



## The misuse of Tramadol among children and youth and the need for having efficient policy and laws enforcement

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### Abstract

Tramadol, classified as a dangerous drug, is spreading among children and youth in many countries. This article aims to review and examine the misuse of Tramadol, the regulatory policies, and the gap of knowledge to be filled by conducting research. A literature review is employed to collect information. Based on the finding of researches and analysis, Tramadol is spreading in some African and West Asian countries. It is sold in general drug stores in Thailand on social media or in an internet café. Children and youth combine tramadol with a drink that has caffeine which is harmful to their physical and mental health. It is an urgent need to conduct the research and suggest the government to issue the efficient policy and law enforcement.

**Keywords:** Misuse of Tramadol, efficient policy, laws enforcement

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### 1. Introduction

Tramadol is a centrally acting analgesic with a multimodal of action. It acts on serotonergic and noradrenergic nociception, while its metabolite O-desmethyl tramadol acts on the  $\mu$ -opioid receptor. Its analgesic potency is claimed to be about one-tenth that of morphine. Tramadol is used to treat both acute and chronic pain of moderate to severe intensity. Tramadol monotherapy does not usually provide adequate analgesia. In chronic non-cancer pain, there is little evidence for the use of tramadol for more than three months.

Tramadol is considered to be a relatively safe analgesic. The main adverse reactions to tramadol therapy are nausea, dizziness, and vomiting, particularly at the start of the therapy. At therapeutic doses, tramadol does not cause clinically relevant respiratory depression. Tramadol is contraindicated, however, in patients with diminished respiratory function.

Tramadol is generally considered as a medicinal drug with a low potential for dependence relative to morphine. Nevertheless, tramadol dependence may occur when used for prolonged periods of time (more than several weeks to months). Dependence to tramadol may occur when used within the recommended dose range of tramadol but especially when used at supra-therapeutic doses. In many individuals with tramadol dependence, a substance abuse history is found.

Orally administered tramadol can produce opioid-like effects (both mentally and physically) but these effects are mild and not produced following parenteral administration. Tramadol is generally considered as a medicine with a low abuse potential relative to morphine, and this potential is associated with high dose oral tramadol. At supra-therapeutic doses and rarely at therapeutic doses, intoxications may occur.

Symptoms of tramadol intoxication are similar to those of other opioid analgesics but may include serotonergic and noradrenergic components. Symptoms include central nervous system (CNS) depression and coma, tachycardia, cardiovascular collapse, seizures, and respiratory depression up to a respiratory arrest. Fatal intoxications are rare and appear to be associated with large overdoses of tramadol and co-ingestion of other drugs (including alcohol).

Tramadol is used worldwide and is listed in many medical guidelines for pain treatment. It is mentioned as a step-2 analgesic in the WHO guidelines for cancer pain relief. Tramadol is also listed on several national essential medicines lists. It is, however, not listed on the WHO Model List of Essential Medicines (April 2013). There is growing evidence of abuse of tramadol in some African and West Asian countries considering large seizures of such preparations in North and West Africa. Abuse of tramadol is reported by Egypt, Gaza, Jordan, Lebanon, Libya, Mauritius, Saudi Arabia, and Togo. Because of the increasing rate of abuse, Egypt has up-scheduled tramadol in 2009.

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Tramadol is widely available via the Internet without a prescription. Websites provide many user reports on the non-medicinal use of tramadol. The legal status of tramadol differs internationally. In most countries, it is a prescription-only medicine. [1]

## 2. The Spreading of Tramadol

The 2017 UNODC report indicates that Tramadol use was common among younger people and peaks in childhood before 15 years. There are about 35 million users of opioids globally. Although Cannabis remains the world's most widely used illicit drug (135 million users), opioids (such as morphine, heroin, methadone, buprenorphine, codeine, tramadol, oxycodone, and hydrocodone) are known to cause the greatest negative health impact. Global trends indicate an increased misuse of opioids with a 5% prevalence reported in Europe. [2]

Historically, tramadol has been considered to have limited abuse liability [3] Reasons for use of Tramadol include the need to relax, increase strength, and sleep. [4] In the study among university students, the predictor of the use of psychoactive substances includes gender (males 5 times more than females), living away from parents, parental marital status, and staying in a hostel. [5]

There is growing evidence of abuse of tramadol in some African and West Asian countries considering large seizures of such preparations in North and West Africa. Misuse of tramadol is reported by Egypt, Gaza, Jordan, Lebanon, Libya, Mauritius, Saudi Arabia, and Togo. Because of the increasing rate of abuse, Egypt has up-scheduled tramadol in 2009. In addition to the economic toll, the World Health Organization report that globally, the yearly mortality on account of an opioid overdose was between 70,000 and 100,000 deaths.[1] Besides, tramadol abuse has dramatically increased in the Middle East region, especially in Iran. The prevalence of lifetime tramadol misuse among Iranian adolescents was 4.8% (7.6% for males and 1.8% for females) [6]

An online survey of UK university students listed Tramadol as among the most commonly misused prescription drug. [7] This trend was noted also in many parts of Asia and Africa. A study in Egypt indicated that Tramadol is the most abused opioid. [8] Tramadol abuse has dramatically increased in Egypt since 2008 and has led to many admissions to addiction treatment centers [9]. A recent Lancet world report highlights the opioid crisis in Africa and its use for non-medical purposes. [10]

A case studied In Nigeria indicates the use of a Tramadol cross-sectional study among street children in Borno Northern Nigeria, reported a 7% prevalence of Tramadol misuse. [11] In Owerri, southeast Nigeria, a survey of the use of psychoactive substances amongst

university students indicated that 53.4% admitted the use of Tramadol. [12]

According to the Tramadol Update Review Report of the World Health Organization in 2014, misuse of Tramadol has several health consequences and also associated with mortality. After frequent, prolonged tramadol use, many people develop a tolerance to the drug. This means they have to take larger doses to feel the drug's effects. Along with tolerance, tramadol users may experience withdrawal symptoms when they stop using the drug. Tramadol withdrawal can cause irritability, depression, and flu-like symptoms. People who abuse tramadol usually feel relaxed and happy. People with severe pain may also take higher doses of the drug, which puts them at higher risks of serious side effects. The risk of developing an addiction to tramadol is higher when the drug is taken with other substances, like alcohol, opioids, and sedative-hypnotics. Mixing these substances can lead to respiratory depression. It also increases the risk of seizure. [1]

## 3. Generation Z and Risk to Drugs Addiction

Biologically, a child and youth is a human being between the stages of birth and puberty. The United Nations defines the youth is those persons between the ages of 15 and 24 years. [13] while the General Medical Council uses the term 'children' to refer to younger children who do not have the maturity and understanding to make important decisions for themselves. [14]

The children and youth term is replaced by the term generation Z in September 2000.[15] Generation Z refers to the generation that was born between 1996-2010. This generation has been raised on the internet and social media, with some the oldest finishing college by 2020 and entering the workforce.

Generation Z, is the youngest, most ethnically diverse, and the largest generation in American history, comprising 27% of the US population. The Pew Research recently defined gen Z as anyone born after 1997. Gen Z grew up with technology, the internet, and social media, which sometimes causes them to be stereotyped as tech-addicted, anti-social, or "social justice warriors." [16]

As global connectivity soars, generational shifts could come to play a more important role in setting behavior than socioeconomic differences do. According to a new Pew Research Center analysis of Bureau of Labor Statistics data, overall teens (ages 15 to 17) spend an hour a day, on average, doing homework during the school year, up from 44 minutes a day about a decade ago and 30 minutes in the mid-1990s. Teens are also getting more shut-eye than they did in the past. They are clocking an average of over nine and a half hours of sleep a night, an increase of 22 minutes compared with teens a decade ago and almost an hour

more than those in the mid-1990s. Sleep patterns fluctuate quite a bit – on weekends, teens average about 11 hours, while on weekdays they typically get just over nine hours a night. Teens now enjoy more than five and a half hours of leisure a day (5 hours, 44 minutes). The biggest chunk of teens' daily leisure time is spent on screens: 3 hours and 4 minutes on average. This figure, which can include time spent gaming, surfing the web, watching videos and watching TV, has held steady over the past decade. On weekends, screen time increases to almost four hours a day (3 hours, 53 minutes), and on weekdays teens are spending 2 hours and 44 minutes on screens. Time spent playing sports has held steady at around 45 minutes, as has the time teens spend in other types of leisure such as shopping for clothes, listening to music and reading for pleasure. Time spent by teens in other leisure activities has declined. Over the past decade, the time spent socializing – including attending parties, extracurricular, sporting or other entertainment events as well as spending time with others in person or on the phone – has dropped by 16 minutes, to 1 hour and 13 minutes a day. Teens also are spending less time on paid work during the school year than their predecessors: 26 minutes a day, on average, compared with 49 minutes about a decade ago and 57 minutes in the mid-1990s. Much of this decline reflects the fact that teens are less likely to work today than in the past. [17]

Larry D. Rosen (2010) studied "The influence of modern technology on the lifestyle of each generation in the United States of America" It was concluded that generation Z is the group that uses the most media per day. [18] which consistent with Grail Research (2010) found that the behavior of media exposure of Generation Z influenced by online media a lot have a passion for interactive media and social networks. [19]

The research on generation Z in Thailand which is conducted by Wendy Colleen Farrell and Tipnuch Phungsoonthorn [20], Wunderman Thompson Intelligence [21], and Stamina Asia [22] has similar findings that gen Z account for one-third of the Thai population access to information through increasingly ubiquitous Internet access. They use smartphones multiple times a day, 86% of gen Z Thais are comfortable buying products on their mobile phones, and 84% made payment through digital wallets.

There is a lot of research on youth and drugs. The most commonly used drugs are alcohol, tobacco, and marijuana. Recently, more young people have started vaping tobacco and marijuana. There is still a lot we don't know about the dangers of vaping. Some people have unexpectedly gotten very ill or have even died after vaping. There are many different reasons why a young person may take drugs, including they want to be accepted by friends or peers who are doing drugs, abused drugs can produce feelings of pleasure, some adolescents suffer from depression, social anxiety, stress-related disorders, and physical pain. Us-

ing drugs may be an attempt to lessen these feelings of distress, some young people may take stimulants for studying or anabolic steroids to improve their athletic performance. Young people are often motivated to seek new experiences, particularly those they perceive as thrilling or daring. [23]

Therefore, It would be concluded that the gen Z who was born and raised with technological advancements, can learn and access various information in which they are interested easily and quickly. Easy and convenient access to information can lead to a risk which would influence on the attitude and behavior of the gen Z because it may lead to misguidance or having strange values, then becoming inappropriate behavior due to characteristics of children and youth are in a period of curiosity and high-spirited behavior.

#### **4. Tramadol Epidemic Among Children and Youth in Thailand**

Tramadol or "Taxi" called by Thai teenagers according to the colors of the pill is spreading rapidly among children and youth in online communities, especially those who were born in 1995 or Generation Z because they were born with the advancement of communication technology and does not prioritize families because most were born during the time that Thai society began to have a lower birth rate. The households are a nuclear family which means that it consists of only parents and a child. Parents have to go out to work. They also have little attachment to grandparents or many other relatives causing a small development in feelings of attachment to the family. [24]

The Princess Mother National Institute on Drug Abuse Treatment (2016), revealed that There are 5 cases of tramadol addiction in 2014, 9 cases in 2015, and 46 cases in 2016, which are increasing every year. [25] The drug situation report in Bangkok area in 2017 and trends in 2018 of Office of the Narcotics Control Board is found that children and youths in Department of Youth Observation and Protection Bangkok in 2017 continue misuse of dangerous drugs such as Tramadol, Procodil, cough syrup, etc were 29.9%. [26] Statistical reporting on the abuse of dangerous drugs of children and young people in Thailand had not to include clear and widespread data collection. Because dangerous drugs are not a substance abuse group. There is little study about the effects of dangerous drugs and the abuse of dangerous drug behavior. Therefore, most people are not aware if children and young abuse of the dangerous drug.

In Thailand, Tramadol has a low price and can probably be found in general drug stores, on social media such as Facebook, Line, Instagram, Twitter, or in an internet caf?, etc. Therefore, the major problem that is being currently encountered in Thailand is that children and youth misuse of tramadol. The children and youth who tried these substances thought that these

are made of the unharmed mixture and can be bought at general drug stores without a thought that it is addictive or dangerous in any way. Except for tramadol, there are other 4 drugs in which children and youth misuse them:

1) Procodyl, a transparent brown liquid, can relieve allergies. When taken, it results in sleepiness.

2) Dextromethorphan, a tablet cough syrup, its effect results inactiveness but dizziness.

3) Dimetapp Elixir, a liquid-like, is an anti-allergic medicine and a decongestant, and 4) Alprazolam, a purplish pill, is used to treat anxiety like a narcotic which can help resist drowsiness, causing semiconscious stage, intoxication, euphoria, and fun.

According to the rules, procedures, and conditions for selling drugs of the Food and Drug Administration 2015, Tramadol must be sold in pharmacies that have a license by the authoritative pharmacists only. [27] But there are a lot of pharmacies without a license sale Tramadol illegally.

It can be concluded that the Thais children and youth are at risk of using drugs or Tramadol unless there is a serious concern to protect children and youth from the danger. There is a lot of research on prevention the youth and adolescent from drugs. Prevention starts with the family. A parent has a major impact on a child's decision not to use drugs. Prevention starts when a parent starts talking with and listening to the child, help the child make good choices and good friends. Drug use is much less likely to happen if a parent spends time with the child, talk with the child about the negative effects of alcohol and drugs would have on their brains and bodies and their ability to learn or play sports, correct any wrong beliefs of a child may have i.e. everybody drinks, marijuana won't hurt health, mixed Tramadol with some soft drink isn't dangerous. By using a mix of praise and criticism, parents can correct a child's behavior without saying a child is bad. Look for activities that the entire family can do together. Remind the child that real friends do not ask friends to do risky things like use alcohol, tobacco, or drugs. Reject friends when they don't want to do something that they know is wrong. This helps children build self-confidence and learn how to make healthy and safe choices. [28]

## 5. Regulatory Policies on Tramadol

There are regulatory policies on Tramadol in many countries. This article present regulatory policies based on the literature review of some countries as follow: Canada indicates Tramadol as Substance abuse and Schedule V drug. Hong Kong, New Zealand, Singapore, Thailand, and the United Kingdom indicate as a prescription drug. Sweden indicates as Schedule I. South Africa indicates as Schedule V. USA indicates as Prescription, List of Drugs & Substances of Concern, and Schedule IV drug. (see Table 1.)

## \*Drug Scheduling [29]

Drugs, substances, and certain chemicals used to make drugs are classified into five (5) distinct categories or schedules depending upon the drug's acceptable medical use and the drug's abuse or dependency potential. The abuse rate is a determinate factor in the scheduling of the drug; for example, Schedule I drugs have a high potential for abuse and the potential to create severe psychological and/or physical dependence. As the drug schedule changes— Schedule II, Schedule III, etc., so does the abuse potential— Schedule V drugs represents the least potential for abuse. A Listing of drugs and their schedule are located at Controlled Substance Act (CSA) Scheduling or CSA Scheduling by Alphabetical Order. These lists describe the basic or parent chemical and do not necessarily describe the salts, isomers, and salts of isomers, esters, ethers and derivatives which may also be classified as controlled substances. These lists are intended as general references and are not comprehensive listings of all controlled substances.

Please note that a substance need not be listed as a controlled substance to be treated as a Schedule I substance for criminal prosecution. A controlled substance analog is a substance that is intended for human consumption and is structurally or pharmacologically substantially similar to or is represented as being similar to a Schedule I or Schedule II substance and is not an approved medication in the United States. (See 21 U.S.C. §802(32)(A) for the definition of a controlled substance analog and 21 U.S.C. §813 for the schedule.)

### Schedule I

Schedule I drugs, substances, or chemicals are defined as drugs with no currently accepted medical use and a high potential for abuse. Some examples of Schedule I drugs are: heroin, lysergic acid diethylamide (LSD), marijuana (cannabis), 3, 4-methylenedioxymethamphetamine (ecstasy), methaqualone, and peyote

### Schedule II

Schedule II drugs, substances, or chemicals are defined as drugs with a high potential for abuse, with use potentially leading to severe psychological or physical dependence. These drugs are also considered dangerous. Some examples of Schedule II drugs are: Combination products with less than 15 milligrams of hydrocodone per dosage unit (Vicodin), cocaine, methamphetamine, methadone, hydromorphone (Dilaudid), meperidine (Demerol), oxycodone (OxyContin), fentanyl, Dexedrine, Adderall, and Ritalin

### Schedule III

Schedule III drugs, substances, or chemicals are defined as drugs with a moderate to low potential for physical and psychological dependence. Schedule III drugs abuse potential is less than Schedule I and Schedule II drugs but more than Schedule IV. Some examples of Schedule III drugs are: Products contain-

**Table 1.** Regulatory policies on Tramadol.

Regulatory Policies	Australia	Canada	Hong Kong	New Zealand	Sweden	Singapore	South Africa	Thailand	UK	USA
Substance abuse		✓								
Prescription			✓	✓		✓		✓	✓	
List of Drugs & Substances of Concern										✓
Schedule F		✓								
Schedule I					✓					
Schedule IV										✓
Schedule V	✓						✓			

ing less than 90 milligrams of codeine per dosage unit (Tylenol with codeine), ketamine, anabolic steroids, testosterone

#### **Schedule IV**

Schedule IV drugs, substances, or chemicals are defined as drugs with a low potential for abuse and low risk of dependence. Some examples of Schedule IV drugs are: Xanax, Soma, Darvon, Darvocet, Valium, Ativan, Talwin, Ambien, Tramadol

#### **Schedule V**

Schedule V drugs, substances, or chemicals are defined as drugs with lower potential for abuse than Schedule IV and consist of preparations containing limited quantities of certain narcotics. Schedule V drugs are generally used for antidiarrheal, antitussive, and analgesic purposes. Some examples of Schedule V drugs are: cough preparations with less than 200 milligrams of codeine or per 100 milliliters (Robitussin AC), Lomotil, Motofen, Lyrica, Parepectolin

It can be seen that the restriction on tramadol in foreign countries is different. Some countries have announced a schedule to control tramadol clearly include Sweden, United States of America, Australia, and the Republic of South Africa while, in New Zealand, tramadol is comparable to specially controlled drugs in Thailand and, according to the study, only Canada has changed the status of tramadol into a group of narcotics, announced in Canada Gazette since on 7 July 2007.

## **6. Conclusion**

Children and youth in Thailand are considered to be vulnerable groups to the misuse of tramadol. Although the Food and Drug Administration (FDA) announced measures to control the distribution of tramadol, children and youth can easily buy it. If they continue misuse of tramadol, it will affect the physical health, mental health, and brain of children and youth in the long term.

The problem of tramadol misuse should be immediately and widely shared, such as providing knowledge to youth, explaining to the public about the situation of using drugs, the support from a happy family, the need

of regulations on the control of drug sales on the internet, the purchase from a clinic including an awareness of illegal activities by all sectors.

Protecting children and youth from the misuse of tramadol is a very important matter. Even though there is some research in Thailand on the tramadol problems, but there is a gap of knowledge on how to draw up the efficient policy as well as how to activate the law enforcement. Therefore, it is an urgent need to conduct research to tackle the misuse of tramadol.

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