997), theories simplify the basic factors involved and reveals required cause and interdependency relationships or advise where to search for them. Healthcare professionals, legislators, and academics have been conducting studies on the impact of drug usage on the user for many years. Hawkins, Catalano, and Miller (1992) established that the reason for drug use includes favorable legislation for drug usage; access to drugs; severe poverty; some other cognitive traits; childhood and long-term behavioral issues, including abrasive conduct in males and infant and adolescent overactivity. It has therefore become tough to get a true representation of substance abuse since there are so many potential possible explanations. Numerous theories, on the other hand, aim to put together diverse parts of this puzzle into more coherent representations of drug misuse by defining both how and why certain constructions are connected to drug abuse (Petraitis et al., 1995). Some of the theories are discussed as follows.

2.2.1 Theory of Reasoned Action

According to Fishbein and Ajzen (1980), the theory of reasoned action is a commonly used approach of attitude-behavior interaction and has been used to simulate a substantial percentage of health-promoting practices (Bandura, 2002). As shown by Fishbein and Ajzen (1980), the primary predictor of an individual's actual action is the desire to engage in that particular conduct. Thus, the idea of reasoned behavior is predicated on the notion that individuals make reasonable decisions based on the information accessible to them.

Tramadol abuse, according to this idea, may be totally explained by choices, attitudes, and normative beliefs about tramadol. Tramadol abuse is determined by an individuals' sole rational decisions or intents to engage in tramadol-specific actions. While social normative views are founded on an individual's impression people will expect them to access the drugs (Chassin et al., 1984), attitude is based on the personal and societal ramifications an individual expects from the drug (Fishbein and Ajzen, 1980). However, Ajzen (1985) later embraced that, more than only attitudes and normative beliefs about a certain activity influence intention. This notion has been contested on the basis that other factors, such as earlier drug-abusing experiences, have a direct bearing on substance-related behaviors (Bentler & Speckart, 1979; Chassin et al., 1984; Schlegel et al., 1987).

2.2.2 Social Cognitive Theory

The social cognitive theory of Bandura (1986) states that, individuals learn about drug use via their role models, particularly parents and close friends who take drugs. In particular, social cognitive theory says that contact to substance-abusing peers and parents will change an individual's attitude

toward the substance. To summarize, tramadol abuse might be caused by; tramadol abuse by relatives, acquaintances, and other people who may serve as role models (Huba et al., 1980), or positive remarks or sentiments about tramadol by people they may consider as role models, particularly close allies and revered colleagues (Kandel et al., 1978). This theory is significant because it examines the social context in which most drugs are abused, as well as the elements that contribute to drug abuse.

2.2.3 Theory of Planned Behavior

The Theory of Planned Behavior is a paradigm that is frequently used in the health field to investigate the factors that influence behavioral decision-making (Ajzen, 2011). Ajzen (1985) suggested that there is an additional aspect to examine in addition to attitudes and normative views, making the domains that impact behavioral intentions three. He called it "Self-efficacy," which refers to a person's perception of how easy or difficult it is to execute a task (Schifter & Ajzen, 1985). Self-efficacy, according to the theory of planned behavior, performs a fundamental and impartial function in influencing behavioral intentions, so that an individual's intention to perform what seem beyond their capacity or control is little, even if they have positive feelings toward the actions and assume acceptance by others (Petraitis et al., 1995). The theory places great emphasis on individual's subjective norms and perceived behavioral control.

2.3 Pharmacology of Tramadol

A study on the Clinical pharmacology of tramadol revealed that tramadol hydrochloride (tramadol) with a chemical name (1RS,2RS)-2-[(dimethylamino)methyl]-1-(3-methoxyphenyl) cyclohexanol hydrochloride and a structural formula indicated in figure 3 below, is a central acting analgesic chemically similar to morphine and codeine (Grond and Sablotzki, 2004). It was initially

synthesized in 1962 and is being used in Germany as a pain relief since the year 1977 (Schenck and Arend, 1978).

Tramadol has a molecular formula of C16H25NO2 (Reddy et al., 2010) and a molecular weight of 299.8 g/mol and is a white, bitter, solid, and unscented powder (Thomas and Sankar, 2016). It comes in a variety of pharmacological formulations and can be delivered via a variety of mediums, including subcutaneous, intravenous, intramuscular, rectal, sublingual, and oral administration (Lai et al., 1996).

According to Hom (2013), while Tramadol pills are intended for oral use, it ought not be crushed and utilized for inhalation or injection. Inhaling and injecting it not only increases the perceived intensity of the effects, but it also results in high amounts of it entering the circulatory system, making it more effective for overdosing and potentially producing bad consequences including seizures.

Breathing problems, comas, hallucinations, and even cardiac arrest have all been reported as side effects of treatment (Thomas and Sankar, 2016). Fauber (2013), on the other hand, emphasized that research conducted at John Hopkins University found that tramadol taken orally had a very different effect on the body than tramadol administered by other routes. He also stressed that when Tramadol is taken orally, the liver converts it into a metabolite (M1) that can bind to and activate opioid receptors in the brain. And more so, among prescription opioid addicts, oral tramadol has a reinforcing effect, increasing the likelihood of abuse (Zacny, 2005) and also has abuse liability consequences in recreational drug users (Babalonis, et al., 2013).

According to Grond et al. (2004), tramadol comes in a multitude of pharmaceutical forms including 50mg (1mL), 100mg (2mL) or ampoules tramadol contained in a solution for intravenous, intramuscular, or subcutaneous injection (Hafez, 2015). Lee et al. (1993) reported

that, tramadol is rapidly metabolized, with a first phase distribution half-life of 6 minutes and a slower 1.7 hour in the second phase. Dayer et al. (1997) asserted that tramadol has a half-life of 5.1 hours following a single oral dosage of 100 mg. Generally, tramadol is rapidly transported throughout the body, with roughly 20% bound to plasma proteins (Dayer et al., 1997).

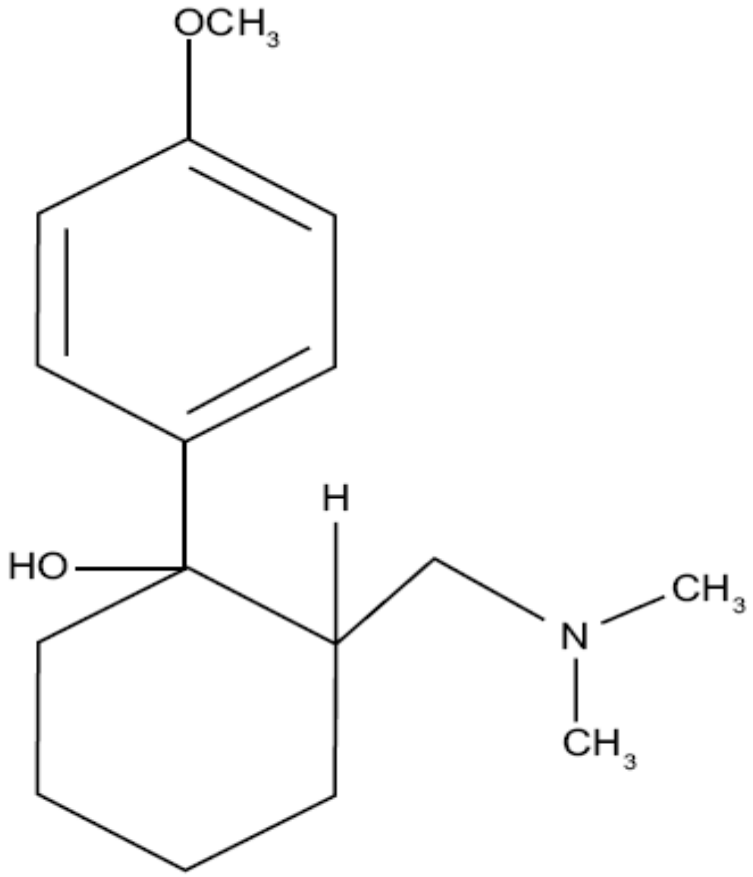

Figure 2.2: Structural Formula for Tramadol

***Source:** Dos Santos et al. 2015*

2.4 An Overview of Tramadol

Subedi et al. (2019) reported that, tramadol, since its debut in 1977, have been prescribed by clinicians as a powerful therapy for both acute (including post-surgery or post-trauma) and long

term (cancer, for example) pain. And also possesses certain hallucinogenic properties, which are explained by the stimulation of μ (mu)-opioid and monoamine receptor systems (Abdel-Hamid et al., 2016). It comes in both oral and intravenous (IV) versions and contains a parent component that works by inhibiting reuptake in the spinal cord to impede pain signal transmission (Gong et al., 2014) and is certified for use in the management of severe pain whether taken orally or by injection (Keeley et al., 2000).

The oral path of administration was identified as the easiest to administer and ranked first with a 96.8% intake rate, while other addicts utilize rectal suppositories orally when market availability is limited (Fawzi, 2011). However, a study in Egypt discovered that the most prevalent method of administration was intravenous in 46.8% of cases and oral in 40.3% of instances (Abd El-Azim, 2001). Thus, it is established that the intravenous route is acknowledged as one of the most prevalent tramadol administration patterns in Egypt.

Tramadol is a drug that has registered its presence all over the world, according to a critical evaluation study on tramadol published by the World Health Organization (WHO, 2018a). As per the world health organization's critical review repot on tramadol, the drug is widely regarded as a vital drug throughout many locations, including Africa, the Middle East, Central and South America and Southeast Asia, as well as eight European nations (WHO, 2018b). Furthermore, tramadol is seen as a more severe step in approximately half of these nations if the primary pharmacologic treatment is inadequate for individuals whose pain is not managed by non-opioid medications (WHO, 2018a). This justifies the World Health Organization's expert committee on drug dependence report that, in some places in the Middle East and African countries where there is no effective pharmacologic treatment, the rates of tramadol abuse have been on the rise in such countries (WHO, 2018b). Despite this, Inciardi et al. (2006) reported that research from the United

States, Canada, and a few European nations suggests that tramadol abuse is lower than that of other opioids.

There has been some debate over tramadol's propensity for addiction (Liu et l., 1999). Tramadol's pharmaceutical producer, Grünenthal, has marketed it as an opioid with a lesser risk of addiction than regular opioids (Tafesh, 2013). Initially, the company stated that it only had minor narcotic consequences. They argue that, because the M1 metabolite is the primary agonist at mu-opioid receptors, the protracted agonist action minimizes the likelihood of abuse (Anzaku, 2019). Because tramadol's absence of sufficient product labeling and a recognized abuse potential, many physicians believe it is acceptable to administer it compared to recovering substance addicts and abusers. As a result, there have been several cases of abuse and dependency (Clarot et al., 2003). Similarly, a study comparing the risk of addiction of other opioids and tramadol discovered that tramadol had a considerably lower risk of addiction over codeine (Adams et al. 2006). Debatably, recent study suggests that tramadol has a larger potential for abuse and overdose than was previously thought when it was introduced to the US market in 1995 (Fauber, 2013). Research undertaken by Zabihi et al. (2011) in Northern Iran in 2007 - 2008 also produced a somewhat opposing viewpoint. Patients visiting pharmacies in Babol, Northern Iran, were suspected of abusing tramadol, therefore a study was carried out to determine how and why. In that study, every patient who sought tramadol was asked a survey question (placed before a physician's supervision) over the course of six months in order to detect possible drug abuse. The study's findings revealed that roughly two-thirds of the 162 outcomes indicated addiction criteria. 89% of the patients were under the age of 30, and 55% were under the age of 18, almost two-thirds of individuals polled. Notably, those who did not provide prescriptions, admitted to drug usage or addiction in the past.

Conclusions were drawn that there was a high potential of tramadol dependency, as well as a high prevalence of people under the age of 18, which they believe is a global trend.

Lanier et al., (2010)'s findings on tramadol's physical dependency potential stressed the relevance of acute agonist effects, rather than physical reliance, as a significant predictor of abuse propensity. Tramadol has a modest addiction potential; however, current human laboratory research (as well as some epidemiological studies) reveal that frequent usage can develop to tramadol tolerance (Fauber, 2013). As a result, tramadol's low misuse rate is more consistent with its minor and delayed opioid agonist effects than with its propensity for physical dependency (Lanier et al., 2010). Notwithstanding, tramadol addiction is said to be a big health issue in the globe.

Tramadol was originally thought to be reasonably safe, having a reduced risk of addiction than other powerful opioids, according to research published by Kahan et al. (2006) on opioids for treating chronic non-malignant pain. It is for this fact that it was one of the few 'opioids' that were not placed under restriction by the Abuse of Drugs Act (1971), the 1961, 1971 or 1988 United Nations Conventions. However, the Advisory Council on Misuse of Drugs (ACMD) proposed in February 2013 that tramadol be broadly categorized as a drug in class C in the Great Britain under the Abuse of Drugs Act 1971 (Expert Committee on Drug Dependence, 2014) and recently in the United States, it was designated as a class IV drug (Rougemont-Bücking et al., 2017). In a similar fashion, a report from the Office for National Statistics (ONS) on drug poisoning deaths in England & Scotland (ONS, 2017), observed that tramadol has to be classed under a rigorous category of prohibited substance in the United Kingdom and other nations due to an increase in cases of tramadol-related fatalities and injuries, as well as increased worries about its misapplication.

For the reasons stated above, the World Health Organization (WHO) has between the years of 1992 to 2006 given tramadol addiction a major focus, resulting in four distinct measurements (i.e., Expert Committee on Drug Dependence 1992, 2000, 2002 and 2006). Nonetheless, according to Zhang et al., (2013), these measurements failed to predict tramadol's worldwide control, owing to a lack of knowledge on its propensity for abuse and negative effects. Individuals are more likely to suffer, and they would suffer tremendously, experiencing the sort of pain that people in affluent nations of the globe are confronted with, according to Hallam (2021). As a result, tramadol is not listed on the catalog of restricted drugs in majority of the countries, including those in the West African sub-region, making the medication readily accessible even without a prescription (WHO, 2017).

Tramadol is the third most regularly impounded opioid, according to the World Customs Organization's illegal trade report, with 2,050 individual purchase orders, accounting for 18.1% of total confiscations (WCO 2016). Niger reported 7.3 tons as the world's third highest seized in 2014 (WCO 2015), a country that is well-connected to the commercial alongside the smuggling systems that connect the northern Mediterranean and Sahel-Sahara areas, and which, according to academics, is completely made up of illicit commerce (Shaw et al., (2014).

It's worth mentioning that there isn't a single licit tramadol manufacturing facility in the African continent, and the majority of both of the legally sanctioned as well as clandestine tramadol supplies are said to come from China and India (GOE 2017: 2). Large percentage of the opioid on the market in West Africa smuggled across the border through porous borders and poorly monitored ports (Klein, 2019).

The American Pain Society and the American College of Physicians have said that pharmacological therapy, such as tramadol, should not be used as a standard treatment (Chou and

Huffma, 2007). Similarly, Ickowicz et al (2002) suggested that, instead of prescribing tramadol, a change in response to improving physical, social, and emotional function associated with chronic pain should be encouraged.

Tramadol and paracetamol are typically combined in the form of a lesser dosage of 37.5mg tramadol and 325mg APAP. Tramadol is present in a range of forms, including capsules, tablets, suppositories, powders and liquids

2.5 The Factors Associated with Tramadol Abuse

According to Orriols et al., (2009), tramadol abuse is defined by the use of excessive amounts of the drug, whether continuous or intermittent, with negative health and social or professional implications. First introduced in the 1970s, a study conducted by Preston et al., (1991) on Tramadol versus morphine: Abuse Potential and Pharmacological Comparison revealed tramadol has a minimal potential for abuse. This is confirmed in a study on Africa's opioid crisis where it was revealed that in the majority of West African countries, including Ghana, tramadol is not shown on the Food and Drug Authority's chart of restricted drugs, because it is regarded to possess a lower risk for abuse than other opioids like morphine (Salm-Reifferscheidt, 2018; WHO, 2017). Alternatively, Lanier et al., (2010) put it succinctly that, even though tramadol appears to bear a low potential for abuse when compared to more potent alternative analgesics such as heroin, it is clear that repeated dosages of tramadol can cause tramadol physical dependence similar to that seen with other opioids, and due care must be exercised when administering tramadol to someone at the risk of abusing substance.

According to the International Narcotic Control Board's (2017) Annual Report, existing report shows that tramadol abuse is increasing becoming a worry of concern, there's been rising evidence

of tramadol trafficking and abuse in the nations of the Near and Middle East, as well as evidence demonstrated by seizures in Central, North, and West Africa.

The several desirable physical benefits produced by tramadol, according to Fuseini et al., (2019), are one of the reasons for its continued abuse by addicts where invigorating, analgesic, and aphrodisiac effects were cited as the desired physical effects.

Several findings on physical dependency, however, highlighted its potential for abuse and the degree to which it may be reuptake (Ehrenreich and Poser, 1993). According to Klein (2019), the rise in illegal tramadol trafficking in Africa, as well as its abuse propensity, is becoming a major worry in Egypt and other African nations. It was initially deemed to have a minimal chance of being abused (Cicero et al., 1999). Conversely, a study conducted by Pedramfar and Haghighi, (2010) on tramadol induced seizure suggested the rising proportion of persons abusing tramadol shows the likelihood of tramadol addiction becoming more prevalent in our larger society.

The Pharmaceutical Society of Ghana said in a statement to Joy News that "the strengths permitted for usage in Ghana by the FDA are the 50mg and 100mg oral capsules," not the 200mg/250mg that it has observed circulating in Ghanaian markets (Pharmaceutical Society of Ghana, 2017). The negative effects of tramadol, according to Lofwall et al., (2007), may make it unpleasant to potential patients; however, these consequences may be avoided if tramadol was provided at lower doses, such as 50–100 mg. As a result, the Ghana Pharmaceutical Society issued a warning about tramadol abuse in high doses of 200–250 mg.

In tramadol abusing volunteers undergoing spontaneous withdrawal, Lofwall et al., (2007) found that immediate administration of oral tramadol at dosages of 200 – 400 mg produced evidence of opioid withdrawal suppression with a protracted start of effect compared to morphine. Similarly,

as per Lanier et al. (2010), daily tramadol at a normal analgesic dosage of 200 mg/day (50 mg QID) can cause pronounced precipitated opioid withdrawal symptoms after naloxone challenge, and that opioid physical dependency can emerge from daily tramadol medication. As a result, it appears that the development of tramadol abuse and its physical dependency is dose-dependent. Drug abuse is motivated by more than just a desire for euphoria. The first motivation for most drug users is to get euphoric, but as time goes on, the motivation shifts to avoid withdrawal symptoms (Rigg and Ibanez 2010). Other than getting high, non-medical prescription drug abusers are motivated by coping with stress, modulating the effects of other drugs, experimenting, and pain treatment (McCabe and Cranford, 2012). Morley et al. (2012) reported that, the spike in the number of prescriptions for tramadol in both adults and children has been connected with a surge in the percentage of reports of tramadol abuse, whether inadvertent or purposeful.

The aphrodisiac effect of tramadol is another desired physical consequence that is one of the reasons for its continued usage by addicts and abusers. Moreso, according to the West African Epidemiological Network, tramadol is by far the most extensively used drug in West Africa, behind cannabis with improved sexual performance or increased stamina when undertaking physically intense chores for lengthy periods of time being two of the reasons mentioned (Salm-Reifferscheidt 2018).

Tramadol on demand, according to Wong and Malde (2013), improves mean intravaginal ejaculatory transmission delay and companion sexual fulfillment scores. Contestably, it was summed up based on evidence drawn from several trials (817 subjects) that tramadol, on the other hand, appears to be associated with much more adverse effects, such as sexual dysfunction (Martyn-St James, et al., 2015). Farag et al. (2018) did a fascinating study that confirmed this and went on to say that male tramadol addicts had reduced sperm density, motility, and vitality.

Additionally, Hatzimouratidis et al., (2010) puts it that there isn't enough data to back up tramadol's favorable effects in sexual enhancement.

The biggest cohort of tramadol dependency, with 104 patients, was published in 2009 from research conducted in Sweden, wherein a majority of abusers were female (Tjäderborn et al., 2009). Similarly, certain published research, such as 'Psychosocial correlates of drug usage (2001) and substance use disorders among Female Secondary School Students in Cairo (2002)', have supported this by demonstrating that females are more likely to be exposed to substances (Sadek et al., 2002). Nonetheless, numerous conducted studies have disproved this claim and demonstrating otherwise. According to a study done in Egypt, male sex prevalence was greater (77.2%) than female sex prevalence (22.8%), which is primarily explained by the hypothesized grounds for increasing tramadol consumption connected to its supposed enhancement of sexual performance (Fawzi, 2010). Similarly, Jonathan and Samuel (2018) found that the t-calculated value 10.73 was more than the t-critical value 1.96 while testing the hypothesis that there is no significant difference between male and female (gender) on variables impacting drug abuse. As a result, the null hypotheses were rejected, confirming that significant disparities exist between genders and variables affecting tramadol abuse. This is relatable with a number of studies conducted in Egypt, which found that males are more likely to abuse tramadol than females: 92% males and 8% females (Okasha & Raafat, 1988), 97.2 % males and 2.8% females (Kamel et al., 1995), 144 males and 10 females (Abd El-Azim, 2001), and 92.1% males and 7.9% females (Hatata et al., 2004). This is in line with the findings of the WHO worldwide survey, which shows that the estimated attributable burden owing to illegal drug use is 0.8% for men and 0.2% for women (Geneva, 2004). Contestably, according to Adams et al. (2006), no substantial variations

in the characteristics of participants who were abusing tramadol under the distribution of sex, age, or job status were observed.

A study on drug abuse and dependence potential of tramadol reported that the prevalence of tramadol abuse is 54% and over 65% of tramadol users are between 18-37 years of age, with an average age of commencement of usage being 24 years (Liu et al., 2014), with Mohammed et al. (2015) reporting the average age of commencement of tramadol abuse as being 26 years old. It was also in line with the findings of Hafeiz (1995), who discovered that the age of commencement was in the range of 21-32 years in 83% of the patients, which may be explained by the fact that the majority of drug users are in this age range as well.

Abusing one substance has been linked to an increased likelihood of abusing other substances. Anto and Danso (2021) observed that those who drank alcohol were more likely to abuse tramadol than people who didn't. In addition, a study of the post-marketing surveillance program in the United States to monitor Ultram (tramadol hydrochloride) usage found that 97% of tramadol abusers had a history of other substance addiction (Cicero et al., 1999). Bassiony et al., (2015) studied 204 high school pupils and discovered that 18 (8.8%) of them were taking tramadol, as evidenced by a urine test. 15 (83.3%) of those who used tramadol did so solely, while 3 (16.7%) used it in combination with another substance (poly-substance) (marijuana, alcohol and tramadol). Similarly, a study of 2,000 teenagers found that tramadol abuse was linked to the use of other stimulants (alcohol, cannabis, ecstasy, methamphetamine, or opium) in the month leading up to the study (Nazarzadeh et al., 2014). Although, tramadol taken together with some other opioids may have pharmacokinetic and pharmacodynamic interactions that increase their toxicity and lead to death (Häkkinen, 2015).

It was made public in a study conducted by Anto and Danso (2021) that, four of the six factors (alcohol, tobacco, marijuana, and heroin) on the history of other drug consumption were statistically significant in explaining tramadol abuse as among participants. Thus, the findings were as follows; People taking alcohol were 4.74 times more probable than those who did not consume alcohol to misuse tramadol (P<0.001). Similarly, tobacco users were significantly more likely to abuse tramadol (P = 0.001) than non-tobacco users. Marijuana users (P = 0.001) were likewise more likely to misuse tramadol than others who were not taking marijuana.

However, a published paper titled "Use of tramadol in psychiatric care: a comprehensive analysis and report of two scenarios" observed that tramadol was found to promote the cessation of previously used sedating medications in the first scenario and the cessation of excessive alcohol use in the second scenario (Rougemont-Bücking et al., 2017).

Furthermore, a study in an addiction rehabilitation center in Nigeria's northern region on tramadol abuse among patients shows that the incidence of tramadol abuse was 54.4% for the specified review period, with the most common top reasons for persistent use being to explore and to slake their curiosity, to soothe fatigue and to extend the time of sexual activity. Thus, to alleviate exhaustion (28.7%, n=37), to extend the duration of sexual intercourse (22.5%, n=29), satisfy a compulsive drive (14.7%, n=19) while exploration and curiosity (33.3%) (Ibrahim et al,.2017). It is therefore established, that the curiosity is the key driver for the youths' engagement in tramadol abuse. To add to it, according to Haladu (2016), one of the elements that contributes to tramadol usage is experimental curiosity, which drives teenagers to take opioids. That they experience stimulation, such as euphoria and pleasure, the first time they use drugs, which pushes them to do so again. This is consistent with a systematic study, in which Rougemont Bücking et al., (2017)

outlined two cases where respondents saw a considerable improvement in their mood following the consumption of tramadol for pain treatment.

Fuseini et al., (2019) noticed that in addition to the reported euphoric impact, few additional individuals in their study asserted that tramadol boosts their attention levels and makes them very focused and attentive on anything they are engaged in doing without resort to surrounding distractions. In accordance with this conclusion, Holgado et al., (2018) claim that tramadol has an effect on stimuli processing associated to sustained attention in a randomized control study.

Another cause for the high occurrence of tramadol abusage and its consequences in poor nations like Iran and Egypt is people's ignorance about tramadol's negative effects (Rizk et al., 2016). In addition, Sansone and Sansone (2009) identified tramadol's cheap price at the moment of sexual intercourse, as well as its ease of availability when compared to other abused medicines, as a possible risk factor for tramadol abuse. According to Anto and Danso (2021), the cause for tramadol usage among youngsters is the desire to survive, in other words, the need to cope with life's obstacles such as hunger, sex urge, and changed state.

Peer influence was also highlighted as a crucial driver in tramadol usage by a qualitative study conducted by Tam and Foo (2012). Peer pressure is a significant factor in many teens' tramadol usage and it is also recognized to play a role in the formation of behavior. This is due to the fact that peer pressure is an unavoidable part of adolescent and adolescent life. It was observed that individuals who had friends who took tramadol had a greater risk of abusing tramadol than those who did not have such friends, according to Anto and Danso (2021). According to Ebrahem et al., (2020), who released a study in Egypt about the causes of addiction, half (50%) of the patients analyzed were addicted as a result of peer influence. Qureshi and Al-Habeeb (2000) discovered

that tramadol dependence began as a result of peer pressure, pleasure seeking, and curiosity in Saudi Arabia. This could be because young people take drugs out of curiosity and a desire to try such drugs with their peers to give their peers the impression that they too, are mature enough by taking the drug. This finding was supported by Singh and Gupta (2017), who found that outcome expectations among youths concerning drug effects were substantially impacted by their peers in their study "Drug addiction: contemporary trends and management." This is especially true in Africa where many guardians are unable to monitor their sons and daughters due to a lack of time. Also, one may not be likely to appreciate the acquaintance of friends and peers unless he adheres to their expectations.

It was discovered that poverty was a predicator for the abuse of tramadol. Individuals are able to labor under extremely difficult circumstances working their fingers to the bones and keep continuing for lengthy periods of time with the intake of tramadol (Madukwe & Klein 2019). In the same study conducted by Madukwe and Klein (2019), a participant stated:

> "*I am a student from a poor background, as such I do not always have money for three square meals. Tramadol is good for me because after consuming some tablets I won't have to worry about food so much, it quenches hunger. It also reduces pain and helps with the feeling of sadness".*

Furthermore, according to Fuseini et al. (2019), tramadol energizes most users, and as a consequence, they frequently use the drug to either de-stress after a long day at work or to gain the energy to go on with their regular activities without being weary. In line with this conclusion, Holgado et al. (2018) revealed that tramadol improves task performance in a randomized controlled study.

Thus, tramadol is helping people contain the pangs and throes of poverty through repressing hunger and pain. In like manner, an Egyptian study reported that 60% of the tramadol abusers were from the lower socioeconomic level, while, 27% were from the middle socioeconomic level, and 12.5% were from the high socioeconomic level (Abolmagd et al., 20004).

A comprehensive assessment of the features of individuals with tramadol addiction discovered that 83.37±12.6% of males had a greater prevalence of seizure after tramadol ingestion (Habibollahi et al., 2020). Seizures caused by tramadol are evidently more likely among men who abuse the drug. This is because young males are much more probable than women to take an active part in high-risk activities, therefore they are more prone to engage in the abuse of substance like tramadol (Cotto et al., 2010).

According to an epidemiological study conducted by Mohammed et al. (2015), 25% of participants had a strong family long history of tramadol abuse. The findings are congruent with those of Okasha (2000), who discovered that more than one-third of abusers' fathers and nearly good portion of other relations were drug abusers, indicating the impact of substance-related triggers alongside family and relatives. This can be justified by acknowledging the fact that hereditary factors come to play. This is further emphasized by an assessment of the repercussions of substance abuse, which indicates that substance abuse and dependency is more than a personal problem; it is a serious ethical and societal challenge with pandemic implications. Several tramadol addicts get the substance for free from family or friends. According to an empirical study carried out by the Substance Abuse and Mental Health Services Administration (SAMHSA) in Egypt, 55.7% of the population aged 12 and older who had used tramadol without any recommendation by a physician in the previous 12 months received their tramadol from friends and family. Other options include "doctor shopping" for various prescriptions, obtaining them from a friend or

relative, or purchasing them from a friend, relative, or dealer (Office of National Drug Control Policy, 2008).

After conducting a study in 32 countries, the International Narcotics Control Board estimated tramadol misuse to be 69 per 1000 people per year in 2013 (INCB, 2013). Nonetheless, in 2003, the World Health Organization's (WHO) expert committee on pharma-codependence ascertained that, there was very sparse and insufficient information on tramadol abuse to suggest international tramadol regulation. In a similar spirit, the same committee concluded that, despite the significant increase in tramadol abuse, the existing evidence pointed to a relatively low risk of tramadol addiction (WHO ECDD, 2007).

Peprah et al., (2020) in his literature on the Tramadol usage for non-medical reasons amongst commercial vehicle drivers in Kumasi, Ghana, proposed a paradigm for explaining the motives for tramadol abuse, which he split into four interconnected themes, which are; sexual, psychological, physical, and economic as illustrated in the figure 4 below.

Figure 2.3: The Motivation and Factors That Influence Tramadol abuse
Source: Peprah et al., 2020

2.6 Knowledge and Practice of Tramadol

The significance of measuring the knowledge individuals have on tramadol cannot be overstated (Zwawua et al., 2020) because it has been found to exert a great impact on drug-related attitudes

and behaviors (Habeeb et al., 2016). Many people who abuse the drug cannot appropriately characterize tramadol drugs; this is justified by a survey conducted by Badewo (2021) where majority of the respondent classified it as a hard drug with 78.4% being aware of its abusive effect. This suggests that many of the respondents are unfamiliar with tramadol-classified drugs and may be unable to distinguish them from other abused substances.

Oshikoya and Alli (2006) reported well over a half of respondents had an unfavorable opinion of tramadol abuse. This is in line with the findings of a survey conducted among undergraduate students in Lagos, which found that the majority of the students had negative attitudes about tramadol abuse. Similarly, Mohebbi et al., (2019) found that 95% of respondents had an adverse viewpoint on the use of the drug. Nonetheless, the results of a research by Bashirian et al. (2014) drastically contradicted the preceding studies, showing students with an average score of 50% having a favorable attitude concerning tramadol use.

According to Tafesh (2013), 94.4% of respondents feel tramadol abuse leads to addiction, and 62.6% believe tramadol use has a negative impact on work. The findings were consistent with those of Häkkinen (2015), who found that an individual's attitudes and ideas influence their abusive behavior. As a result, this is a rallying cry for healthy behavior construction educational programs intended at preventing addiction, which may result in a bad attitude among individuals in numerous dimensions.

With regard to practice of tramadol, users of tramadol can either grind the pills into comparatively tiny enough pieces to lick ("snorting") or crush and solubilize the capsules for intravenous infusion ("shooting") (Raffa and Pergolizzi, 2010). Another reason for licking, according to Vosburg et al., (2012) was the anticipated effect of doing so (noting the quick high, and feeling good). He reported that roughly half of the participants "Always" (44%) or "Usually" (4%) removed unwanted

particles prior to licking, citing equal frequency either wanting only the drug in the powder for the more immediate high (16%) or dislike of the shell's properties, such as being rubbery, irritating or burning the nose, or feeling like sand in the nose (16 %).

2.7 Health Consequences Related to Tramadol Abuse

Tramadol addiction may have a variety of consequences, either internally or externally, in all aspects of life. It increases the likelihood of physiological, psychological, and familial issues. Tramadol addiction issues can be defined in a variety of ways, ranging from minor to life-threatening. Many lives are lost to tramadol abuse or dependency due to accidents, injuries, infections, suicides, and murders. Tramadol abuse can have subtle or disguised negative consequences (Daley & Marlatt 2004).

In being compared to other opiates that serve the same purpose, tramadol was formerly thought to be the cheapest and safest drug with a minimal risk of addiction (Sansone and Sansone, 2009) as a result, tramadol is an excellent option for youngsters undergoing surgery during the day, regular wards that are without intensive continuous monitoring, labor discomfort, and catastrophic pain (De La Peña et al., 2002). Tramadol also improves lung function following a laparoscopy. Nonetheless, Sansone and Sansone (2009) added that numerous studies have noticed severe adverse effects for tramadol, seizures, electrocardiographic abnormalities, acute kidney failure, hepatic failure, abrupt right heart malfunction, and perhaps even death are all potential consequences. Contrasting the need for acute pain management with the risk of abuse presents a critical attention in evaluating the risk side by side the benefit of using tramadol for treatment of pain.

It is worth noting that, all brochures of tramadol enlist dizziness, vertigo, constipation, nausea, headache, somnolence, vomiting, agitation, anxiety, emotional lability, euphoria, hallucinations, and anxiousness as some of the drug's side effects (in the common prescription dosages). However, with the range of the occurrence of seizures, it was stated that it has only <1% chance of occurrence (Gardner et al., 2000) with drowsiness (5.3%), central nervous system effects/incoordination (7.1%), nausea (4.8%), dry mouth (2.2%), and sedation (2.4%) recorded as the most prevalent adverse effects (Cossmann and Wilsmann, 1987). It's worth noting, however, according to Rougemont-Bücking et al., (2017), that the majority of the listed negative effects happened when tramadol was combined with other medicines, narcotics, or alcohol. In a study on tramadol's oral effectiveness in humans, two participants vomited after taking tramadol, while eight other subjects reported elevated feelings of "stomach churning" and "sick to the stomach" after taking these tramadol dosages (Lofwall et al., 2017). Similarly, according to Fuseini et al., (2019), several of the participants in his study stated that nothing they swallow, except from soft drinks and water, remains in their tummy while they're on tramadol. Several studies, notably Schatzberg et al., (1997), have shown comparable side effects such as nausea and gastrointestinal discomfort as a result of increasing tramadol acute dosages.

According to research conducted in Iran, 15 to 35 percent of tramadol intoxicated patients experienced seizures (Shadnia et al., 2008). Once more, in a proposed study by Shadnia et al., (2012), it was discovered that tramadol ingestion dose was considerably greater in patients who had more than one seizure compared with those who had just one seizure, which is in line with the observations of this study. Conversely, it was observed in a study on seizure prevalence and associated variables in tramadol intoxication that the association between the intake dose and seizure frequency was low (Babahajian et al., 2019).

Tramadol causes much less dizziness and sleepiness over morphine and has a lower risk of chronic depression (Lehman, 1997). Rougemont-Bücking et al. (2017) published a paper titled "Use of tramadol in psychiatric care: a comprehensive analysis and report of two scenarios", where he revealed in both scenarios, tramadol is considered to be an effective treatment for depression in which social stress is present owing to interpersonal issues or a breakdown of major attachments and thus could not be alleviated in the immediate term through other procedures like therapy.

On the other hand, the possibility of tramadol causing seizures as a side effect is debatable in several existing literature. According to several research, tramadol can only cause seizures in people when administered in high quantities in patients with epilepsy or in tandem with additional seizure-inducing medicines (Gasse et al., 2000), even though Jovanović-Čupić et al., (2006) refuted the allegation, stating that tramadol can cause seizures even when administered at the appropriate dosage and without any comedications.

SalmReifferscheidt (2018) reported that, users of tramadol in West Africa, where tramadol-branded drugs are prevalent amongst drivers and scavenger laborers have indicated that Tramadol has a psychoactive impact. Quoting from one of his respondents,

> ‘*’Here in Africa, you need to work really well … So, you have to take tramadol to be able to work hard to keep your job’’*.

Meanwhile, a study in 2014 showed that the predicted impact of tramadol is somnolence rather than alertness, leading to concern that the smuggled tramadol pills are mixed with the use of a "nervous system stimulant" like other opioids (Alsirafy et al., 2014). Although, Häkkinen (2015) revealed that tramadol when administered together with some other opioids may have pharmacokinetic and pharmacodynamic interactions that increase their toxicity and lead to death.

Tramadol has the potential for abuse (i.e., excessive, dangerous use) and physical reliance (as shown by withdrawal effects after termination), as well as psychological and behavioral addiction, due to its uses, properties, and possible effect (Roussin et al., 2015). Most cases of tramadol withdrawals continue longer than other opioids, according to research on withdrawal syndrome following delayed tramadol ingestion (2004); seven days or more of acute withdrawal symptoms might occur, compared to three or four days for other opioids such as codeine analogues. Anxiety, despair, agony, extreme mood fluctuations, aggression, electrifying feelings all around the body, sneeze, sweating, palpitations, restless legs syndrome, sleeplessness, as well as tremors and fatigue are just a few of the symptoms (Choong & Ghiculescu, 2008).

Buprenorphine, tramadol, and codeine are the three top drugs that cause fatal poisonings (Häkkinen, 2015). Tramadol-related poisonings account for more than half of all fatal poisonings in Finland each year (Vuori et al., 2012). According to research conducted in Tehran, Iran, on trends in tramadol-related fatalities, the death rate linked to tramadol increased by 32.5% between 2005 and 2008 (Iravani et al., 2010). As per statistics collected from IMS Health, a market research firm, in 2011, 379 people died in Florida as a consequence of tramadol overdoses, up from 106 just eight years before. Between 2010 and October 2013, 20 persons in Milwaukee County died as a consequence of a tramadol-related opioid overdose, according to medical data. Several opiates, including tramadol, have been consumed in the majority of those patients (IJAR, 2009).

It's worth mentioning that tramadol-related deaths are frequently accompanied by polydrug usage (Goeringer et al., 1997). Consistent with the findings is Häkkinen et al., (2012), who found that tramadol poisonings had more benzodiazepines than other tramadol-related fatalities, and that tramadol abuse contained more concurrent opioids than other tramadol-related deaths. From 2000

to 2008, the proportion of tramadol poisonings among all tramadol-related deaths in abuser cases grew by a third in Malmao between 2010-2011 (Häkkinen, 2015).

Further to that, the incidence of tramadol-related fatalities in the UK increased from 83 in 2008 to 154 in 2011 (Mayor, 2013). As a result of these findings, the Advisory Council on the Misuse of Drugs recommended in 2013 that tramadol regulation be intensified (Advisory Council of the Misuse of Drugs, 2013).

Dizziness, disorientation, sleepiness, convulsions, and respiratory failure are all possible adverse effects of tramadol usage (Clarot et al., 2003). Additionally, Sansone and Sansone (2009) noticed that concerns have been raised in Ghana concerning tramadol usage for extended periods of time and at high doses owing to its numerous side effects, which includes addiction, dependency, seizures, psychosis, disorientation, respiratory depression, and liver and kidney dysfunction. Disputably, Lee et al., (1993) identified that tramadol does not cause respiratory depression in neonates when administered intramuscularly, and would cause far less respiratory depression when the mode of administration is intravenous. Similarly, a study showed that respiratory effects of tramadol is caused by large doses. Tramadol did not produce clinically meaningful respiratory depression at recommended therapeutic doses, according to the findings (Scott and Perry, 2000).

These adverse effects are more likely to impact a driver or pilot's accuracy and reasoning, increasing the odds of being involved in a fatal accident as a motorist, passenger, or pedestrian. As shown in a study by Fawzi (2011) on the medicolegal aspects of tramadol abuse, tramadol abuse overdose is strongly linked to a variety of incidents, including traffic accidents (18.7%), violent attacks such as fighting, and domestic abuse (33%), and accidental falls and self-inflicted unintentional injuries (48.3%).

During a 33-month study, the Norwegian Institute of Public Health (2009) used data seen from the Norwegian Prescription Database and the Norwegian Registry of Road Accidents to report that 181 road accidents collisions resulting in serious injuries as a result of tramadol abuse were registered with data from the Norwegian Prescription Database and the Norwegian Registry of Road Accidents.

According to Fuseini et al., (2019), some of the tramadol abusing victims in their study claimed that the tramadol causes them to become irritable at the slightest provocation and also causes them to lose interest in social engagement.

To summarize, many current violent forms and increasing road accidents are directly linked to the introduction of various types of psychoactive substances, the deadliest of which is tramadol. This is owing to its increasing presence, low cost, and clandestine smuggling (Fawzi, 2011). Furthermore, it has been difficult to measure its ultimate consequence, despite the fact that it presents itself in a variety of ways, including the physical and psychological effects of addiction, as well as the impact of illegal use on specialists' prescription patterns (Rhodin, 2006). For that matter, when considering the accompanying health care expenses, as well as the cost of treatment for victims of tramadol abuse, the financial burden associated with such misuse and abuse is substantial (Birnbaum et al. 2006).

CHAPTER THREE

METHODLOGY

3.0 Introduction

It presents the approach employed to collect and analyze the research data. Creswell (2003) asserted that, adopting the most suitable research methodology is a key element in the formula to achieving a true inference of the finding. This chapter of the dissertation introduces an in-depth description of the methodology used by the researcher to attain the objectives of the study. The study area, research design, research population, sampling strategy or method, research tools used to gather data, and data collection and analysis procedures are all covered in this chapter.

3.1 Study Area

The research study was conducted in the Tamale Metropolitan area. Tamale which was previously a municipality, was granted metropolitan status in 2005 by legislative instrument 1453 and is administered by the Local Government Law, Act 462.

Tamale metropolitan area is located in the Northern Region. It is the capital and the administrative center of the region. It is located between 9.16°- and 9.34°-degrees north latitude, and 00.36°- and 00.57°-degrees west longitude. It has a vast land area of 731km² and is around 180 meters above sea level. The Savelugu-Nanton District borders the metropolis on the north, the districts of Gonja Central and East on the south, the Yendi municipal on the east, and on the west is the district of Tolon-Kumbungu. The Tamale Metropolitan Assembly (TMA) is further subdivided into three sub-metros which includes the Tamale north, center, and south sub-metro.

The Tamale metro area has a human population of 293,881 people, with 146,979 males and 146,902 females, according to statistics from the Ghana Statistical Service (2000). In 2012 and

2013, the Metropolis' population was estimated to be 383,205 and 404,609 people, respectively (Ghana Statistical Service, 2014).

Despite the fact that native Dagombas make up the bulk of the population, there is ethnic variety. In the city, almost all of Ghana's ethnic groupings are represented. There is also a wide range of religious beliefs, with Islam being the most prevalent.

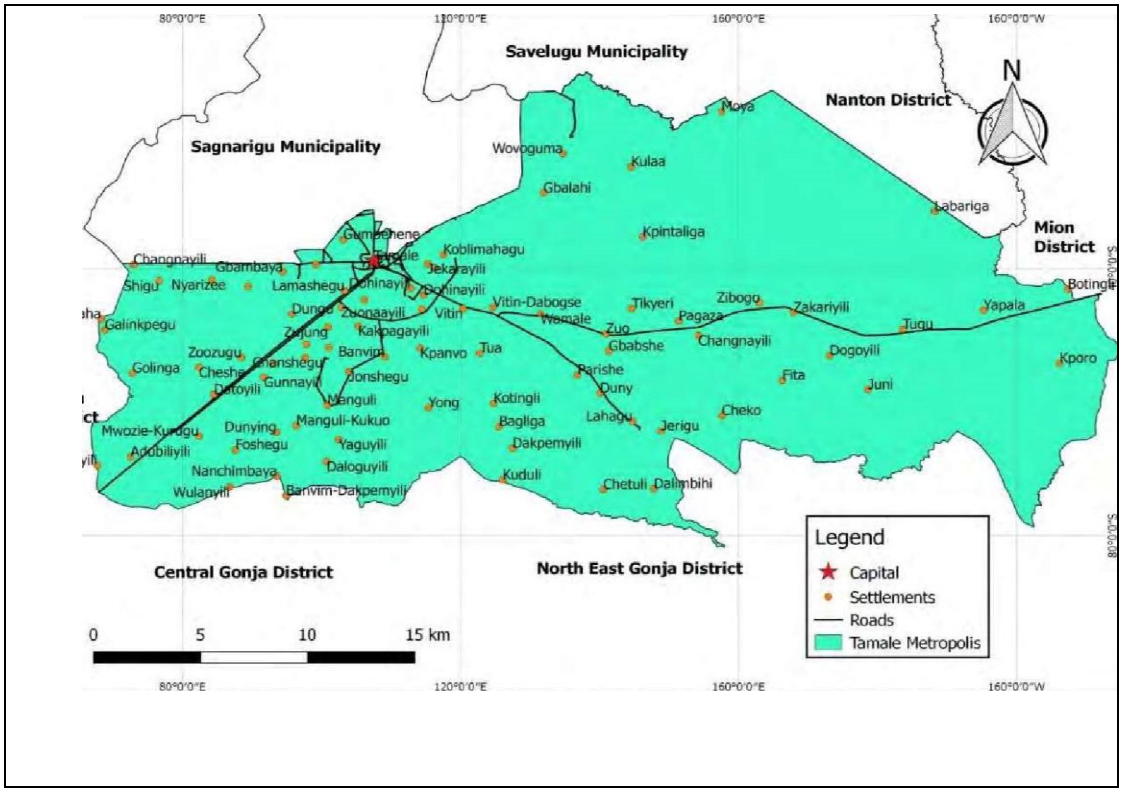

Figure 3.1: Map of Tamale Metropolis
Source: Physical Planning Department, Tamale (2020)

3.2 Study Population

A population, according to Trochim (2005), is a collection of individuals or items who share common features. The population in this study are all tricycle drivers in the Tamale metropolis who operate within the metropolitan area.

3.2.1 Inclusion Criteria

All tricycle drivers who acknowledged taking tramadol at least once every month at the time of data collection and assented to being a part of the study.

3.2.2 Exclusion Criteria

Tricycle drivers with mild or severe mental disorder are excluded. This is to ensure that all parties are clear headed and capable of comprehending and participating in the data collection exercises.

3.3 Research Design

MacMillan and Schumacher (2001) defined research design as a method for selecting individuals, study settings, and data gathering processes. Additionally, they clarified that the goal of a good study design is to present findings that are considered credible and reliable.

The study employed a cross-sectional analytic study among tricycle drivers within the Tamale metropolitan area. Kesmodel (2018), identified cross sectional studies as characterized by the gathering of relevant data at a specific moment. This design was regarded optimal because, variables are easy to identify at the same time that the investigator assesses the outcome and exposures in the research participants (Setia, 2016).

3.4 Sampling Size

Mugenda and Mugenda (2003) reported that, sampling refers to picking a required number of situations in order to give data that may be utilized to make inferences concerning a significantly greater number of instances. Sample sizes differ due to different circumstances in a study.

3.4.1. Quantitative Sample Size

Malhotra and Peterson (2006) expressed that the larger the sample size of the research, the more accurate the data generated will be. The sample size for the quantitative data was calculated based on the Cochran formula, $n = (Z^2\ pq)/d^2$.

Where;

- n is sample size
- Z is the z-score that corresponds with the 95% confidence interval (CI; 1.96)
- p is the assumed proportion of tramadol abusing tricycle drivers (50%, = 0.50)
- q = 1 – p, where p = (1 – 0.50) = (0.50) and
- d is the margin of error, set at 5% (0.05).

Changing the pertinent parameters in the formula resulted in 384 as the required sample size. The sample size was estimated using a 50% prevalence rate with a 5% tolerable error margin.

Nonetheless, sample size of 420 people was employed for the quantitative data, in conjunction to a 9.5% nonresponse rate.

3.4.2. Qualitative Sample Size

The sample size for the qualitative was study was 55. 12 key informants and 43 discussants across 4 Focus Group Discussions.

3.5 Sampling Method

3.5.1 Qualitative Sampling Method

This study employed the multiple sampling using the simple random technique, the purposive and snowball sampling technique for the qualitative aspect. In the simple random technique, four tricycle terminals were randomly selected for data collection purposes (questionnaire and Focus Group Discussions (FGD) in the study area. This was done by making a list of all the 8 tricycle terminals in the study area on sheets of paper, enfolding them and placing them into a jar. The 8 tricycle terminals in the study area are as follows; Aboabo terminal, Access Bank terminal, ADB terminal, Consolidated Bank of Ghana (CBG) terminal, Dakpema terminal, Gumani terminal,

Jisonayili terminal, and the TTH terminal. Four of the enfolded pieces of papers were randomly drawn after carefully shaking the papers in the jar. They included; ADB terminal, Access Bank terminal, Aboabo Terminal and the Consolidated Bank of Ghana (CGB) Terminal.

Tricycle drivers at the sampled terminals were enrolled into a Focus Group Discussions (FGD) using a purposive sampling technique. This was to enable individuals experienced in the phenomenon to participate, contributing large amounts of information to the study. Again, due to the sensitivity of the study, snowball sampling was employed to identify tricycle drivers who take tramadol to the study. Individuals were invited to be parties to Focus Group Discussions after providing an informed consent. However, drivers who declined to be parties were excused and substituted.

The process continued until the required number of sample size was met. Four groupings were constituted with each terminal assigned to a group. A total of 43 participants were enrolled for the Focus group discussion. 9 participants were polled from terminals with less than 20 tricycle operators, 10 participants from terminals with 20 to 30 operators and 12 participants from terminals with more than 30 operators. The breakdown includes, 10 participants at the ADB terminal group, 12 participants at the Access bank terminal group, 12 participants at the Aboabo terminal group and 9 participants at the Consolidated Bank of Ghana terminal group. Participants were identified by tag numbers and guaranteed of anonymity and confidentiality to promote forthright answers to questions.

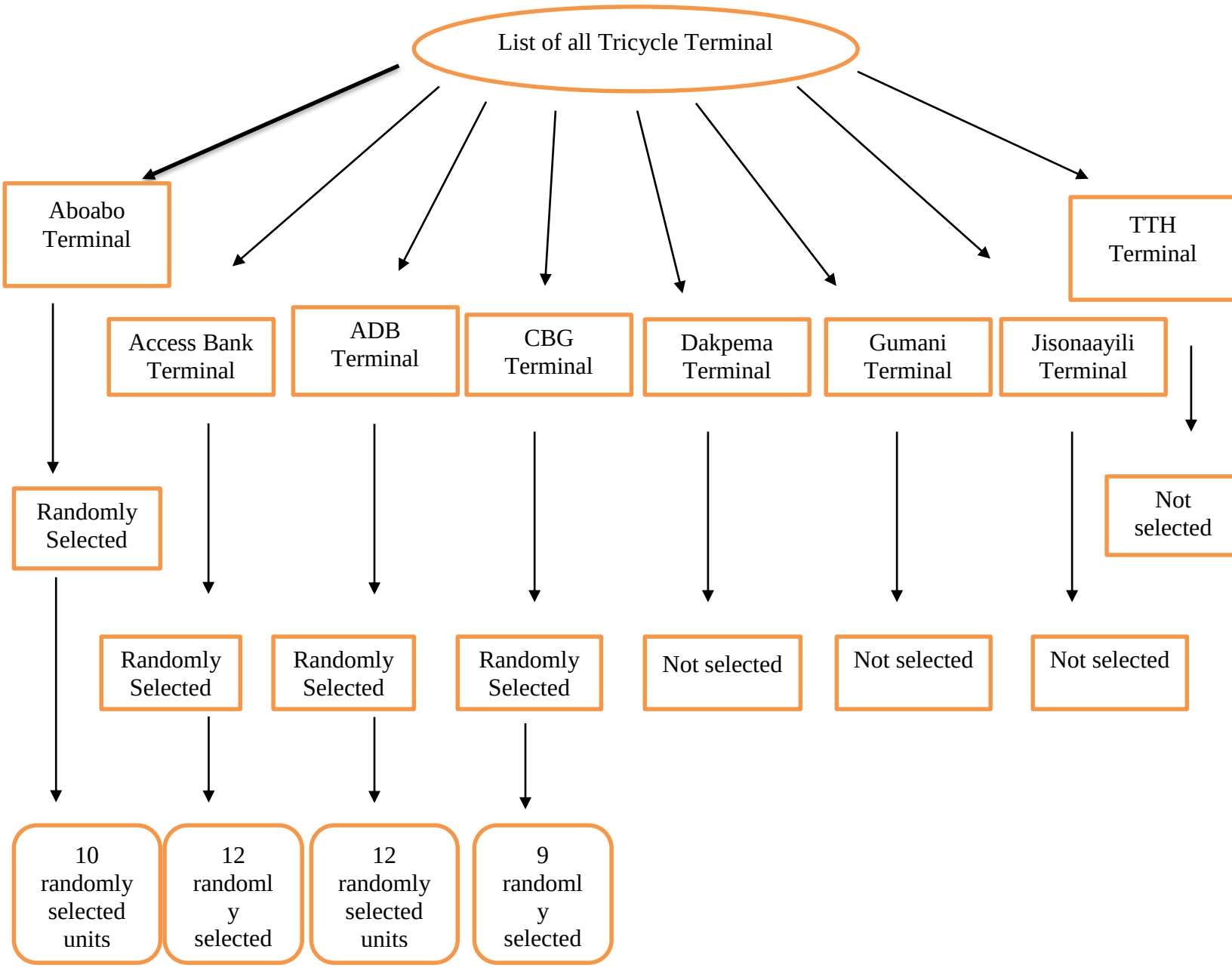

Figure 3.2: Sampling procedure for the recruitment of participants
Source: Authors Own Construct, 2021

Using the Purposive sampling technique, we set out to identify leaders of the tricycle terminals who possess experiences in tramadol usage and are willing to share, two (2) participants identified as the leaders of the union at the various terminals were drawn to constitute the respondents for Key informants' interviews which lasted for about 10 to 15 minutes each. We also set out to identify Police officers who are under the division of the Motor traffic and transport units (MTTU) of the Ghana police service and has come across accidents that are associated with tramadol influencing habits. Further, 1 health worker at the Tamale teaching hospital's accident ward were selected for in-depth interviews with the help of a semi structured questionnaire.

We used the snowball sampling to capture two victims who have sustained various degrees of injuries from tricycle related accidents and are hospitalized at the accident ward in the tamale teaching hospital. These two persons were referred to us by the health worker in the study population and were also selected as key informants to be able to extract information from victims with a first-hand experience of tricycle accidents.

3.5.1 Quantitative Sampling Method

The convenience sampling technique was used to sample the study population for the quantitative aspect of the study. Thus, tricycle drivers you were available at the time of the data collection and were willing to participate were invited for the data collection.

It is worth nothing that the sample size for the quantitative components of the research amounted to 420 whereas the sample size of the qualitative component amounted to 55, all summing to 475 (table 4).

Table 3.1: Study participants with proportion from selected tricycle terminals in Tamale metropolis

TRICYCLE TERMINALS	ADB Terminal	Access-Bank Terminal	Aboabo Terminal	CBG terminal	MTTU	TTH	Total
Number surveyed	105	105	105	105	-	-	420
Key Informants	2	2	2	2	1	3	12
FDG participants	10	12	12	9	-	-	43
Total	117	119	119	116	1	3	**475**

Source: Authors Own Construct, 2021

3.6 Data Collection Technique

Both qualitative and quantitative data collection techniques were used for the study.

3.6.1 Quantitative data collection technique

The structured questionnaire was used for the collection of quantitative data.

3.6.2 Qualitative data collection technique

Interview guide was used for qualitative data collection. Throughout the course of the Focus Group Discussion, a recorder was used by the researcher to record the conversation. Permission was obtained from the participants for the conversation to be audio-taped. All participants of the discussion were earmarked with a unique participation number instead of their original names. Each participant started a contribution on a matter by first mentioning their tag numbers to ensure data are identified with participants that brought them up. After each discussion, conversations were transcribed and saved in a secure document after which audio recordings were deleted immediately. The transcription was done orderly and contained the verbatim reproduction of conversation with every utterance including stutters, pauses, mannerisms, and other gestures/nonverbal cues all captured. Transcriptions of interview form a crucial part of qualitative research process (Oliver et al., 2005).

Additionally, observation was utilized by the researcher to observe attitude and respondent demeanor, body language and emotions concurrently during the data collection process. This furnished the researcher with a lead to deducing whether the respondent is being forthright or otherwise through the facial expression and both verbal and nonverbal signals (such as gestures, postures, among others).

3.7 Quality Control

Research assistants were hired and provided with requisite training for two consecutive days to guarantee successful data collection. Successful fellows were contracted only after they have demonstrated a good control over the tools.

The data instruments were pretested with three participants through a pilot study that was conducted at a random tricycle terminal within the Yendi Municipal area. Challenges that sprang up during the pilot were noted down and fine-tuned to meet the highest level of effectiveness before the actual field work began. All ethical considerations were strictly adhered to during the pilot study.

Further, data collection tools were subjected to validity and reliability test using scale-reliability tests and a Cronbach alpha of 0.7 or more was considered reliable

3.8 Data Analysis

The quantitative data for the study was imported in to the Statistical Package for Social Sciences (SPSS) version 26 and analyzed. While the qualitative data was however coded and analyzed using the thematic content analysis.

3.8.1 Quantitative data analysis

The Statistical Package for Social Sciences (SPSS 26v) software was used to analyze the quantitative data. For background characteristics of respondents, descriptive analysis was undertaken and presented as frequencies, percentages, means and standard deviations. To establish connections between tramadol, use and the set of independent variables, Chi-squared/exact Fischer's tests was utilized. A statistically significant link was defined as one with a p value of less than 0.05.

The mean figures were used in analyzing the five-point Likert scale on the perceived effect and psychological effects with a mean from 1 to 1.80 implying strongly disagree, from 1.81 to 2.60 as disagree, 2.61 to 3.40 as neutral, 3.41 to 4.20 as agree and 4.21 to 5 as strongly agree.

3.82 Qualitative data analysis

Thematic content analysis was employed using both the deductive and inductive analysis. The interviews that were taped recorded were listened to carefully for approximately three times and then transcribed by two different researchers and juxtaposed as a means of checking for accuracy and controlling inconsistencies. The transcript was read again and over again to obtain more comprehensive knowledge before being analyzed.

3.9 Dependent and Independent Variables

The dependent variable of the study is the abuse of tramadol in the Tamale Metropolitan area while the independent variables are the factors that influence the abuse of tramadol such as physical activeness, to relieve pain, friends or peers' pressure, to gain euphoric effects and to enhance sexual performance.

3.10 Ethical Consideration

The ethical consideration of the study included approval for the study, consent forms, confidentiality and anonymity, plus the communication of result dissemination.

3.10.1 Study Approval

Study approval was sought from the Kwame Nkrumah University for Science and Technology (KNUST) Committee on Human Research and Publication Ethics with approval number ‘’CHRPE/AP/22’’. Formal permission was sought from the Tamale Metropolitan Assembly. An introductory letter was issued by the head of department of social and behavioral change department.

3.10.2 Informed Consent

The goal of the study, research methods, potential risks and advantages of participation in the study, and other key information contained in the consent form was appropriately explained to participants in a language they understand and appreciate. Participation was voluntary and participants had a leeway to skip a question they are not comfortable answering and also to opt out of the study when they see the need to.

3.10.3 Confidentiality and Privacy

Participants were guaranteed of their confidentiality and anonymity. Participants were identified by their code names rather than their native names. Audio recordings were obliterated immediately after they were transcribed.

3.10.4 Communication of result

The study's findings are presented in the form of a report and a copy made accessible to the School of Public Health, University for Development Studies, Ghana health service and all stakeholders

involved in policy formulations regarding health. The researcher also intends to use results for articles for publications in academic journals.

3.11 Summary of Chapter

The methodology of the research was provided in the third chapter of the study. The chapter was divided into thirteen sections from the study area, study populations, research design, sampling size, sampling method, Data collection technique, Quality control measures, Data Analysis, Dependent and Independent variables of the study and Ethical consideration in that order.

CHAPTER FOUR

RESULTS

4.0 Introduction

Findings of the study in relation to research questions and study objectives would be presented in the chapter. The result will be presented following the socio-demographic characteristics of study participants, effects that the drug has on them, the psychological state of participants when they are under the influence of the drug and the social and economic factors influencing the abuse of the drug.

4.1 Socio-Demographic Characteristics of Participants

The study participation was 420 tramadol users from four tricycle terminals in the Tamale metropolitan area, with a mean (standard deviation) age of 24.1±5.5 years. Gender, age, educational level, religion, marital status, housing arrangement, and tramadol use for a number of years were utilized to determine socio-demographic characteristics. The oldest participant was 38 years old, while the youngest was 17 years old. The age ranges of 20–29 years accounted for the bulk of the 420 participants, with 234 representing 55.7%, followed by participants aged 10–19 years, with 100 participants representing 23.8%, and participants aged 30–39 years, with just 86 representing 20.5%. Each of the 420 participants were males. This is due to the fact that tricycle driving is a male-only profession in the Tamale city. Not a single female in the Tamale metropolis is engaged in tricycle driving.

The educational background of the participants ranged from no education to tertiary education, with only 38 participants (9.0%) obtaining a tertiary education, 130 participants (31.0%)

completing secondary education, 172 participants (41.0%) acquiring basic level education, and 80 participants (20.5%) having no formal education.

In terms of religious affiliations, 401 (95.5%) of the participants were practicing Islam, 19 (4.5%) of the participants classified as Christians whereas no participants identified as traditionalist and no religion respectively. While 55 (84.5%) of the participants were single, only 38 (9.0%) were married, and 27 (6.4%) had previously been married but were now divorced. In terms of living arrangements, the majority of participants 96 (22.9%) live with their friends, 88 (21) live on their own, 79 (18.8%) live with a guardian other than their biological parents, 76 (18.1%) live together with both parents, and 44 (11%) and 35 (8.3%) live with only their mothers and fathers, respectively.

When it comes to tramadol use, 259 (61.7%) of participants have used it for one to three years, 100 (23.8%) have used it for four years or more, and 61 (14.1%) have used it for less than one year (Table 5).

Table 4.0: Demographic Characteristics of Respondents

Variables/Category	**Number (n=420)**	**Frequency (%)**
Gender		
Male	420	100.0
Female	0	0.0
Age		
10 -19 years	100	23.8
20 – 29 years	234	55.7
30 – 39 years	86	20.5
Educational Level		
No education	80	19.0
Basic Level	172	41.0
Secondary level	130	31.0
Tertiary level	38	9.0
Religion		

Muslim	401	95.5
Christian	19	4.5
Traditional Religion	0	0.0
No religion	0	0.0
Marital Status		
Single	355	84.5
Married	38	9.0
Divorced	27	6.4
Living Arrangement		
Father	35	8.3
Mother	46	11.0
Both Parents	76	18.1
Guardian	79	18.8
Alone (by self)	88	21.0
Friends	96	22.9
Years of Tramadol Use		
<1 year	61	14.5
1- 3 years	259	61.7
4 years +	100	23.8

Source: Field data (2022)

4.2 Perceived Factors Resulting in The Use of Tramadol

Tramadol abuse was defined in this study as inappropriate tramadol use or tramadol use without a physician's approval. Tramadol dosage limits of 50 mg and 100 mg in tablets and capsules, as well as 50 mg/ml-2 ml in injections, have been approved by the FDA for usage in Ghana, therefore any intake over these levels was deemed abuse.

The findings revealed that, majority of participants abuse tramadol with 160 (38.1%) participants taking the tramadol for physical activeness, 84 (20.0%) participants abusing the drug to relieve pain, 61 (14.5%) take tramadol simply because their friends or peers are taking tramadol, 60 (14.3%) engage in tramadol to gain euphoric effects, 30 (7.1%) take tramadol to enhance their

sexual performance and 13 (3.1%) participants stating reasons other than the aforementioned reasons which included to lose weight and for hair growth.

It is worthy of note that, of all the 420 (100.0%) participants using tramadol, only a few 12 (2.9%) participants are identified as using the drug under physician prescription, the rest of the 408 (97.1%) participants in a way abuse the drug. The three most compelling reasons why they abuse tramadol are to reinvigorate themselves and become physically active (38.1%), to relieve pains (20.0%) and peer pressure (14.5) (Table 6).

Table 4.1: A Frequency Table Showing the Perceived factors resulting in Tramadol Use

Variables	Frequency	Percent
Prescription	12	2.9
Physical activeness	160	38.1
To relieve pain	84	20.0
peer pressure	61	14.5
sexual enhancement	30	7.1
Euphoria	60	14.3
others	13	3.1
Total	420	100

Source: Field data (2022)

Tramadol is commonly used by tricycle drivers to increase their physical activity, according to this study. Participants demonstrate why tramadol is used to increase physical activity thus:

> *'' I take tramadol to keep me active and awake to charter passengers from Accra or Kumasi, who will arrive in Tamale in the late hours of 2am thereabouts. I make a lot of money during the night. A destination that normally cost a passenger 2 cedis in day light*

will cost the passenger 15 cedis during the night. Because no tricycles are available during those hours and thus passengers will have limited options'' ***(Number 10, FGD, Aboabo tricycle terminal).***

''When I take it, I am able to complete in 5 minutes a task that is supposed to take 30 minutes'' ***(Number 1, KII, ADB tricycle terminal).***

Another participant reported;

"You cannot do yeloyelo job and you will not take tramadol. Many of us (tricycle riders) take hard drugs. I no go lie for you, I use drugs. Some people will tell you they don't use. It is not true. Most of the people you see driving yeloyelo use tramadol" ***(Number 7, FGD, Aboabo tricycle terminal).***

It was disclosed that psychoactive drugs, particularly tramadol, are often recommended to new entrants into the tricycle operation as solutions for stress and fatigue.

"When I entered this work new, I complained to some guys here about tiredness. Many of them encouraged me to drink tramadol. They said that it will give me more energy, I use it and I see the good it does for me" ***(Number 6, FGD, CBG terminal)***

Another participant has this to say:

''I love it when my wife mixes Tramadol with my Tea every morning before I leave for work because it makes me very healthy and work hard. Also, I make her mix it with flour and stir to make my Tuo Zaafi so I can have a good sleep after supper'' ***(Number 9, FGD, CBG terminal).***

A participant in a FGD said thus:

''Tramadol gives me energy; I am a hustler. I hustle on the street to get my daily bread. Tramadol invigorates me to work more'' ***(Number 1, FGD, CBG terminal).***

It was also identified that, some tricycle drivers abusing tramadol graduated from using tramadol as introduced and prescribed by physicians to them as painkillers to abusing the drug without the prescription of physicians. These participants made the following observation as to why takes tramadol without the prescription of a physician:

''I had an accident with my tricycle and I was experiencing intense pains so much so that I am unable to sleep, so my doctor prescribed tramadol to me. And when I took it, it reduced my pains. I didn't know there was that sort of drug that can make your pains go away within a split of a second like that. So anytime I feel some small pain in any part of my body, I just go to the pharmacy and get some tramadol and I become fine'' ***(Number 3, FGD, CBG terminal).***

Additionally, apart from the fact that tramadol is used by majority tricycle drivers to boost their physical activeness and to relieve pains, others also use the opioid for sexual enhancement, euphoric effects and other reasons. These assertions were confirmed in a focus group discussion when participants made the following assertions:

''I take tramadol to put me in a good mood and make me relate with my sex clients or happily'' ***(Number 8, FGD, ADB terminal)***

Another participant indicates that:

''It makes me sober and respectful. I can fight with someone right now and go to apologize or beg the person the minute I take tramadol'' ***(Number 6, FGD, CBG terminal)***

''It makes me keep away from being shy. I was shy to start the tricycling business but my brother recommended that when I take tramadol, the shyness will go away. Tramadol motivates you to make a genuine source of living, once you take it, you won't even mind sweeping the trenches or gutters at the backyard for a wage'' ***(Number 11, FGD, Access Bank terminal)***

''My fat friends take the tramadol to simmer down or lose weight. It has proved effective for my friend, so I tried it and it proved effective for me too'' ***(Number 2, KII, ADB)***

''My girlfriend enjoys long hours of sex so I take it and it makes me last for 3 to 4 hours'' ***(Number 9, FGD, CBG).***

4.2.1 Demographic Factors and Tramadol Abuse

The bivariate analysis, revealed that none of the independent variables showed a significant relationship with tramadol abuse among the respondents.

Several socioecological factors, including users' level of education ($\chi2 = 0.181$, $p = 0.981$), an individual's religion ($\chi2 = 1.041$, $p = 0.308$), individuals' marital status ($\chi2 = 0.784$, $p = 0.676$), family history of drug use ($\chi2 = 0.676$, $p = 0.411$), individuals living setting ($\chi2 = 2.981$, $p = 0.703$) and an individual's age ($\chi2 = 0.781$, $p = 0.677$) were not associated with tramadol abuse among the study participants (Table 7).

Table 4.2: Bivariate Analysis of Demographic Factors and Tramadol Abuse

Variables	FDA RECOMMENDED		χ2	p-Value
	Approved Dosage	Unapproved Dosage		
Level of Education				
No education	30 (37.0%)	50 (63.0%)	0.181	0.981
Basic Level	65 (37.0%)	107 (62.0%)		
Secondary level	49 (38.0%)	81(62.0%)		
Tertiary level	13(34.0%)	25 (66.0%)		
Religion				
Muslim	152 (38.0%)	249 (62.0%)	1.041	0.308
Christian	5 (26.0%)	14 (74.0%)		
Marital Status				
Single	134 (38.0%)	221 (62.0%)	0.784	0.676
Married	15 (39.0%)	23 (61.0%)		
Divorced	8 (30.0%)	19 (70.0%)		
Family History of drug use				
Yes	43 (34.0%)	82 (66.0%)	0.676	0.411
No	114 (39.0%)	181 (61.0%)		
Living settings				
Father	13 (37.0%)	22 (63.0%)	2.981	0.703
Mother	13 (28.0%)	33 (72.0%)		
Both Parents	32 (42.0%)	44 (58.0%)		
Guardian	29 (37.0%)	50 (63.0%)		
Alone (by self)	31 (35.0%)	57 (65.0%)		
Friends	39 (41.0%)	57 (59.0%)		
Age				
10 -19 years	41 (41.0%)	59 (59.0%)	0.781	0.677
20 – 29 years	84 (36.0%)	150 (64.0%)		
30 – 39 years	32 (37.0%)	54 (63.0%)		

X^2: chi-square,

Source: Field data (2022)

4.3 Knowledge, Attitude and Practice of Tramadol

The majority of the individuals in the research, aged 20 to 29, learned about tramadol via their acquaintances or peers. To better understand this occurrence, the researcher performed a cross-tabulation and chi-square test of independence to see if the age of tricycle drivers had any bearing on where they first heard about tramadol.

The research revealed a significant relationship between the age of tricycle drivers and where they first heard about tramadol ($X^2 = 161.514$, $p < 0.001$). None of the tricycle drivers from the age groups of 10 – 19 and 20 – 29 first heard about tramadol from a physician (Table 8).

Table 4.3: The Association Between Age Groups and Where They Heard About Tramadol

Variables	10 -19 years	20 – 29 years	30 – 39 years	Total	X^2	df	P-value
Information source							
Family	1(7.7%)	12(92.3%)	0(0.0%)	13(100%)			
School	0(0.0%)	23(100.0%)	0(0.0%)	23(100%)	161.5	8	P<0.001
Friends	99(28.2%)	199(56.7%)	53(15.1%)	351(100%)			
physicians	0(0.0%)	0(0.0%)	33(100.0%)	33(100%)			

df: degree of freedom, X^2: chi-square
Source: Field data (2022)

4.3.1 General Knowledge on Tramadol

The results showed that tricycle drivers within the Tamale Metropolis had a fair general knowledge on Tramadol. A high proportion of the participants correctly indicated that Tramadol is not an illicit drug, 348 (82.9), Illicit drugs cannot be prescribed by doctors and are not legal, 254 (60.5), Tramadol can have a negative effect on the user's health, 258 (61.4), and that an individual can be

mentally challenged due to tramadol use, 325 (77.4). However, majority of the participants did not know that the handling and the use of illicit drugs are punishable by law, 274 (65.2) (Table 9).

This finding has been discountenanced by the key informant at the Motor traffic and transport unit, he conclusively established that the rising incidence of accidents is a result of high illiteracy among the riders, most of whom he said are into drugs and lack the knowledge of the effects of such drugs. He said,

> *"Tramadol has a litany of effects to our health. The small boys here just take it to give them the energy to work, in time, they won't only be affected, but they will tamed in a situation they could have avoided if they had a foreknowledge of the outcome of this drug. Many of these accidents you see on the road is a result of the tramadol. If you arrest them today, you will be threatened by the leaders and authorities of their communities but we are not perturbed by that … We will continue to do our legitimate duty"* ***(KI, MTTU, Ghana police service)***

Again, from further probing, it was concluded that some participants misconstrue all painkillers to be the same as tramadol. This is confirmed during a focus group discussion when a participant was asked the quantity of tramadol he takes after responding yes to using tramadol, he said:

> *''I always buy D (Diazepam) 5 and sometimes D (Diazepam) 7''* ***(Number 12, FGD Aboabo terminal).***

Table 4.4: A Frequency Table Showing the Participants General Knowledge on Tramadol

General Knowledge		Frequency	Percent
Tramadol is an illicit drug?			
	Yes	72	17.1
	No	348	82.9
Illicit drugs can be prescribed by doctors and are legal			
	Yes	166	39.5
	No	254	60.5
The use of illicit drugs is punishable by law			
	Yes	146	34.8
	No	274	65.2
Tramadol can affect user's health			
	Yes	258	61.4
	No	162	38.6
Tramadol use results in mental illness			
	Yes	325	77.4
	No	95	22.6

Source: Field data (2022)

4.3.2 Association Between Level of Education and Knowledge on Tramadol

In a chi-square analysis to determine whether or not there was any association between participants' level of education and their general knowledge on tramadol, a significant association was found between educational status of participants and their perception about whether or not tramadol is an illicit drug ($X^2 = 40.514$, $p < 0.001$). Further, a significant relationship was found between the educational status of the participants and their knowledge as to whether tramadol can

have a negative effect on a user's health (X^2 = 42.228, p < 0.001). Also, educational level was observed to have a significant relationship with participants perception about whether a person can be mentally challenged as a result of tramadol (X^2 = 39.313, p < 0.001). Additionally, educational status of the study subjects was significantly associated with their knowledge of the illegality regarding the handling and use of tramadol by (X^2 = 95.027, p < 0.001) (Table 10).

Table 4.5: The Association Between Level of Education and Knowledge on Tramadol

Statements	**No education**	**Basic Level**	**Secondary level**	**Tertiary Level**	***X²***	**df**	**P-Value**
Tramadol is an illicit drug.							
Yes	19(23.8%)	15(8.7%)	19(14.6%)	19(50.0%)	40.514	3	P<0.001
No	61(76.3%)	157(91.3%)	111(85.4%)	19(50.0%)			
Tramadol can affect user's health.							
Yes	61(76.3%)	95(55.2%)	64(49.2%)	38(100.0%)	42.228	3	P<0.001
No	19(23.8%)	77(44.8%)	66(50.8%)	0(0.0%)			
Tramadol use results in mental illness							
Yes	61(76.3%)	110(64.0%)	116(89.2%)	38(100.0%)	39.313	3	P<0.001
No	19(23.8%)	62(36.0%)	14(10.8%)	0(0.0%)			
The use of illicit drugs is punishable by law.							
Yes	26(32.5%)	63(36.6%)	19(14.6%)	38(100.0%)	95.027	3	P<0.001
No	54(67.5%)	109(63.4%)	111(85.4%)	0(0.0%)			

df: degree of freedom, X^2: chi-square

Source: Field data (2022)

4.3.3 Attitude and Practices of Tramadol

Data shown below revealed that 178 (42.4%) participants making up the majority of the respondents take in tramadol by adding the powdered content into energy drinks, 131 (31.2%) indicated they swallow tramadol with water, 50 (11.9%) reportedly unplug and lick the powdered content of tramadol in its raw form, 39 (9.3%) indicated that they take tramadol by mixing it with other substance and just a few 21(5.0%) of the participants take tramadol by injecting it into their bodies through the veins (Table 11).

Interestingly, stirring revelations were disclosed in a Focus Group Discussion when the researcher probed deeply into why they take tramadol via the various modes of intake. Some participants had these assertions to make:

> *''I choose to put the powdered content in a drink, shake it and be sipping it intermittently. When I feel the power of the drug is diminishing in me, then sip the drink again to invigorate themselves''* ***(Number 6, FGD, CBG)***

> *''When I take it together with the capsule, it takes some 5 to 10 minutes until it starts to work in the system but when I unplug the capsule and take in the powdered capsule, it starts to work on me immediately and effectively''* ***(Number 10, FGD, ADB)***

> *''When I take it with the capsule it makes me depressed and inattentive and makes my cheeks scratchy. That's how come people will be scratching their checks because the capsule makes the cheeks itchy''* ***(Number 1, FGD, Access Bank)***

> *''The intravenous is meant for the big boys ''Sakawa boys'' because it is expensive''* ***(Number 9, KII, ADB)***

''I mix cream cracker with the tramadol powdered content and stir with hot water until it gets starchy and then take it in. It is the most effective way of enhancing sexual performance'' ***(Number 1, FGD, CBG terminal)***

Also, it was noticed that some modes of intakes have various jargon names attached to them. Mixing tramadol with Marijuana was identified as ''Tar'' and unplugging the capsule and taking the powdered content after throwing the coates is called ''Leaning'', this was confirmed from the following participants:

''I take tramadol by ''Leaning'' it. Because, it is the effective and the easiest way. You only need to unplug the capsule and putting the powdered content in your palm and licking it. And you are good to go'' ***(Number 9, FGD, ADB terminal))***

''I ''tar'' tramadol together with marijuana and smoke it'' ***(Number 5, FGD, CBG terminal)***

Table 4.6: Mode of Taking in Tramadol

Variables	Frequency	Percent
Swallow with water	131	31.2
Unplug and lick the powder	50	11.9
Add powder into energy drink	178	42.4
mix with other substance	39	9.3
Injection through the vein	21	5.0
Swallowing it	1	0.2
Total	420	100.0

Source: Field data (2022)

4.3.4 Sources of Tramadol

From the results, it was noticed that fear of being persecuted or incarcerated accounts for why majority of the respondents opt to acquire the tramadol in the forest. One tricycle driving tramadol user reported that he always goes to the forest daily to get the tramadol because he felt he could be harassed or arrested if he dares go to the pharmacy without a prescription, he made the following remarks:

> *'' The first time I went to the pharmacy to get some tramadol, everyone in the pharmacy watched at me very oddly. They queried me about the prescription, who was going to use it and what the user was using it for. It was such an embarrassment that I had to lie. I vowed never to go to the pharmacy to buy the drug again. So, anything I am craving for it, I drive my tricycle to the Gumani forest to get some''* ***(Number 2, FGD, Aboabo terminal)***

And for those who are able to acquire it in the pharmacy, when asked how they are able to acquire the drug from the pharmacy without a prescription, a participated made it clear that the pharmacist may put up restraining attitude when they highly suspect you as a spy. He illustrated that:

> *''And because of Anas, everybody is on guard. They fear that you may be secretly filming the entire episode, so if you are not a regular client or they don't know you, it is likely that they will give you a tough time. But if they know you, you don't have a cause to worry at all''* ***(Number 5, FGD, CBG terminal))***

> ''*The same way you go to the pharmacy to get a paracetamol without their asking you of a prescription is the same way when you go there to buy tramadol they are not concerned about the prescription''* ***(Number 12, FGD, Access Bank terminal)***

Another person added that:

''You don't even need to mention to them you need tramadol, you only need to mention the dosage you need and they understand. Like, I want to buy 250 or 150. They know you are talking about Tramadol and they will get it for you'' ***(Number 8, FGD, CBG terminal).***

Table 4.7: Sources of Tramadol

Variables	Frequency	Percent
Forest	139	33.1
Pharmacy	85	20.2
Drug Peddlers	68	16.2
Agents	76	18.1
Health workers	52	12.4
Total	420	100.0

Source: Field data (2022)

Data obtained from the table above found that 139 (33.3) participants, making up for the majority of Tramadol users within the Tamale Metropolis obtains the drug from agents/suppliers in the forest, 85 (20.2) from the pharmacy, 76 (18.1) come by the drug from agents who brings it to them at their workplaces, 68 (16.2) obtain the drug from drug peddlers who peddle on the street of Tamale with the drug without license (mostly known as the ''Abokyi'' people) while 52 (12.4) acquire the drug from friends who are health workers (Table 12).

4.3.5 Dosages Taken by Users

The search for an initial experience or pleasure is what makes tramadol users ensconce comfortably on using stronger dosages of 250 and 500 milligram. A Key Informant confirmed this and further explaining that:

''When you take tramadol for the first time, the feeling is so different. The more frequent you get used to tramadol; you no longer experience that feeling again. This makes users graduate to a stronger dosage or milligram that before, fully renewed in their conviction that they will get the first feeling they had before'' ***(Number 1, KII, CBG terminal))***

Table 4.8: Dosages Participants take.

Mg of Tramadol	Frequency	Percent
25	26	6.2
50	49	11.7
100	82	19.5
150	102	24.3
200	101	24.0
250	46	11.0
500	14	3.3
Total	420	100.0

Source: Field data (2022)

The study revealed that the average intake was more than the recommended daily dosage. Averagely, the daily dosage (milligram) intake of tramadol among tricycle drivers in the tamale metropolis was 155.5 ± 91.60 mg. Although 26 (6.2), 49 (11.7) and 82 (19.5) took the approved tramadol dosage levels of 25, 50 and 100 dosages (mg), respectively, 14 (3.3), 46 (11.0), 101 (24.0) and 102 (24.3) misused tramadol by taking in various unapproved strength/dosages of 500, 250, 200 and 150 dosages (mg), respectively (Table 13).

4.3.6 Frequency of Using Tramadol

The fact that majority of the participants take in Tramadol daily gives credence to its dependence propensity. Edmonds and Wilcocks (2000: 16), point out that signs of psychological dependence on drugs are an increase in the frequency of use. The drug is used specifically to get high, and the

need for the effect increases by the frequency of use and once you don't get it, you feel very uncomfortable, a participant in a group discussion explained that:

''When I don't take it for a day, it makes me tremor'' ***(Number 1, FGD, ADB terminal)***

Also, another participant said:

'' *When you take tramadol every day and a day comes by and you do not get it, you will be stiff and you will be falling down''* ***(Number, KII, Aboabo terminal).***

Table 4.9: Frequency of Taking in Tramadol

Variables	Frequency	Percent
When available	160	38.0
Daily	215	51.2
Weekly	20	4.8
Monthly	25	6.0
Total	420	100.0

Source: Field data (2022)

The data obtained portrays that 215 (51.2) take the drug on daily basis, 20 (4.8) take the drug on weekly basis, 25 (6.0) on monthly basis and 160 (38.0) take the tramadol as and when it is available (Table 14).

4.4 Perceived Effects of Tramadol

The five-point Likert scale Is considered as an interval scale thus the mean is very significant. From this study, a perceived effect with a mean from 1 to 1.80 implies strongly disagree, from 1.81 to 2.60 identifies as disagree. From 2.61 to 3.40 means Neutral, from 3.41 to 4.20 signifies agree and 4.21 to 5 means strongly agree.

From the Table below, Respiratory failures has a mean of 1.54 signifying that majority of the participants strongly disagree that the intake of tramadol is a trigger of respiratory failure. Also, Anxiety and Depression has a mean value of 2.58 implying that majority of the participants disagree that Tramadol intake has a bearing to the user's state of depression and anxiety.

Aggressiveness, Seizures and Inattentiveness or the inability to focus had mean values of 3.04, 3.18 and 3.26 respectively meaning that majority of the participants are indifferent and are neutral of tramadol being a trigger of aggressiveness, seizures and a user's ability to focus on an activity.

Also, majority of the participants agrees that, tramadol use can result in dependence on the drug, Nausea and road accident given their mean values of 3.72, 3.99 and 4.07 respectively.

Lastly, majority of the participant strongly agree that tramadol use is a key trigger sleepiness and dizziness given it mean value of 4.37 (Table 15).

It was found that, individuals who use tramadol were not aggressive people, even in circumstances of a justified aggression, they resort to non-aggression. According to some participants during a focus group discussion:

> *''... I can have a fierce argument right now which can lead to us throwing fists against each other, but as soon as I take tramadol, I would come to you to apologize and seek to make amends''* ***(Number 12, FGD Participants, Aboabo).***
>
> *''If I am under the influence of tramadol, you can heap insults and vilify my character as much as you want, I won't pay attention to you…''* ***(Number 10, FGD Participants, Access terminal).***

Also, it was reported that seizures occur to users based on the circumstance they find themselves and how their systems respond to such circumstances. These was confirmed by participants in a Focus Group Discussion. According to them:

> *''I always experience seizures when after taking in Tramadol, I don't get food to it*'' ***(Number 5, FGD, Access Bank terminal)***

> *''It can also lead to seizures and even death eventually when you take tramadol and you stay long hours in the sun''* ***(Number 9, FGD, CBG terminal)***

> *''You have seizures when you take many doses that your system can withstand''* ***(Number 2, KII, Access Bank terminal).***

However, a key informant revealed that the effects occur differently to different people based on the nature of their systems. He explained that:

> *''The under-lining fact is that the effects apply to individuals differently based on how their systems responds to the drugs''* ***(Number 2, KII, CBG terminal)***

The MTTU indicated that 8 out of 10 accidents is as a result of tramadol, he reported incidents when relatives of accident victims frequently obstructed the police from transporting the deceased's bodies to the mortuary for autopsy as another difficulty for the Metropolis's police. He added;

> *"I cannot give you exact figures of the number of fatal accidents occasioned under the influence of tramadol because, you know that here is a Muslim town, so if you die, they hurriedly go and bury you. If we were allowed to take the victim of fatal accidents to the*

mortuary for autopsy, you will see that 8 out of 10 is as a result of tramadol" ***(KI, MTTU, Ghana police service)***

Table 4.10: Reporting the Effects of Tramadol.

Perceived Effects	Minimum	Maximum	Mean	Std. Deviation
Aggressiveness	1	5	3.04	1.329
Anxiety and depression	1	5	2.58	1.235
Sleepiness/Dizziness	1	5	4.37	1.081
Road Accident	1	5	4.07	1.078
Inattentiveness/ Inability to focus	1	5	3.26	1.191
Nausea	1	5	3.99	1.457
Seizures	1	5	3.18	1.307
Respiratory failure	1	5	1.54	1.009
Dependence to drugs	1	5	3.72	0.901

Note. 5 strongly agree, 4 agree, 3 neutral, 2 disagree, 1 strongly disagree
Source: Field data (2022)

4.5 Perceived Psychological Effects of Tramadol

Investigations revealed the effect of tramadol on vision. Two tricycle accident victims who were key informants at the Tamale teaching hospital's accident ward revealed that tramadol impairs a rider's capacity to visualize the road and safe riding. They emphasized that having a clear view of the road is crucial for safe riding, therefore a rider with impaired vision runs a significant risk of being in an accident since the rider will not be able to navigate effectively under this condition. They shared their personal experiences, commenting on how tramadol or other psychoactive

substances may impair a rider's ability to perceive road signs, pedestrians, or oncoming vehicles. A key informant opined:

> *"If you drink tramol now now and go out on the road, ego hard for you to see road. If your body no strong you go see road two two. When I take tramol and ride out, it is hard say I go see bends and curves on the road or see other vehicles that are coming infront of me. My friends one time crash with another vehicle and one day I hit those who walk on foot*." ***(Number 2, KII, TTH, Accident ward)***

Tramadol use has been linked to altered cognition and coordination in riders. Tricycle riding is a delicate activity that demands extreme concentration, according to key informants. They claimed that in order to avoid getting into an accident, the rider must continually plan his movements. Psychoactive substances impair the rider's capacity to reason and plan his movements while riding. Participants believed that the probability of getting in a traffic accident increased when the ability to calculate and navigate was impaired by the use of psychoactive substance. A participant stated:

> *"When you take tramol and ride, you will not be able to think and analyze things very well because of the way the drug affects your mind and thinking. You fit make wrong moves that can lead to accident for road. You no go fit to take tramol and ride on the road and it will not affect your riding. That is why we dey call am drug. They affect everybody."* ***(Number 1, KII, TTH, Accident ward)***

Table 4.11: Reporting perceived psychological effects of Tramadol

Psychological Variables	Frequency	Percent
Remembering Events		
Yes	165	39.3
No	255	60.7
Distorted Vision, Hearing and Coordination		
Yes	283	67.4
No	137	32.6
Impaired Judgement		
Yes	351	83.6
No	69	16.4
Reduced ability to perform task		
Yes	192	45.7
No	228	54.3
Altered Perception		
Yes	326	77.6
No	94	22.4
Blackouts		
Yes	325	77.4
No	95	22.6

Source: Field data (2022)

From the table above, 255 (60.7) indicated that when under the influence of tramadol, your ability to remember events is not interrupted while 165 (39.3) believe that tramadol truly interrupts with an individual's ability to remember events. 283 (67.4) indicated that tramadol distorts and individuals' vision, hearing and coordination levels and 137 (32.6) indicated otherwise.

With the ability to issue out a fair sense of judgement, 351 (83.6) believes tramadol impairs an individual's fair sense of judgement while only 69 (16.4) do not think so.

While 228 (54.3), 94 (22.4) and 95 (22.6) participants do not agree that tramadol does not reduce the user's ability to perform task, does not alter his perception and does not trigger blackouts respectively, 192 (45.7), 326 (77.6) and 325 (77.4) participants contested these claims respectively (Table 16).

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

The important findings of the study are discussed in this chapter in relation to the study's objectives. The study starts by examining the factors associated with the use of tramadol by tricycle drivers in the metropolis, then proceeds on to discuss about the perceived effects of tramadol use among tricycle drivers. It then goes on to talk about tricycle drivers' knowledge and attitude towards tramadol use and finally examining the perceived psychological state of tricycle drivers regarding tramadol abuse.

5.1 Demographic Characteristics of Respondents

Participants' religion, educational level, and gender were investigated as socio-demographic factors. Religion is an important factor in live and has a bearing on how people lead their lives. The study revealed that 95% of participants of the study were Muslims. This is consistent with the Ghana Statistical Service (2010) population and housing census results that revealed that Muslims forms 87.6% of the population of Tamale metropolis, giving Muslims a lopsided majority position.

While the study revealed that, 172 participants (41.0%) acquired a basic level education with only 80 participants (20.5%) having no educational background at all, the 2010 population and housing census inversely identified that for males' population in the tamale metropolis with age 6 years and above, 27.7% never attended school at all with 15.1% acquiring basic level education (GSS, 2010). This finding is clearly contrary with the 2010 population and housing census.

The finding also revealed that all of the 420 participants were males. This is due to the fact that tricycle driving is a male-only profession in the Tamale city.

5.2 Factors Associated with the Use of Tramadol by Tricycle Drivers

Assessing the primary reasons why participants use tramadol, the findings revealed that a swath majority of participants use tramadol with 160 (38.1%) participants taking tramadol for physical activeness. This was arrived at after asking tramadol users to list the reasons that triggered them to the taking of tramadol, with a subsequent follow up question of further stating the three most compelling reasons out of the above stated reasons. This is consistent to Fuseini et al. (2019), who also reported that tramadol energizes most users, and as a consequence, they frequently use the drug to either de-stress after a long day at work or to gain the energy to go on with their regular activities without being weary. In line with this conclusion, Holgado et al. (2018) revealed that tramadol improves task performance in a randomized controlled study.

Nonetheless, the findings sharply contrast with Lehman (1997), who revealed in his study that tramadol causes much dizziness and sleepiness with a lower risk of chronic depression. Similarly, Hassamal et al., (2018) cited that tramadol, particularly when used in high dosages would result in tiredness and dizziness rather than activeness.

The findings also revealed that 84 (20.0%) participants engaged in the use of the drug as a pain killer to relieve them from pains. This conforms with Subedi et al. (2019) who suggested that people take in tramadol to relieve them off acute and long-term pains. He reported that, tramadol, is utilized by clinicians as a powerful therapy for both acute (including post-surgery or post-

trauma) and long term (cancer, for example) pain. In addition, a systematic study confirmed the unquestionable result tramadol has on relieving pains after outlined two cases where respondents saw a considerable improvement in their mood following the consumption of tramadol for pain treatment (Rougemont Bücking et al., 2017). Similarly, De La Peña et al. (2000) reported in his study that patients in regular wards that are without intensive continuous monitoring clandestinely take in tramadol at the blindsight of the physician to avert labor discomfort, and catastrophic pain.

The study also revealed that participants engage in the use tramadol simply because their friends or peers are into the tramadol taking business. In agreement to this finding, qualitative research conducted by Tam and Foo (2012) highlighted peer influence as a crucial driver in tramadol usage. They reported that the influence of peer is a significant factor in many teens' tramadol usage and is critical in the formation of behavior. Additionally, Anto and Danso (2021) in their study observed that individuals who had friends who took tramadol had a greater risk of abusing tramadol than those who did not have such friends. The study also agrees with a study in Egypt about the causes of addiction, it reported that, half (50%) of the participants analyzed were addicted as a result of peer influence. To add to the above findings, in Saudi Arabia, it was discovered that tramadol dependence began as a result of users acting under the influence of their friends (Habeeb et al., 2016).

The study also identified that the quest for euphoria is one of the triggers to the use of tramadol. The findings agreed with Rigg and Ibanez (2010) who stated that the first motivation for most tramadol users is to get euphoric. To add to it, Haladu (2016) identified that, one of the elements that contributes to tramadol usage is the pursuit of the euphoric effects and pleasure they experienced the first time they used tramadol. In addition, Saapiire et al. (2021) observed that, tramadol is frequently used to heighten the user's euphoria or mood.

The study showed that taking tramadol has a bearing on enhancing user's sexual performance. The West African Epidemiological Network agrees with this assertion when they stated in their report, that aphrodisiac effect of tramadol is the principal desired effect that account as one of the reasons for its continued usage by addicts and abusers in West Africa (Salm-Reifferscheidt 2018). This finding is also one that agrees with Wong and Malde (2013). They reported that tramadol improves the mean intravaginal ejaculatory transmission delay and companion sexual fulfillment scores.

Contestably, Hatzimouratidis et al. (2010) disapproved the finding based on the fact that there isn't enough data to back up tramadol's favorable effects in sexual enhancement. Similarly, based on evidence drawn from several trials (817 subjects), it was beautifully summed up by Martyn-St James et al. (2015) that a much more adverse effects, such as sexual dysfunction is highly associated with tramadol use. Also in contravention is a fascinating study by Farag et al. (2018) that confirmed that male tramadol addicts had a reduced sperm density, motility, and vitality.

5.3 Perceived Effects of Tramadol Use

The findings of the study unveiled that tramadol use does not result in Respiratory failures, with majority of participants strongly disagreeing that the intake of tramadol is a trigger of respiratory failure. This finding agrees to that of Lee et al. (1993), they identified that tramadol does not cause respiratory depression in neonates when administered intramuscularly, and would cause far less respiratory depression when the mode of administration is intravenous. Additionally, this conforms to a study conducted by Scott and Perry (2000), they showed that tramadol did not produce clinically meaningful respiratory depression at recommended therapeutic dosages, according to their findings.

Disputably, Sansone and Sansone (2009) noticed that tramadol usage for extended periods of time and at high doses is owing to results of side effects as respiratory depression. Similarly, it was showed that respiratory failure are all possible adverse effects of tramadol usage (Clarot et al., 2003).

The study also found that tramadol use does not result in anxiety, depression, aggressiveness, inattentiveness and seizures. It was shown in a study by Choong and Ghiculescu (2008) that these symptoms only shows when a tramadol user tries to avoid the drug for some time. They reported that anxiety, despair, agony, extreme mood fluctuations, aggression, seizures as well as tremors and fatigue are just a few of the symptom's participants are faced with during withdrawal.

The finding also agrees to numerous literature that debates the possibility of tramadol causing seizures. Few among such literatures are Gasse et al. (2000) who reported that, tramadol can only cause seizures in people when administered in high dosages in patients with epilepsy or in tandem with additional seizure-inducing medicines. Similarly, Gardner et al. (2000) asserted that with the range of the occurrence of seizures among tramadol users, seizures has only <1% chance of occurrence.

The finding however disagreed with Jovanović-Čupić et al. (2006) who refuted the allegation, stating that tramadol can cause seizures even when administered at the appropriate dosage and without any co-medications.

The study also showed that tramadol use can result in the user's dependence on the drug. This finding is supported by research undertaken by Zabihi et al. (2011) in Northern Iran in 2007-2008. They revealed in their study that revealed that roughly two-thirds of the 162 participants indicated dependency criteria. Conclusions were drawn that there was a high potential of Tramadol

dependency in the use of Tramadol. Lanier et al. (2010) seems to agree with the finding tramadol results in dependency but on condition that an individual has taken in repeated doses. They put it succinctly that, even though tramadol appears to bear a low dependency when compared to more potent alternative analgesics such as heroin, it is clear that repeated dosages of tramadol can cause tramadol physical dependence similar to that seen with other opioids, and due care must be exercised when administering tramadol to someone at the risk of abusing substance.

The study again found that tramadol use is a key trigger of sleepiness and dizziness. This finding agrees with research conducted by Cossmann and Wilsmann (1987). They showed that dizziness (5.3%) and sedation (2.4%) recorded as the most prevalent adverse effects.

Additionally, the finding is similar to Lehman (1997) and Clarot et al. (2003) who both reported dizziness and sleepiness as all possible adverse effects of tramadol usage.

5.4 Knowledge, Attitude and Practice Towards Tramadol Use

The research showed that tramadol users had a fair general knowledge on tramadol. A high proportion of the participants correctly indicated that tramadol is not an illicit drug, 348 (82.9%), illicit drugs cannot be prescribed by doctors and are not legal, 254 (60.5%), tramadol can have a negative effect on the user's health, 258 (61.4%), and that an individual can be mentally challenged due to tramadol use, 325 (77.4%).

Again, from further probing, it was concluded that some participants misconstrue all painkillers to be the same as tramadol. The finding agrees with a survey conducted by Badewo (2021), where it became obvious that many people who abuse the drug cannot appropriately characterize tramadol

drugs. He further suggested that many of the respondents are unfamiliar with tramadol-classified drugs and may be unable to distinguish them from other abused substances.

It was observed that quite majority (65.1%) did not have adequate knowledge on the dangers/consequences associated with tramadol abuse. A study on adolescence abuse of the drug conducted by Bassiony, et al. (2015) supported this finding reporting a limited knowledge of participants on the consequences of the tramadol abuse. Contrarily, Badewo (2021) disagreed with the finding of the study showing majority of the participants (78.4%) being aware of its abusive effect.

The research also found that tramadol users aged between the range of 20 to 29 years, learned about tramadol via their acquaintances or peers. This finding is consistent with that of Anzaku (2019), who used tramadol as a case study to analyze the critical appraisal of knowledge, attitude, and prevalence of drug addiction among adults and teenagers in Lagos State, Nigeria. He established that majority (84%) of the participants between the ages of 21-25 years affirmed they got information from their friends and peers.

Again, findings from the study showed majority (42.4%) of participants take in tramadol by adding the powdered content into energy drinks. This is consistent with a study in Wassa Amenfi, Ghana, that showed that 29% participants said they mix tramadol with an energy drink and consume it (Elliason et al., 2018).

The study again showed that tramadol users reportedly unplug and lick the powdered content of tramadol in its raw form. Raffa and Pergolizzi (2010) supported this finding and equally reporting that users of tramadol sometimes grind the pills into comparatively tiny enough pieces to lick ("snorting"). Furthermore, Vosburg et al. (2012) agreed with this observation, reporting that

licking was widespread due to the expected impact of doing so (noting the quick high, and feeling good). He found that nearly half (44%) of the participants "Always" stripped away foreign matter before licking, citing equal frequency either a desire for only the drug in the powder for a more immediate high (16%) or a dislike of the shell's properties, such as being sticky, irksome or scorching the nose, or experiencing dust in the nose (16%).

The study again identified that participants take tramadol by injecting it into their bodies through the veins. Abd El-Azim (2001) agrees with this finding and thus established that the intravenous route is acknowledged as one of the most prevalent tramadol administration patterns in Egypt. His study in Egypt discovered that the most prevalent methods of delivery were intravenous in 46.8% of cases and oral in 40.3% of instances.

Nonetheless, Hom (2013) disagrees with our result indicating that licking, snorting and injecting tramadol increases the perceived intensity of the effects. According to him, while tramadol pills are intended for oral use, it ought not be crushed and utilized for inhalation or injection. Inhaling and injecting it increases the perceived intensity of the effects, thereby resulting in high amounts of it entering the circulation, making it more effective for overdosing and potentially producing bad consequences including seizures.

The study also found that, the majority (33.3%) participants of tramadol users within the Tamale metropolis obtained the drug from agents/suppliers in the forest, 85 (20.2%) from the pharmacy, 76 (18.1%) come by the drug from agents who brings it to them at their workplaces, 68 (16.2%) obtain the drug from drug peddlers (mostly known as the ‘’Abokyi’’ people). Fuseini et al. (2019) similarly pointed out that tramadol is readily available in pharmacies, chemical shops and the black market in Ghana and can be acquired without a prescription due to the mere fact that the drug is

not on the list of controlled substances regulated by the Food and Drugs Authority in Ghana, because it is believed to have a low misuse potential. Additionally, Peprah et al. (2020) backed the finding of the study adding that, though the drug is a prescription drug, participants emphatically explained that they acquire the drug without any prescription note at an affordable cost mostly between 5 and 10 Cedis.

A study on the insurgence of tramadol abuse among Jirapa municipality's most active population also confirmed that the majority (81.5%) of participants voted "yes" for licensed chemical shops and pharmacies as the main and reliable source of tramadol. Not surprisingly, nearly 61.1% of respondents chose black markets from agents and suppliers as the second most reliable source, while 36.7% chose drug peddlers (abokyi) as the third most primary sources of tramadol (Sapiire et al., 2021).

The study also revealed the average daily dosage (milligram) intake of tramadol among tricycle drivers in the tamale metropolis being 155.48 ± 91.6 mg. This contravenes and infracts on the dosage limits of 50 mg and 100 mg in tablets and capsules, as well as 50 mg/ml-2 ml in injections, approved by the FDA for usage in Ghana, establishing the abuse of tramadol by tricycle drivers in the Tamale metropolitan assembly. This finding is consistent with the findings of Sapiire et al. (2021), who reported a daily average milligram intake of tramadol of 100mg±42.6 mg. He concluded that it was possible that approximately 32.9% of participants abuse tramadol without knowing the various strengths/dosages they take. Regardless of the strength, 17.1% of study participants can take at least four tablets/capsules at the same time. The vast majority of respondents prefer dosages of 100 mg.

5.5 Perceived Psychological State of Tricycle Drivers Regarding Tramadol Abuse.

The study found that when under the influence of tramadol, the user's ability to remember events is not interrupted, also, tramadol does not reduce the user's ability to perform task, does not alter users' perception and does not trigger blackouts

This finding is consistent with Okertchiri (2018), who reported that participants stay in the practice for a variety of psychological and physical fulfillment, including attentiveness and high energy levels. Sapiire et al. (2021) reported similar results on memory, concentration and attentiveness, as well as a sense of hope. He came to the conclusion that a few of the participants mentioned alertness and attentiveness as another reason for their constant tramadol use. The drug causes the participants to become more focused, alert, and attentive to their daily activities. Again, this finding is consistent with Bar-Or et al. (2012) who demonstrated in a randomized control trial that tramadol has an impact on stimulus processing related to sustained attention.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This study was designed to assess tramadol use among tricycle drivers in the Tamale metropolitan assembly. The study employed a mixed method with both qualitative and quantitative techniques. The study used a sample size of 475 composed of 420 sample size for quantitative components and 55 sample sizes for the qualitative components. This chapter presents the summary, conclusions and recommendations drawn from the findings of the research.

6.1 Summary of Finding

The youngest participant was aged 17 years old and a 38-year-old was identified as being the oldest participant in the study. The study showed that all participants were males, reflecting the fact that no single female drives a tricycle in the Tamale metropolis. Majority of tricycle drivers in the Tamale metropolis have attained the basic education as their highest education level. Majority of tricycle drivers in the metropolis have been using tramadol for the past one to three years. Again, Majority of tricycle drivers using tramadol are Muslims, unmarried and do not live with their families or guardians but rather with friends.

Findings also indicated that of all the (100%) participants using tramadol, only a few 12 (2.9%) participants are identified as using the drug under physician prescription, the rest of the 408 (97.1%) participants in a way take in the drug without a prescription from a physician which in a way amount to abusing the drug. It was also observed that, the three most compelling reason why

they abuse tramadol are to reinvigorate themselves and become physically active (38.1%), to relieve pains (20.0%) and peer pressure (14.5%).

Several sociodemographic factors, including tramadol users' level of education, a user's religion, users' marital status, family history of drug abuse, users living setting, and a user's age were not associated with tramadol abuse among the study participants. Thus, there is no relationship between the sociodemographic of an individual and their use of tramadol.

Participants between the ages of 20 – 29 first learned about tramadol via their friends or peers. This informs how strong the influence of peers can have on an individual's behavior. It was noticed that tramadol users had a fair knowledge about the drug. Also, finding indicated that, there was an association between an individual's level of education and their general knowledge on tramadol. Meaning that, the higher the educational level of the participants the more informed and knowledgeable he is about the drug he uses.

The study showed that tramadol users take in tramadol by adding the powdered content into energy drinks, others indicated they swallow tramadol with water, while others take tramadol by injecting it into their bodies through the veins. Also, it was noticed that some mixed tramadol with Marijuana, a process they identified as ''Tar'' and others also, unplug the capsule and crush the tablets into powdered pieces or content and lick it after throwing the Coates, a process they term as ''leaning''.

The study showed that tramadol users within the Tamale metropolis obtain the drug from agents/suppliers in the forest, from the pharmacy, from agents who brings it to them at their workplaces, drug peddlers who peddle on the street of Tamale with the drug without license

(mostly known as the ‘’Abokyi’’ people) while others acquire the drug from friends who are health workers.

Averagely, the daily dosage (milligram) intake of tramadol among tricycle drivers in the tamale metropolis was 155.48 ± 91.6 mg with the vast majority abusing tramadol by taking in various unapproved strength/dosages of 500, 250, 200 and 150 dosages (mg) respectively.

The study discovered that, respiratory failures, anxiety and depression, aggressiveness, seizures and inattentiveness or the inability to focus are not perceived efffects of tramadol use

Meanwhile, tramadol use can result to dependence on the drug, nausea and road accident, sleepiness and dizziness. Thus, effects occur differently to different people based on the nature of their systems and how the system reacts to the drug.

From the finding, it is indicated that when under the influence of tramadol, while your ability to remember events is not interrupted, your vision, hearing and coordination levels are distorted and your ability to issue out a fair sense of judgement is impaired. It was also noticed that tramadol does not reduce the user’s ability to perform task, does not alter his perception and does not trigger blackouts.

6.2 Conclusion

This research has brought to light the reasons for the pervasive tramadol use among the tricycle drivers in the Tamale metropolis. Consistent with findings from other countries, this study to discovered the need to reinvigorate themselves and become physically active (38.1%), to relieve

pains (20.0%) and peer pressure (14.5%) as the three most compelling factors that often usher tricycle drivers into the practice of tramadol abuse.

Tricycle drivers who use tramadol had a fair knowledge about the drug, also, the higher the educational level of the participants the more informed and knowledgeable he is about tramadol.

Averagely, the daily dosage (milligram) intake of tramadol among tricycle drivers in the tamale metropolis was 155.48 ± 91.6 mg

Nausea and road accident, sleepiness and dizziness are possible effects of tramadol use. While, respiratory failures, anxiety and depression, aggressiveness, seizures and inattentiveness or the inability to focus are not perceived effects of tramadol use. The psychological effects associated with tramadol includes vision, hearing and coordination distortion and also user's ability to issue out a fair sense of judgement is impaired.

Finally, the availability of tramadol in the tamale metropolis should be strictly regulated, as its abuse among tricycle drivers is on the ascendency. It is a real problem that must be addressed with a concerted effort because it is long overdue and the time has come to act.

6.3 Recommendations

Based on the findings of the study, the researcher recommends the following:

1. The National Road Safety commission should enact strong legislation and actions addressing traffic offenses including riding while intoxicated.
2. The Ghana Pharmaceutical Society should limit dosages above 100 milligrams to healthcare facilities

3. Again, NGOs and youth establishments in the Tamale metro area should organize programs to help tricycle drivers live and work peacefully and sensitively without being influenced to use tramadol, regardless of how effective and efficient tramadol is seen to be.
4. Community-based outreach programs be organized by Social Welfare Organizations with support from interested Non-Governmental Organizations to sensitize tricycle drivers on the best way to disaffiliate and how to control their innate and learned desires towards tramadol use, as this will help them understand how negative tramadol may be to their lives.
5. The Narcotic Control Board fund anti-tramadol campaigns through the media (television, internet, and radio) in order to achieve a tramadol-free metropolis. This ensures that education reaches everyone.
6. Because peddlers, forest bases, and agents are the primary sources of the drug, there should be a regulatory mechanism in place by MMDCS, NGO's, MOH, GHS to ensure that these individuals are discouraged from distributing the drug.
7. The district's health educators should increase and consolidate their education on the negative effects of tramadol use on tricycle drivers, passengers, pedestrians, and the nation as a whole.

6.4 Suggestions for Further Studies:

- A study should be conducted to determine why people aged 20 to 29 have a high prevalence of tramadol abuse in the Tamale metropolis.
- Studies should be conducted to identify ways to prevent/reduce the high prevalence of tramadol abuse in Tamale Metropolis.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

UNIVERSITY FOR DEVELOPMENT STUDIES

QUESTIONNAIRE ON FACTORS INFLUENCING THE USE OF TRAMADOL AMONG TRICYCLE (YELOYELO) DRIVERS IN THE TAMALE METROPOLIS.

Introduction: *These questionnaires are designed to collect data for an MPhil thesis in Community Health and Development. on the topic factors influencing the use of tramadol among tricycle (Yeloyelo) drivers in the tamale metropolis. Participation is voluntary and the accuracy of the results of this study depends largely on the sincerity of your responses to the items. Confidentiality in the responses to the questionnaire is highly guaranteed. You are requested to respond to these questions by providing the essential information required, by ticking what may be applicable or freely share an opinion as may be necessary. Thanks for your co-operation.*

QUESTIONNAIRE NUMBER ……. DATE…….....

COMMUNITY NAME……

TRICYCLE TERMINAL NAME……

Are you willing to participate in the interview? Yes [] No []

PLEASE TICK [√] OR PROVIDE BRIEF RESPONSE

PART I: *Demographic Characteristics*

1. How old are you?

Less than 15 years [] 16 – 30 years [] 31 – 60 years [] above 60 years[]

2. What is your gender?

Female [] Male []

3. What is your marital status?

Single [] Married [] Divorced [] Widow/Widower []

4. What is your level of education?

No education [] Basic Level [] Secondary level [] Tertiary level []

5. What Religion do you practice?

African Traditional Religion [] Muslim [] Christian [] Other [] (Specify) ……..

6. What kind of residential setting do you find yourself?

Family house [] Private dwellings [] Rented house [] Squatting []

PART II: *Factors Resulting in The Use Of Tramadol*

7. Whom do you live with at home?

Father [] Mother [] Both Parents [] Guardian []

8. What is the marital Status of parents/guardian?

Single [] Married [] Divorced [] Separated []

9. Has any of your immediate family member ever use tramadol?

Yes [] No []

10. If yes, was it recommended to them by a doctor or it was through their own discretion?

Doctor's prescription [] Personal discretion []

11. Do you agree that peer influences affect your recommendation on the use of tramadol?

Strongly agree [] Agree [] Neutral [] Disagree [] Strongly disagree []

12. What impact do you think each of the following items has in tramadol use? Please rate each element on a scale of 1 to 3 based on its influence; where **1= no influence, 2 = influential, 3 = very influential.**

	1	2	3
To increase physical performance			
To enhance sexual performance			
To relieve pain			
Frustration, to relieve frustration			
Parental influence			
Peer group influence			
Access to drugs			
Presence of an addicted person in the family			
Low cost of drugs			

History of abuse of other drugs			
Posttraumatic/pain management dependence			
Lack of knowledge about complications of drugs			
Parents' divorce			
Increase personal euphoria (to get high)			
curiosity			

PART III: *Knowledge, Attitude and Practice of Tramadol*

13. How did you first find out about Tramadol?

Family [] School [] Friends [] physician []

14. Is Tramadol an Illicit drug?

Yes [] No []

15. Illicit drugs are not prescribed by doctors and are illegal?

Yes [] No []

16. The handling and use of illicit drugs are punishable by law?

Yes [] No []

17. Tramadol can have a negative effect on your health?

Yes [] No []

18. Do you know a person sick/mentally challenge due to tramadol use

Yes [] No []

19. How frequent do you take Tramadol?

When available [] Daily [] Weekly [] Monthly []

20. what is your route of intake?

Oral [] Intravenous [] Rectal suppositories []

21. Who administers it to you?

Family members [] Friends [] Health workers []

22. What outcome do you think Tramadol has on the Sexual behavior of users?

Increase [] Decrease [] No effect []

23. How are you able to afford the drugs?

From Peers [] Family member [] Out of pocket money [] Menial job []

24. Where do you acquire the Tramadol?

Licensed chemical dealers [] Drug peddlers [] Black markets [] Hospital []

PART IV: *Effects of Tramadol use*

25. How long have you been taking Tramadol?

Less than 1 year [] between 1- 3 years [] 4 years and above []

26. Have you ever had an accident while driving under the influence of tramadol?

Yes [] No []

27. If yes, how many times have you had accidents while under the influence of tramadol?

Less than 3 times [] between 3 – 5 times [] more than 5 times []

28. Have you gotten into fights when under the influence of tramadol?

Yes [] No []

29. Rank on a Liker scale of 1-3, how the following stated tramadol use consequences affect the user. Where **1 = No severity, 2 = Severe, 3 = Very Severe**

EFFECTS	1 = No severity	2 = Severe	3 = Very Severe
Anxiety and depression			
Aggressiveness			
Sleepiness/Dizziness			
Road Accident			
Inattentiveness/ Inability to focus			
Nausea			
Seizures			
Respiratory failure			
Dependence to drugs			

PART V: *Psychological State of Tricycle Drivers Regarding Tramadol use*

30. Do you find it difficult keeping track of time or remembering events?

Yes [] No []

31. Do you have distorted vision, hearing, and coordination?

Yes [] No []

32. Do you experience impaired judgment?

Yes [] No []

33. Do you have an impaired or reduced short term memory?

Yes [] No []

34. Do you experience a reduced ability to perform tasks requiring concentration and coordination such as driving a car?

Yes [] No []

35. Do you experience an altered perceptions and emotions (hallucinations)?

Yes [] No []

36. Have you had "blackouts" or "flashbacks" as a result of tramadol use?

Yes [] No []

THANK YOU VERY MUCH FOR YOUR TIME AND EFFORT

APPENDIX 2: INTERVIEW GUIDE

Qualitative Interview Guide for Key Informants and Focus Group Discussion

1. Interview Guide for Key informants at tricycle terminals.

Introduction

I am conducting a study to assess the factors associated with the use of tramadol among tricycle drivers in the Tamale metropolis. I will be deeply grateful if you could make some space to accommodate me within this little period to help me complete this interview. I wish to expressly state, that any information you volunteer to me will be private and confidential and used purely for academic purposes. Your participation in this interview is termed voluntary; you may wish to skip some questions or exit the study at any point you feel the need to do so. Thank you so much for your time and audience.

Participant code…….. Date of Interview……

Tricycle Terminal Name…….

Demographics

1. How old are you?
2. What is your level of education?
3. For how long have you been working as a tricycle driver?
4. What is your title or role at this tricycle terminal?

Factors Associated with the Use of Tramadol

5. Can you please tell me how some tricycle drivers end up using tramadol?

6. What are some of the reasons why tricycle drivers take in tramadol?
7. Tell me the benefits they get from it?

Perceived Effects of Tramadol Use

8. Tell me how you view their health status after using tramadol for sometime
9. What health challenge do they experience? Which is most serious**?**
10. Could you tell me the symptoms of some of the illness they face?

Knowledge And Attitude Regarding Tramadol Use

11. Do tricycle drivers report tramadol related issues? If yes, what are some of the issues?
12. Where do they get it to buy or how do they come by the tramadol?
13. Where do they get money to buy it?
14. How do they take it?
15. Do you think they know about the adverse effects of tramadol?

Perceived Psychological State Regarding Tramadol Abuse

16. How do they relate with their other colleagues and clients when they are under the use of tramadol?
17. Do you record large cases of accidents at this terminal? And could this be attributed to the influence of tramadol?

2.Interview Guide for Focus Group Discussion

Introduction

I am conducting a study to assess the factors associated with the use of tramadol among tricycle drivers in the Tamale metropolis. I will be deeply grateful if you could make some space to accommodate me within this little period to help me complete this interview. I wish to expressly state, that any information you volunteer to me will be private and confidential and used purely for academic purposes. Your participation in this interview is termed voluntary; you may wish to skip some questions or exit the study at any point you feel the need to do so. Thank you so much for your time and audience.

Participant's code…….. Date of Interview……

Tricycle Terminal Name……

Demographics

2. How old are you?
3. What is your level of education?
4. For how long have you been working as a tricycle driver?
5. What is your title or role at this tricycle terminal?

Factors Associated With The Use of Tramadol

6. Can you please tell me how some tricycle drivers end up using tramadol?
7. What are some of the reasons why tricycle drivers take in tramadol?
8. Tell me the benefits they get from it?

Perceived Effects of Tramadol Use

9. Tell me how you view their health status after using tramadol for sometime
10. What health challenge do they experience? Which is most serious**?**
11. Could you tell me the symptoms of some of the illness they face?

Knowledge And Attitude Regarding Tramadol Use

12. Do tricycle drivers report tramadol related issues? If yes, what are some of the issues?
13. Where do they get it to buy or how do they come by the tramadol?
14. Where do they get money to buy it?
15. How do they take it?
16. Do you think they know about the adverse effects of tramadol?

Perceived Psychological State Regarding Tramadol Abuse

17. How do they relate with their other colleagues and clients when they are under the use of tramadol?
18. Do you record large cases of accidents at this terminal? And could this be attributed to the influence of tramadol?

APPENDIX 3: ETHICAL CLEARANCE

Kwame Nkrumah
University of Science
and Technology, Kumasi

College of Health Sciences
SCHOOL OF MEDICINE AND DENTISTRY

COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Our Ref: CHRPE/AP/196/22

16th May, 2022

Mr. Seidu Toufique
Department of Social and Behavioral Change
University for Development studies
TAMALE.

Dear Sir,

LETTER OF APPROVAL

Protocol Title: *"Factors Influencing the Use of Tramadol among Tricycle (YELOYELO) Drivers in the Tamale Metropolis."*

Proposed Site: *Tamale Metropolis Tricycle Terminals.*

Sponsor: *Principal Investigator.*

Your submission to the Committee on Human Research, Publications, and Ethics on the above named protocol refer.

The Committee reviewed the following documents:

- A notification letter of 12th April 2022 from the Tamale Metropolitan Assembly (study site) indicating approval for the conduct of the study at the Hospital.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has coesidered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning **16th May 2022** to **15th May 2023** renewable thereafter. The Committee may, however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Thank you for your application.

Yours faithfully,

Rev. Prof. John Appiah-Poku
Honorary Secretary
FOR: CHAIRMAN

Room 7, Block L, School of Medicine and Dentistry, KNUST, University Post Office, Kumasi, Ghana
Tel: +233 (0) 3220 63248 Mobile: +233 (0) 20 5453785 Email: chrpe.knust.kath@gmail.com/chrpe@knust.edu.gh

APPENDIX 4: STUDY APPROVAL

TAMALE METROPOLITAN ASSEMBLY
CENTRAL ADMINISTRATION

Our Reference: DCS54/S51/01/15 Date: 12/4/2022

RE: LETTER OF SUPPORT FOR MR. SEIDU TOUFIQUE'S STUDY

We refer to your letter no. 07/02a/2012 dated 25th March, 2022 on the above subject matter refers.

2. We write to you granting Mr. Seidu Toufique permission to undertake his research study titled: ***"Factors Influencing the use of Tramadol among Tricycle Drivers in the Tamale Metropolis".***

3. Thank you

For: METROPOLITAN CHIEF EXECUTIVE
(GILBERT B. NUURI TEG)
METROPOLITAN COORD DIRECTOR

DR. ABUKARI SALIFU
SCHOOL OF PUBLIC HEALTH
UNIVERSITY FOR DEVELOPMENT STUDIES
TAMALE

CC: Seidu Toufique
Student, School of Public Health
University for Development Studies

GPS: NT-0008-7467 P.O. BOX 4 TAMALE tamalemetro.gov.gh TEL: 0372022950