

# *Chapter one*

## *Introduction*

# 1. Introduction

Tramadol (marketed as Ultram, and as generics) is a type of opioid pain killer used to treat moderate to severe types of pain. Because it is considered a controlled substance, it is available only by a doctor's prescription.<sup>[1]</sup> Tramadol abuse From the view point of the researcher can be defined as use of tramadol without medical reasons. Sociodemographic factors are the Socioeconomic characteristics of a population expressed as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage.

Tramadol lower price and availability with or/and without prescription make it very popular. It relieves psychosomatic symptoms related to stress, like headaches and abdominal pain, as well as depression and nervousness<sup>[2]</sup>. The inadequate product labeling and lacking of established abuse potential lead to the safety feeling of many physicians to prescribe it to recovering narcotic addicts and to known narcotic abusers. As a consequence, numerous reports of abuse and dependence have been received<sup>[3]</sup>.

There is growing abuse of tramadol in some African and West Asian countries, as evidenced by recent large seizures of such preparations in North and West Africa.

Abuse of tramadol has become a serious problem in Egypt and abuse has also been reported in Iran, Jordan, Lebanon, Libya, Mauritius, Saudi Arabia and Togo. In 2010, an increase of non-medical use (abuse) of tramadol in Gaza was reported<sup>[4]</sup>. In the United Arab Emirates the phenomenon of selling Tramadol in an unlawful manner has been on the rise. Twenty-one cases of

trafficking tramadol had been probed since January 2010<sup>[5]</sup>. In sudan there are no reports about the percentage of tramadol abuser.

### **1-1Statement of the problem**

- ❖ Tramadol abuse and addiction has become one of the most important public health problems in recent years.
- ❖ The abuse of Tramadol among people in sudan .

### **1-2Justification**

- ❖ To assess the effect of Tramadol abuse among Sudanese people.
- ❖ Psychoactive substance abuse problems are prevalent and widespread worldwide, and are associated with significant morbidity and mortality.
- ❖ This study shows the importance of the fact located in the sudan Strip, about abuse of the tramadol.

### **1-3Objectives**

#### **1.3.1General objective:-**

This study aims to assess the effect of socio demographic factors (age, sex, economic status, level of education) on Tramadol abuse.

### **1.3.2 Specific objectives:-**

1-To identify the knowledge, practice, and attitude of Tramadol among persons whom abuse Tramadol.

2- To suggest recommendations for policy and decision makers regarding the opportunity to stop Tramadol abuse.

### **1-4 Research questions :-**

1- Do the people who abuse Tramadol have any knowledge about Tramadol?

2- How do the persons abuse Tramadol ?

3-Does age factor affect abuse of Tramadol ?

4-Has sex effect on the abuse of Tramadol ?

5-Does the marital status factor affect abuse of Tramadol ?

6-Does the kind of occupation affect abuse of Tramadol ?

7-Does the educational status affect Tramadol abuse?

8-where does the abuser get Tramadol from?

9-what are the reasons for starting Tramadol use?

10- What are the reasons for seeking treatment for Tramadol addiction?

# *Chapter two*

## *Literature Review*

## **2. Literature Review**

It is a matter of fact that there is much less emphasis on drug abuse as a social problem in comparison to how wide spread is the menace actually is. Reports by the UNODC have shown that there has been a global increase in the production, transportation and consumption of opioids. [6]

In the recent times, Sudan has witnessed a tremendous rise in substance abuse. The problem has become more complex and alarming in the recent years. This may be attributed to:

- a) Magnitude of problem has increased many folds.
- b) New Synthetic and more addictive substances have been added to the list of abusable drugs .
- c) More and more individuals have shifted from traditional oral/smoking to injectable drugs use.
- d) Children have started abusing dependence producing substances.
- e) The age old social control measures have become ineffective [7].

Tramadol is one of the most popular and potent prescription painkillers that have been widely prescribed for long-term management of severe pain. Although the dependence potential of Tramadol is low, it is still one of the most widely abused painkillers [8].

### ***2.1 WHO Review History :-***

Tramadol was pre-reviewed for the first time at the 28th meeting of the WHO Committee in 1992. The Committee did not recommend critical review on the basis of its low abuse liability as indicated by human studies on its subjective effects and the absence of significant abuse. At the 32nd

meeting in 2000, Tramadol was again pre-reviewed. The Committee noted significant numbers of cases of withdrawal syndrome and dependence reported as adverse drug reactions, as well as its potential to produce dependence of the morphine type, and recommended critical review of Tramadol. At its 33rd meeting in 2002, the Committee decided that the information was not sufficient to recommend international control of Tramadol, but was adequate to recommend that WHO keep the drug under surveillance.

Subsequently, Tramadol was pre-reviewed at the 34th meeting in 2006. Considering that Tramadol continued to show a low level of abuse, even following the major increase in the extent of its therapeutic use, the Committee concluded that there was not sufficient evidence to justify a critical review.

## ***2.2 Operational definitions:***

### **2.2.1 Tramadol**

Is an effective analgesic in the opioid family that has somewhat lesser narcotic associated side effects. Tramadol hydrochloride is a widely prescribed, centrally acting analgesic marketed in over 90 countries. Before being released in the U.S. in 1995, the drug had been available in Europe for almost two decades. Thus, the pharmacokinetic and pharmacodynamics properties of Tramadol have been extensively investigated.

Tramadol is a novel centrally acting analgesic used for the treatment of mild to severe pain <sup>[9]</sup>. Tramadol is an oral analgesic, which stems from both norepinephrine and serotonin reuptake inhibition and direct-receptor agonism<sup>[10]</sup> .

### **2.2.1.1 Substance identification:**

#### ***A/ International Nonproprietary Name (INN):***

Tramadol

#### ***B/Trade Names:***

Tradolgesic, Tradolor, Tradonal, Tradorec, Tradosik, Tradyl, Traflash, Tragesic, Tragesik, Trail, Trak, , Tralenil, Tralgiol, Tramacalm, Tramacap, Tramacet, Tramache, Tramacip, Tramacon, Tramaconti, Tramactil , Tramacur, , Tramada, Tramader, Tramadex, Tramadin, Tramadis, Tramadoc, l, Tramadolo, Tramadolor, Tramadon, Tramadura, Tramaflam, Tramaflash, Tramaforte, Tramag, Tramagem, Tramagesic, Tramagetic, Tramagit, Tramahexal.

#### ***C/Street name:***

Trammies, Chill pills.

#### ***D/Street Names in Sudan:***

Sting

#### ***E/Physical properties:***

Tramadol hydrochloride salt is a white crystalline powder and has a bitter taste .

### **2.2.1.2 Chemistry:**

#### ***A/Chemical Name:***

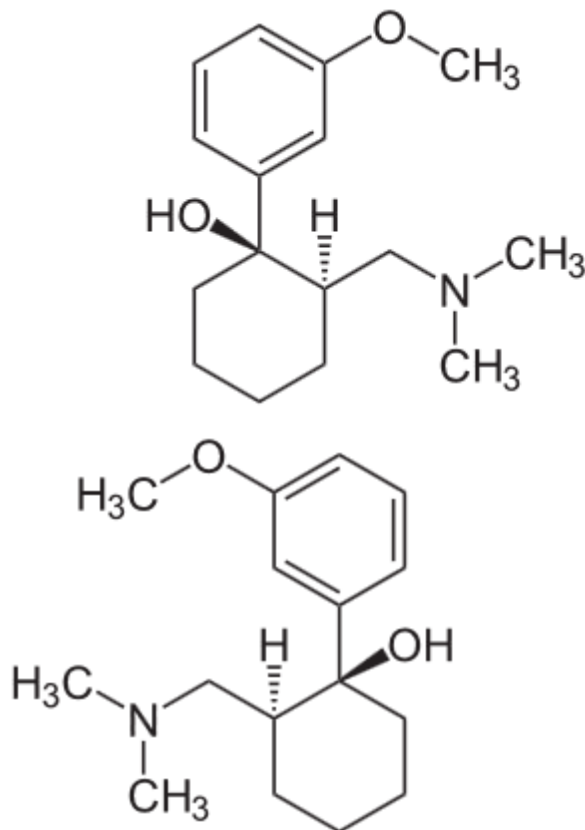
*-(1RS,2RS)-2-(dimethylaminomethyl)-1-(3-methoxyphenyl)cyclohexanol*

**-IUPAC Name:** Tramadol



## ***B. Chemical Structure:***

**Free base:** *cis*-configuration



## ***C.Synthesis:***

Tramadol was first synthesized in 1962 by Grünenthal GmbH in Germany by coupling of the corresponding cyclohexanone with 3-methoxyphenylmagnesium bromide in a Grignard reaction. More recently, the chemical synthesis of tramadol and two of its metabolites has been described by the same coupling reaction using organolithium derivatives.

### **2.2.1.3 General pharmacology**

#### **A/ Pharmacodynamics:**

Tramadol exists as the racemic (1:1) mixture of the (+) and (-)-enantiomer. It has a multimodal mechanism of action as on the one hand the (+) and (-)-enantiomer act on the serotonin and noradrenaline reuptake, and on the other hand the O-desmethyl metabolite of Tramadol (called M1 or ODT) acts on the  $\mu$ -opioid receptor. This implies that the analgesic mechanism of action of tramadol includes both non opioid components, i.e., noradrenergic and serotonergic components, and opioid components. The (+)-enantiomer of Tramadol contributes to analgesia by inhibiting the reuptake of serotonin, the (-)-enantiomer by inhibiting the reuptake of Noradrenaline, and the O-desmethyl metabolite by binding with relative high affinity (compared to Tramadol) to the  $\mu$ -opioid receptor .

In summary, the analgesic effect of Tramadol appears to be produced in a multimodal mechanism involving the  $\mu$ -opioid system, the noradrenergic system, and the serotonergic system. Tramadol appears to act a releaser and reuptake inhibitor of serotonin, and as a reuptake inhibitor of noradrenaline, and its metabolite is active as a  $\mu$ -opioid receptor agonist. (+)-Tramadol is primarily responsible for serotonin reuptake inhibition, (-)-tramadol for noradrenaline reuptake inhibition, and the metabolite O-desmethyltramadol (M1) is primarily responsible for the agonist activity on the  $\mu$ -opioid receptor.

#### **B/Pharmacokinetics:**

##### ***a. Absorption:***

Tramadol is almost completely absorbed after oral (>90%), rectal and intramuscular administration. Average bioavailability is 70%, irrespective of

current food intake. Peak plasma concentrations after oral, rectal and intramuscular administration are reached in 1-2 hours, 3 hours, and 45 minutes, respectively. Extended-release preparations produce smoother plasma concentration profile and have lower (about half) peak concentrations after 4 to 6 hours.

***b.Distribution:***

The distribution volume of tramadol is about 2.6-2.9 L/kg bodyweight, following a 100-mg intravenous dose. Plasma protein binding is approximately 20%.

***c.Metabolism and elimination:***

Tramadol is extensively metabolised in the liver by demethylation, oxidation and conjugation (sulphation and glucuronidation). Oral tramadol is eliminated in urine (90%) and the faeces (10%). About 30% of an oral dose is excreted unchanged in the urine, and about 60% in the form of free and conjugated metabolites.

**2.2.2 Substance abuse:**

Refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs <sup>[11]</sup>.

The DSM defines substance abuse as a pattern of maladaptive substance use that is associated with recurrent and significant adverse consequences (DSM-IV).

**2.2.3 Drug abuse**

The term opioids refers to a class of psychoactive substances derived from the poppy plant including opium, morphine and codeine, as well as semi-synthetic forms including heroin and synthetic compounds including

methadone and buprenorphine with similar properties<sup>[11]</sup>. Illicit use of opioids generally involves injecting, or inhaling the fumes produced by heating the drug.

People who abuse drugs may present with a range of health and social problems other than dependence, which may include (particularly with opioid abusers):

- Physical health problems (for example, thrombosis, abscesses, overdose, hepatitis B and C, HIV, and respiratory and cardiac problems).
- Mental health problems (for example, depression, anxiety, paranoia and suicidal thoughts).
- Social difficulties (for example, relationship problems, financial difficulties, unemployment and homelessness).
- Criminal justice problems.

Many people who abuse drugs use a range of substances concurrently and regularly known as poly drug abuse. The use of opioids alongside cocaine or crack cocaine is common, with the National Drug Treatment Monitoring System (NDTMS), which collects, collates and analyses information from those involved in the drug treatment system, reporting an increase in the use of both drugs, from 18% of those presenting for drug treatment in 1998 to 24% in 2001 National Treatment Agency for Substance abuse<sup>[12]</sup>. Alcohol abuse is also common in all types of people who abuse drugs; data from the National Treatment Outcomes Research Study (NTORS) on drug abuse suggested that 22% of participants also drank alcohol frequently, 17% drank extremely heavily and 8% drank an excessive amount on a daily basis<sup>[13]</sup>.

People who abuse opioids in particular may often take a cocktail of substances, including alcohol, cannabis and prescribed drugs such as benzodiazepines, which can have especially dangerous effects in comparison with one of the drugs taken individually.

The association between drug abuse and crime also applies in the younger population., The Home Office 2004 Offending Crime and Justice Survey (The Information Centre, Lifestyle Statistics, 2006) found that young people who had used drugs in the past year were over twice as likely to have committed an offence compared with those who reported not having used drugs (52% versus 19%). In addition, young offenders who had taken a Class A drug in the past year were more likely to be frequent offenders than those who reported using other types of drugs.

### ***2.3 Etiology and maintenance of drug abuse:-***

Drug abuse is increasingly portrayed in the field as a medical disorder known as the disease model of drug misuse or abuse, in part due to advances in the understanding of the neurobiology underlying dependence <sup>[14]</sup>. There is also no question that numerous socioeconomic and psychological factors all play an important part in the etiology of drug abuse. These conceptualizations are not mutually exclusive; rather they are facets of the multi factorial a etiology of drug abuse.

The most robust evidence highlights peer drug use, availability of drugs and also elements of family interaction, including parental discipline and family cohesion, as significant risk factors for drug misuse <sup>[15]</sup>. In particular, traumatic family experiences such as childhood neglect, homelessness or abuse increase the likelihood that the individual will develop problems with

drugs later on in life<sup>[16]</sup> . Recent studies of twins, families and people who have been adopted suggest that vulnerability to drug abuse may also have a genetic component <sup>[17]</sup>, although it is unclear whether repeated use is primarily determined by genetic predisposition, or socioeconomic and psychological factors lead an individual to try and then later to use drugs compulsively. Risk factors for heavy, dependent drug use are much more significant when they occur together rather than individually.

## ***2.4 The sequence of drug abuse:-***

Drug abuse is a relapsing and remitting condition often involving numerous treatment episodes over several years <sup>[18]</sup> . While the initiation of drug use does not lead inevitably to dependence over the long term <sup>[19]</sup>, a number of factors can potentiate this developmental course. Earlier initiation of drug use increases the likelihood of daily use, which in turn results in a greater likelihood of dependence <sup>[20]</sup>.

Among people who abuse opioids, who form the predominant in-treatment population, most individuals develop dependence in their late teens or early twenties, several years after first using Tramadol, and continue using over the next 10–30 years. In a long-term outcome study up to 33 years of 581 male opioid users in the US, 30% had positive or refused urine tests for opioids, 14% were in prison and 49% were dead <sup>[21]</sup>. Longitudinal data from the US also showed that the average time from first to last opioid use was 9.9 years, with 40% dependent for over 12 years <sup>[22]</sup> . Although it is the case that problem drug users can cease drug use without any formal treatment <sup>[23]</sup> , particularly for individuals with primary cocaine or cannabis misuse, for many it is treatment that alters the course of opioid dependence. Opioids

dependence persisting through adulthood is the most prevalent among those with sustained frequent use, as high as 40% among those who have used almost daily <sup>[24]</sup>.

Although drug abuse can affect all socioeconomic groups, deprivation and social exclusion are likely to make a significant contribution to the maintenance of drug abuse <sup>[25]</sup>. That said, an association has been found between income in adolescence and early adulthood <sup>[26]</sup>, which may reflect the recreational nature of the majority of opioids use.

Factors that influence the cessation of drug use in adulthood are similar to those associated with lack of drug use in adolescence. For example, transitions into social roles with greater conventionality, responsibility and contexts that are not favorable to using drugs such as employment, marriage and pregnancy; for example, <sup>[27]</sup> and good health are not associated with long-term use. Peer pressure is a major influence on experimental use and is also likely to affect a move towards regular use. The level of drug use is again a clear predictor of continued use.

Once an individual is dependent, drug use is generally a chronic condition, interspersed with periods of relapse and remission <sup>[18]</sup>. Repeated interaction with the criminal justice system, long-term unemployment and increasing social isolation serve to further entrench drug use.

## ***2.5 Availability of Tramadol:-***

Tramadol is classified as a central nervous system depressants drug usually marketed as the hydrochloride salt (Tramadol hydrochloride). Tramadol comes in many forms, including:

**1-** Capsules (regular and extended release).

- 2- Tablets (regular, extended release, chewable, low-residue and/or uncoated tablets that can be taken by the sublingual and buccal routes).
- 3- Suppositories.
- 4- Effervescent tablets and powders.
- 5- Ampoule of sterile solution for SC, IM, and IV injection.
- 6- Preservative-free solutions for injection by the various spinal routes (epidural, intrathecal, caudal, and others).
- 7- Powders for compounding.
- 8- liquids both with and without alcohol for oral and sub-lingual administration, available in regular phials and bottles, dropper bottles, bottles with a pump similar to those used with liquid soap and phials with droppers built into the cap .

## ***2.6 Chemical identification:-***

Tramadol may be identified chemically by infrared spectroscopy, mass Spectrometry, and nuclear magnetic resonance. Gas and liquid chromatographic techniques are available.

Most commercial opioid immunoassays do not significantly cross-react with Tramadol or its metabolites and do not detect Tramadol.



## ***2.7 Therapeutic applications and extent of therapeutic use and epidemiology of medical use:-***

Tramadol is used to treat moderate to severe pain (most countries). It has a wide range of applications in both acute (postoperative, trauma) and chronic (cancer and non-cancer) pain and is worldwide available as a medicine.

Tramadol is listed in many medical guidelines for pain treatment. It is mentioned as analgesic in the WHO guidelines for cancer pain relief. In chronic non-cancer pain, tramadol may be appropriate when non-opioid analgesics are ineffective or contraindicated.

## ***2.8 Adverse effects:-***

- Vomiting
- Constipation
- Headaches
- Drowsiness
- Nausea

### ***2.8.1 Seizure Risk:***

Seizures have been reported in patients receiving Tramadol hydrochloride within the recommended dosage range. Spontaneous post marketing reports indicate that seizure risk is increased with doses above the recommended range. Concomitant use of Tramadol hydrochloride increases the seizure risk in patients taking:

- Selective serotonin reuptake inhibitors (SSRI antidepressants or anorectics),
- Serotonin-norepinephrine reuptake inhibitors (SNRIs)

- Tricyclic antidepressants (TCAs), and other tricyclic compounds (e.g., cyclobenzaprine, promethazine, etc.) or,
- Other opioids.
- MAO inhibitors
- Antipsychotics,
- Other drugs that reduce the seizure threshold (such as bupropion, mirtazapine, tetrahydrocannabinol).

Risk of convulsions may also increase in patients with epilepsy, those with a history of seizures, or in patients with a recognized risk for seizure (such as head trauma, metabolic disorders, alcohol and drug withdrawal, CNS infections). In Tramadol overdose, naloxone administration may increase the risk of seizures.

### ***2.8.2. Anaphylactoid Reactions :-***

Serious and rarely fatal anaphylactoid reactions have been reported in patients receiving therapy with Tramadol. When these events do occur, it is often following the first dose. Other reported allergic reactions include pruritus, hives, bronchospasm, angioedema, toxic epidermal necrolysis and Stevens-Johnson syndrome. Patients with a history of anaphylactoid reactions to codeine and other opioids may be at increased risk and therefore should not receive Tramadol.

### **2.8.3 Withdrawal Symptoms**

A patient who has taken excessive amounts of tramadol might find themselves suddenly empty-handed when it comes to feeding their habit. Often they try “doctor shopping” in the hope of finding a new source for the

prescription. When all attempts to acquire the drug fail, they will be subjected to painful withdrawal symptoms. Among these withdrawal side effects are:

- Nausea
- Muscle cramps
- Increased anxiety
- Body aches
- Irritable bowel syndrome
- Depression

High anxiety as these side effects of withdrawal increase, the patient will often go to any means to get more Tramadol and repeat the harmful cycle of addiction all over again.

## ***2.9 Tramadol poisonings main features and toxicity:-***

Originally it was claimed that tramadol is rather safe and has low potential for abuse. However, contradicting evidence has emerged in later stages. Food and Drug Administration has issued safety alert on this drug, including special cautions for patients who are simultaneously taking tranquilizers or antidepressants as well as individuals who consume alcohol excessively, or for those who suffer from emotional disturbances or depression. Potential misuse abuse and diversion were also stressed.

Consistently, it has been recently suggested to place tramadol into the Schedule of the Controlled Substances Act Complications in tramadol overdose are disproportionately higher <sup>[28]</sup>.

Reported tramadol overdoses are dominantly intentional acute ingestions. The majority of cases become symptomatic within the first 4 hours of ingestion.

## ***2.10 Previous studies:***

### **❖ Study of (Alafifi *et al* .,2005) Drug Misuse Among University Students In the Gaza Strip**

This study was aimed to assess the prevalence of drug misuse among university students in Gaza strip, it consist of two phase. The first phase of the project entailed surveying the high schools in the Gaza Strip and was carried out in 2002-2003. The second phase was carried out in 2004 in the universities of the Gaza Strip.

A sample of 491 students (248 males and 243 females) was randomly selected from five universities in the Gaza Strip in the second and fourth year, during the second phase of the project. The survey revealed a prevalence of use of a drug one or more times: Marijuana (4.6% of male students and 1.2% of female students); consumption of beer and other alcoholic products (7.1% among males, 2.6% among females); tried powder (heroin or cocaine) (2.8% of males and 1.6% of females); use of CNS stimulant tablets (5.4% of males, 1.3% of females); use of inhalants (9.1% of males and 1.6% of females); and use of other narcotics including ecstasy and locally made materials (1.6% of males and 0.8% of females).

❖ **The Investigation of Tramadol Dependence with No History of Substance Abuse:**

The study was to survey and assess the drug dependence and abuse potential of tramadol with no history of substance abuse. Subjects of tramadol dependence with no prior history of substance abuse were surveyed by interview. Physical dependence of tramadol was assessed using 10 items opiate withdrawal scale (OWS), and psychological dependence was assessed by Addiction Research Center Inventory—Chinese Version (ARCI-CV). Twenty-three male subjects (the median age was  $23.4 \pm 4.1$  years) referred to the addiction unit in Medical Hospital of Guangzhou with tramadol abuse problems were included in this cross-sectional study. The control group included 87 heroin addicts, 60 methamphetamine (MA) abusers, and 50 healthy men. The scores of OWS of tramadol were 0.83–2.30; the mean scores of identifying euphoric effects—MBG, sedative effects—PCAG, and psychotomimetic effects—LSD of ARCI were  $8.96 \pm 3.08$ ,  $6.52 \pm 3.25$ , and  $6.65 \pm 2.50$ , respectively,  $F = 4.927$ ,  $P < 0.001$ . Scores of MBG scale in tramadol did not differ from those in heroin and MA groups ( $> 0.05$ ) but were higher than those in healthy men ( $P < 0.05$ ). Tramadol with no history of substance abuse has a clear risk of producing high abuse potential under the long-term infrequent abuse and the high doses.

❖ **Sociodemographic profile and pattern of opioid abuse among patients presenting to a de-addiction centre in tertiary care Hospital of Kashmir**

To find out various socio-demographic variables and pattern of opioid abuse, a predevised questionnaire was administered to 200 opioid patients who presented to de-addiction center for treatment.

Majority of the participants (75%) were of young age group (20–30 years) and the mean age of subjects was 27.6 years. More than half of participants (55%) were abusing the opioid substances for < 3 years followed by 30% of the abusers who were using the opioids for 4–6 years. Oral route was the most common route(35%)of substance administration followed by chasing(13%) and intravenous(11%) routes. Diverted pharmaceuticals emerged as one of the common substances of abuse, and peer pressure was found to be the main reason to start substance abuse.

# *Chapter three*

## *Methodology*

### **3. Methodology**

#### **3.1 Study Design:-**

The design of this study is descriptive, cross sectional and university based .

#### **3.2 Data Collection Methodology:-**

In order to collect the needed data for this research we distribute questionnaires on study population in order to get their opinions about the effect of socio demographic factors (age, sex, economic status, level of education) on Tramadol abuse. Research methodology depends on the analysis of data on the use of descriptive analysis, which depends on the poll and use the main program (SPSS).

#### **3.3 Study Population:-**

The study population of this study is not defined, and there is no statistical report about the number of tramadol abusers, the researcher select two famous private psychiatric clinics to take the study sample. The study population of the present work is all males and females they recorded and treated as tramadol abusers on the two psychiatric clinics in Khartoum city.



### **3.4 Sample size and sampling procedure:-**

The researcher had an approval from the directors of the two psychiatric clinics to apply the study in their clinics, and by assessment about the number of clients who are attend the clinics to recover from tramadol every day, The sample size of the present study was calculated by collecting the sample on the 3month in two psychiatric clinics, and questionnaires were distributed to the convenient sample and 50 questionnaires are received.

### **3.5 study area :**

This study was carried out in the two psychiatric clinics in khartoum city with sample size relatively compatible, as much as possible, with the population size of each clinic. The two psychiatric clinics are .AL -idrissi Hospital for mental illness (cobar) .and Hayat center.

### **3.6 Period of study:**

The study started when the researcher have approval from directors and completed after 2 month..

### **3.7 Eligibility criteria:**

#### **3.7.1 Inclusion criteria:**

All males and females they recorded as tramadol abusers from 1.october.2015 to 30.november.2015

### **3.7.2 Exclusion criteria:**

NO Exclusion criteria.

### **3.8 Ethical consideration :**

- Approval from each person who will participate in the study.
- Approval from psychiatric clinic A.ALidrissi Hospital.
- Approval from psychiatric clinic Hayat center.

# *Chapter four*

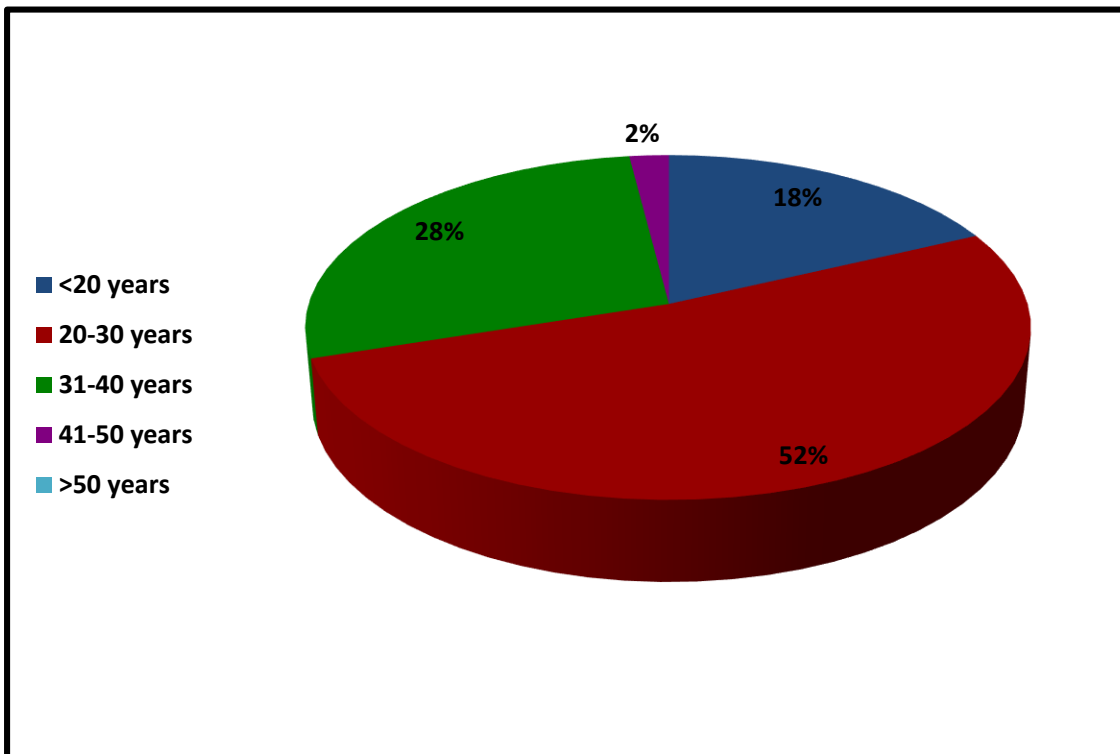
## *Results*

## 4.Results

**Table (1) Respondents by age group of Tramadol abusers**

<i>Age</i>	<i>Frequency</i>	<i>Percentage</i>
<i>&lt;20 years</i>	9	18%
<i>20-30 years</i>	26	52%
<i>31-40 years</i>	14	28%
<i>41-50 years</i>	1	2%
<i>&gt;50 years</i>	0	0%
<i>Total</i>	<b>50</b>	<b>100%</b>

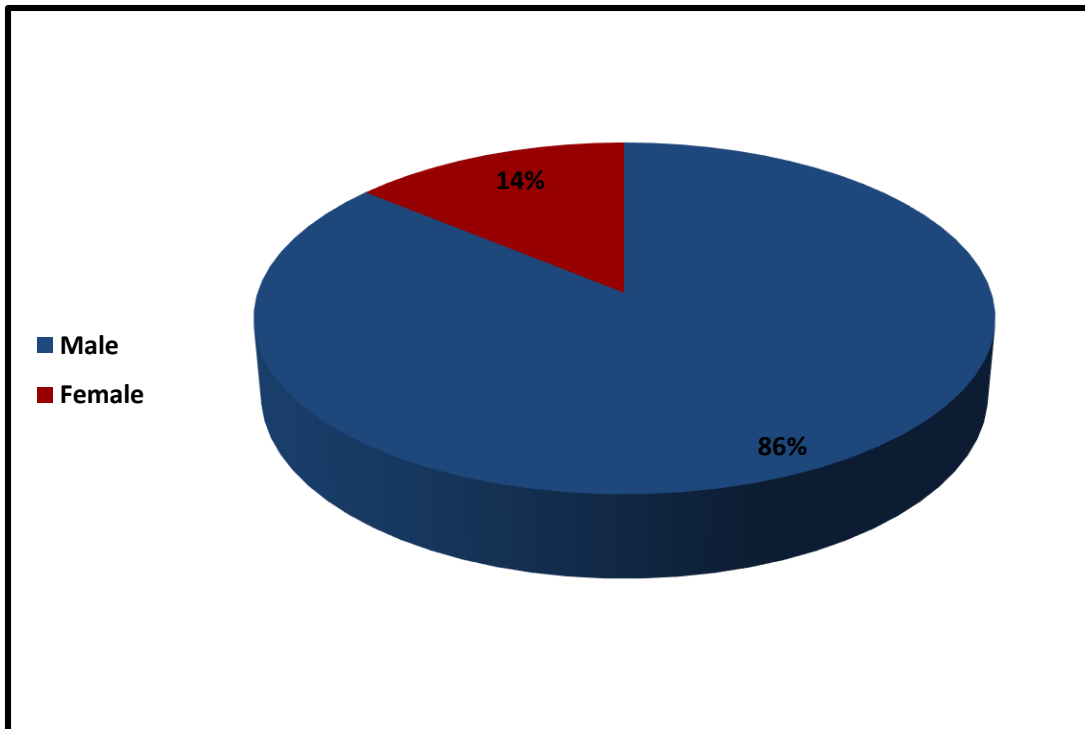
**Fig (1) Respondents by age group Tramadol abusers**



**Table (2) Sex of Tramadol abusers**

<i>Sex</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Male</i>	43	86%
<i>Female</i>	7	14%
<i>Total</i>	<i>50</i>	<i>100%</i>

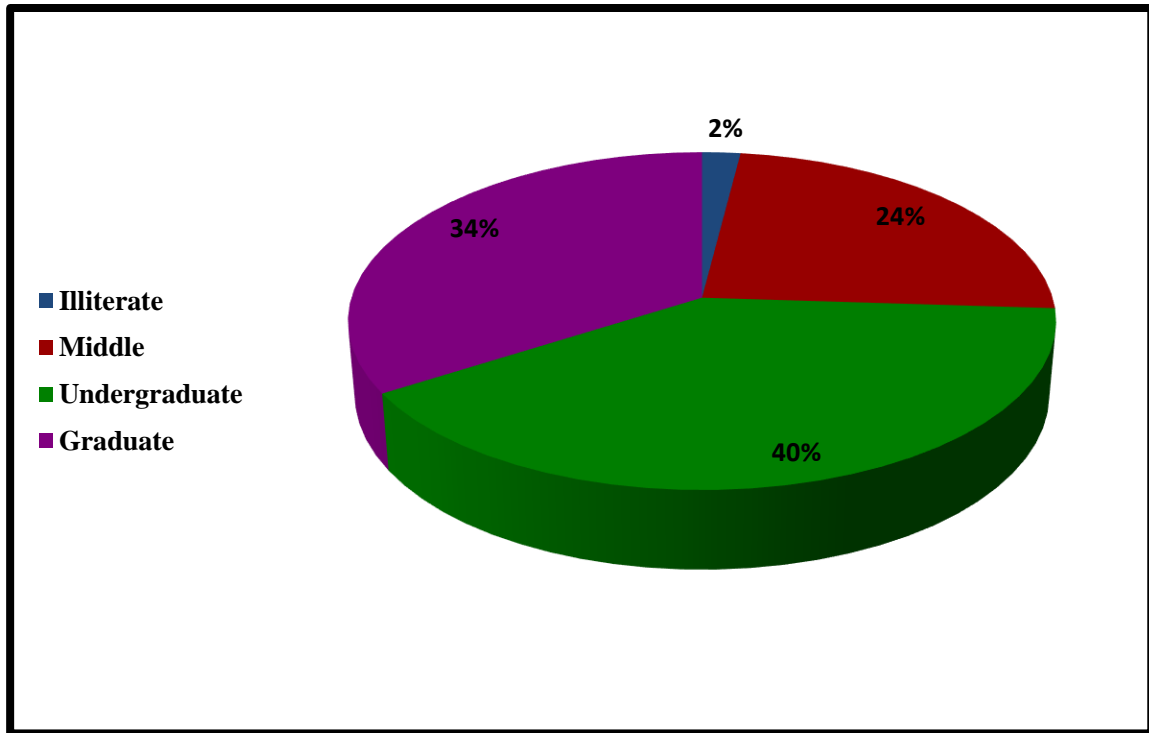
**Fig (2) Sex of Tramadol abusers**



**Table (3) Scientific level of Tramadol abusers**

<b>Educational Status</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>Illiterate</b>	1	2%
<b>Middle</b>	12	24%
<b>Undergraduate</b>	20	40%
<b>Graduate</b>	17	34%
<b>Total</b>	<b>50</b>	<b>100%</b>

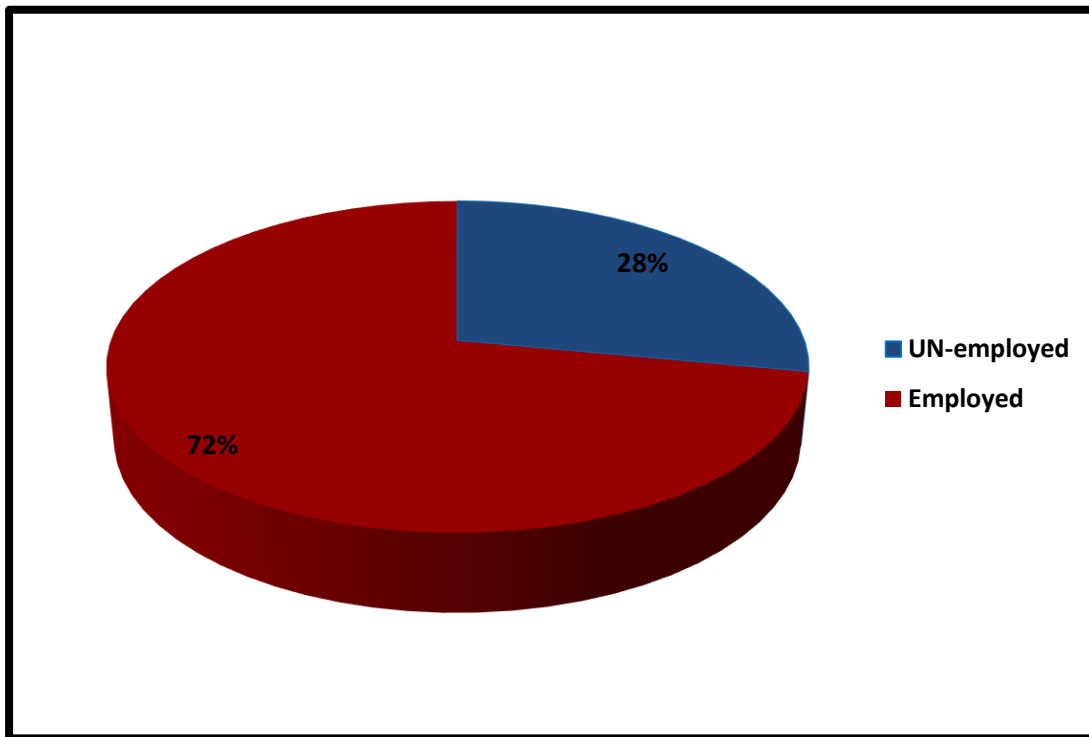
**Fig (3) Scientific level of Tramadol abusers**



**Table (4) Profession of Tramadol abusers**

<b>Employment Status</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>UN-employed</b>	14	28%
<b>Employed</b>	36	72%
<b>Total</b>	<b>50</b>	<b>100%</b>

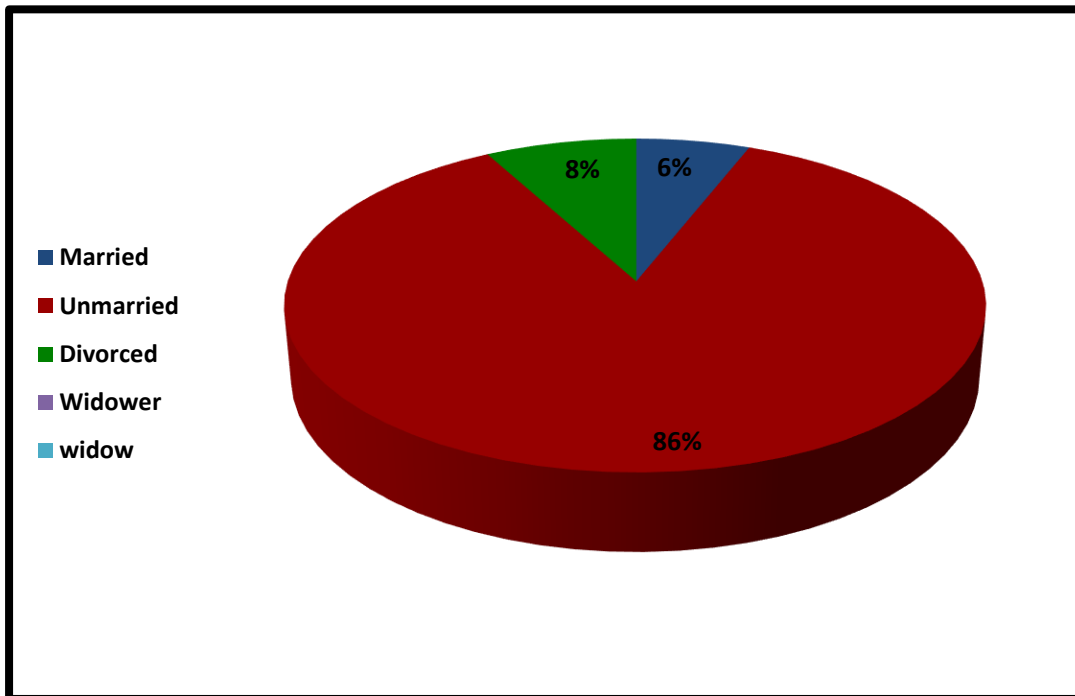
**Fig (4) Profession of Tramadol abusers**



**Table (5) Marital Status of Tramadol abusers**

	<i>Frequency</i>	<i>Percentage</i>
<b>Married</b>	3	6%
<b>Unmarried</b>	43	86%
<b>Divorced</b>	4	8%
<b>Widower</b>	0	0%
<b>widow</b>	0	0%
<b>Total</b>	<b>50</b>	<b>100%</b>

**Fig (5) Marital Status of Tramadol abusers**

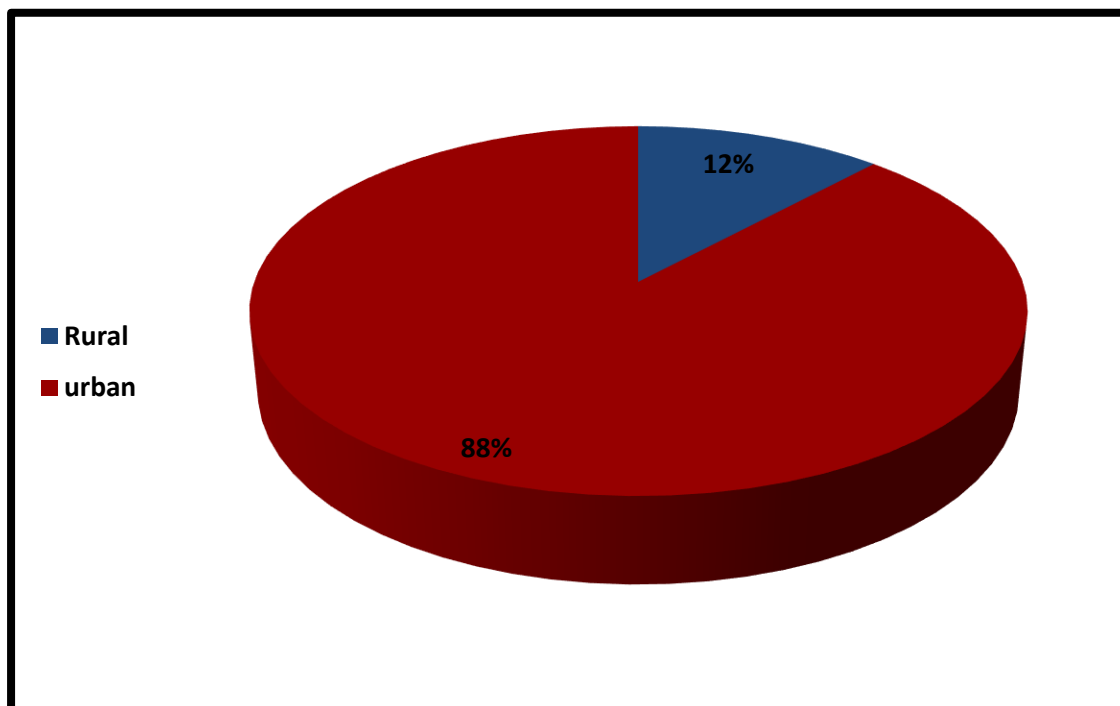




**Table (6) Residence of Tramadol abusers**

<b>Residence</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>Rural</b>	6	12%
<b>urban</b>	44	88%
<b>Total</b>	<b>50</b>	<b>100%</b>

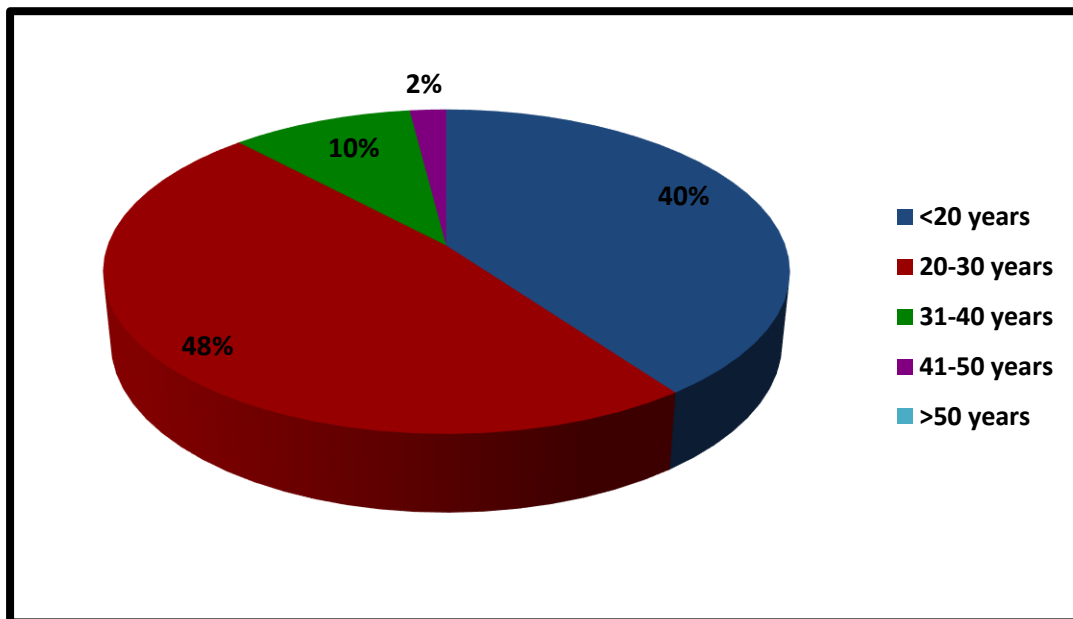
**Fig (6) Residence of Tramadol abusers**



**Table (7) Age at time of starting use of Tramadol**

<b>Age</b>	<b>Frequency</b>	<b>Percentage</b>
<b>&lt;20 years</b>	24	40%
<b>20-30 years</b>	20	48%
<b>31-40 years</b>	5	10%
<b>41-50 years</b>	1	2%
<b>&gt;50 years</b>	0	0%
<b>Total</b>	<b>50</b>	<b>100%</b>

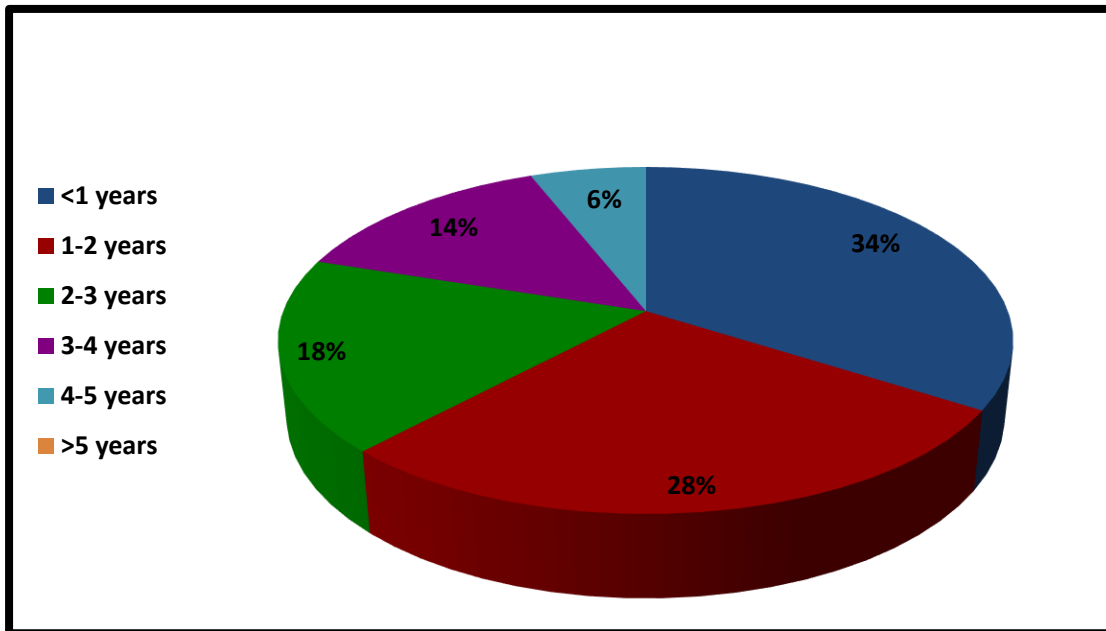
**Fig (7) Age at time of starting use of Tramadol**



**Table (8) Duration of Tramadol use**

<b>Duration</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>&lt;1 years</b>	17	34%
<b>1-2 years</b>	14	28%
<b>2-3 years</b>	9	18%
<b>3-4 years</b>	7	14%
<b>4-5 years</b>	3	6%
<b>&gt;5 years</b>	0	0%
<b>Total</b>	<b>50</b>	<b>100%</b>

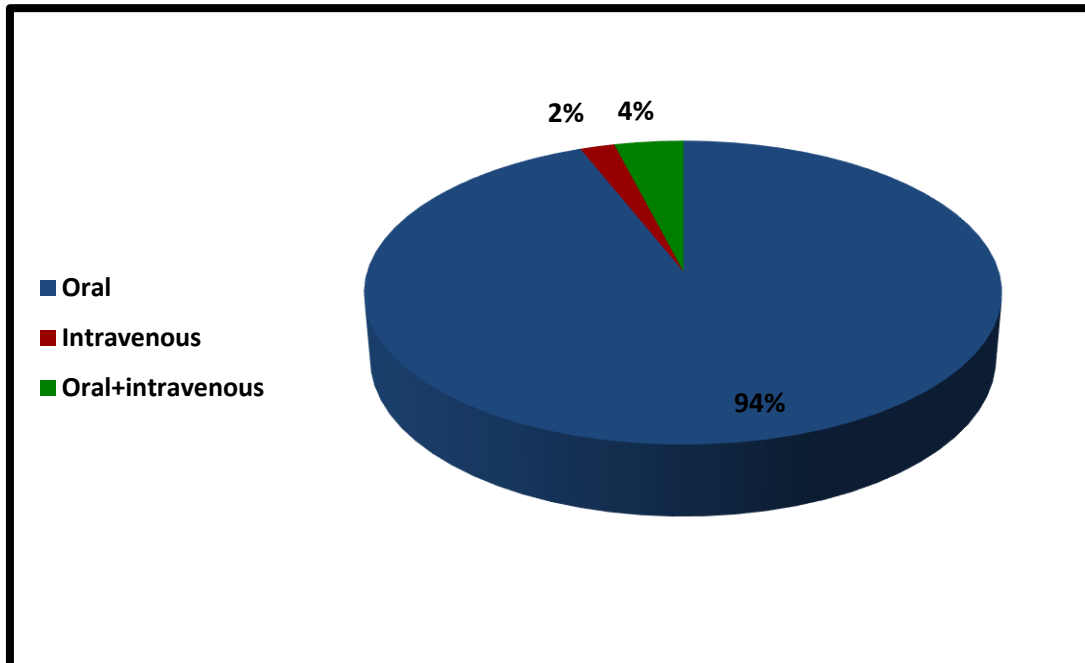
**Fig (8) Duration of Tramadol use**



**Table (9) Route of Tramadol Use**

<b>Route of Administration</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>Oral</b>	47	94%
<b>Intravenous</b>	1	2%
<b>Oral+intravenous</b>	2	4%
<b>Total</b>	<b>50</b>	<b>100%</b>

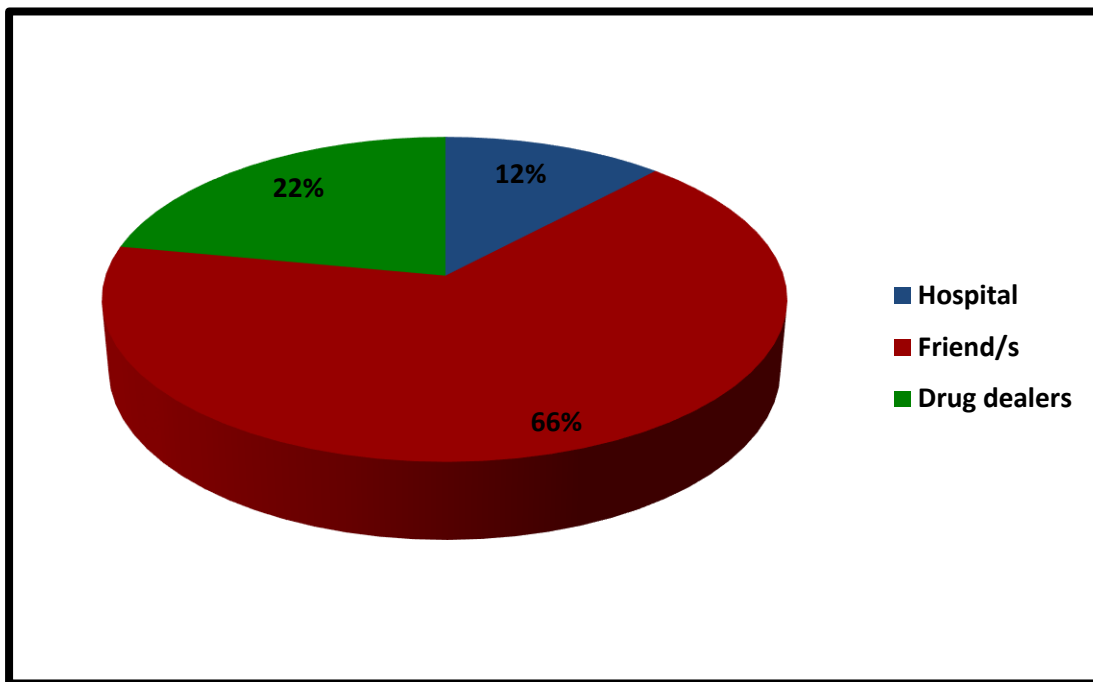
**Fig (9) Route of Tramadol Use**



**Table (10)The place to get Tramadol**

	<i>Frequency</i>	<i>Percentage</i>
<b>Hospital</b>	6	12%
<b>Friend/s</b>	33	66%
<b>Drug dealers</b>	11	22%
<b>Total</b>	<b>50</b>	<b>100%</b>

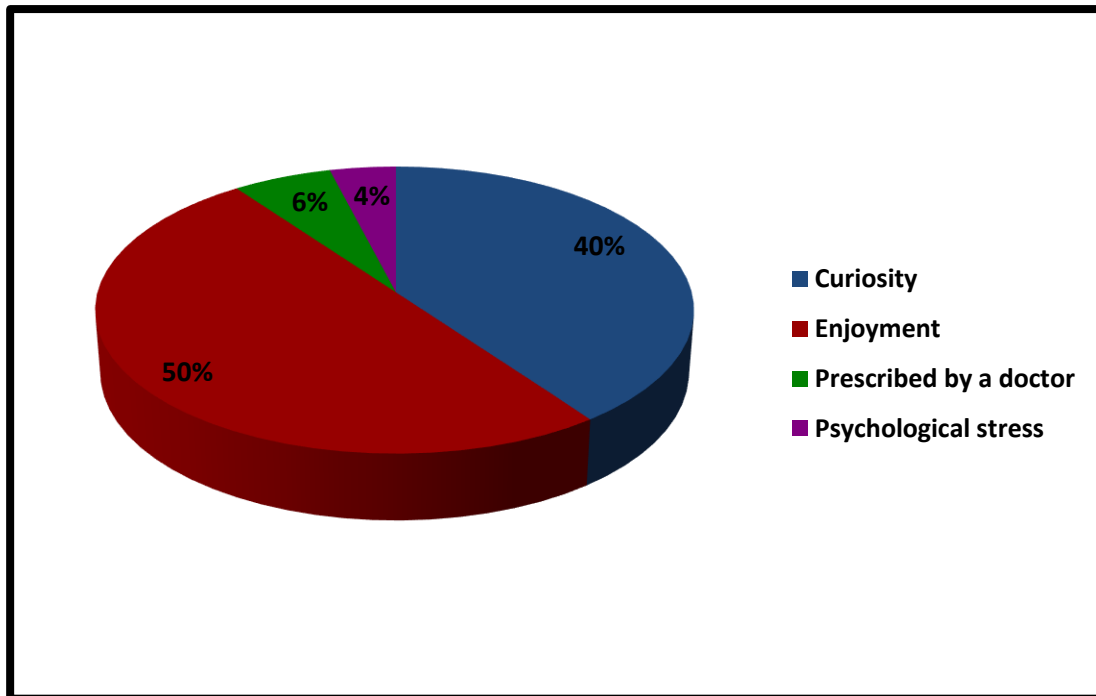
**Fig (10) The place to get Tramadol**



**Table (11) Reason/s to start use of the Tramadol**

<b>Reason/s</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>Curiosity</b>	20	40%
<b>Enjoyment</b>	25	50%
<b>Prescribed by a doctor</b>	3	6%
<b>Psychological stress</b>	2	4%
<b>Total</b>	<b>50</b>	<b>100%</b>

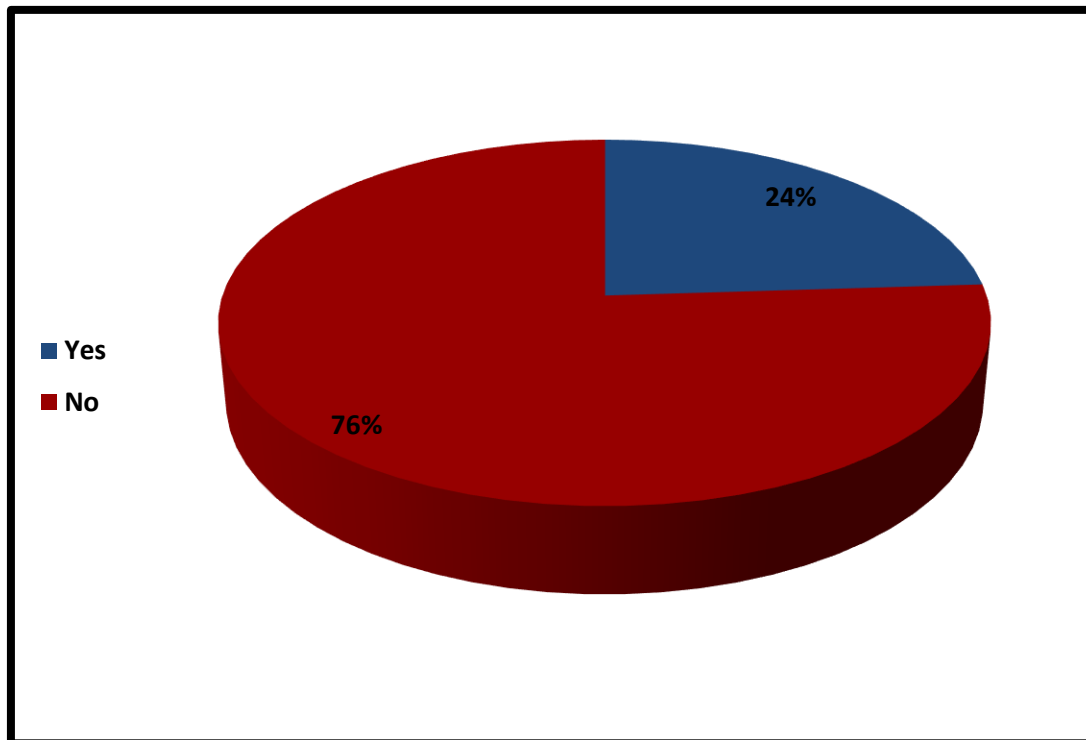
**Fig (11) Reason/s to start use of the Tramadol**



**Table (12) Easiness of get Tramadol from pharmacies/ hospitals**

	<i>Frequency</i>	<i>Percentage</i>
<b>Yes</b>	12	24%
<b>No</b>	38	76%
<b>Total</b>	<b>50</b>	<b>100%</b>

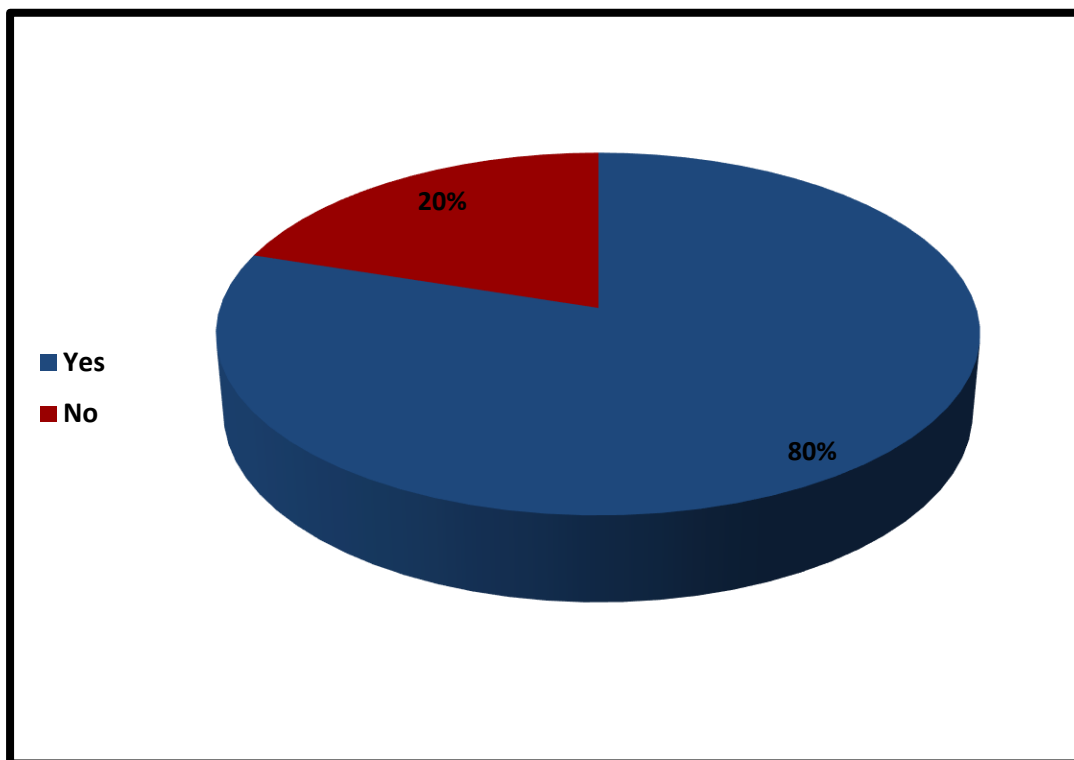
**Fig (12) Easiness of get Tramadol from pharmacies/ hospitals**



**Table (13) Awareness that the Tramadol is a pain reliever**

	<i>Frequency</i>	<i>Percentage</i>
<b>Yes</b>	40	80%
<b>No</b>	10	20%
<b>Total</b>	<b>50</b>	<b>100%</b>

**Fig (13) Awareness that the Tramadol is a pain reliever**

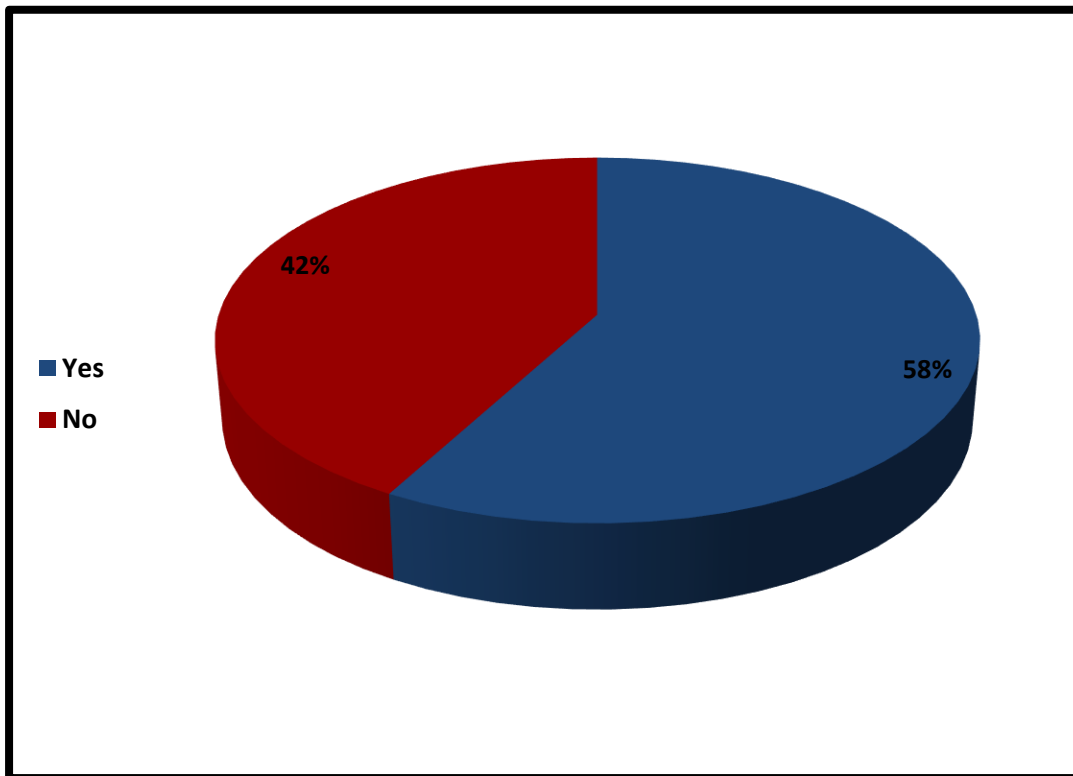




**Table (14) Awareness that the misuse of Tramadol cause addiction**

	<i>Frequency</i>	<i>Percentage</i>
<b>Yes</b>	29	58%
<b>No</b>	21	42%
<b>Total</b>	<b>50</b>	<b>100%</b>

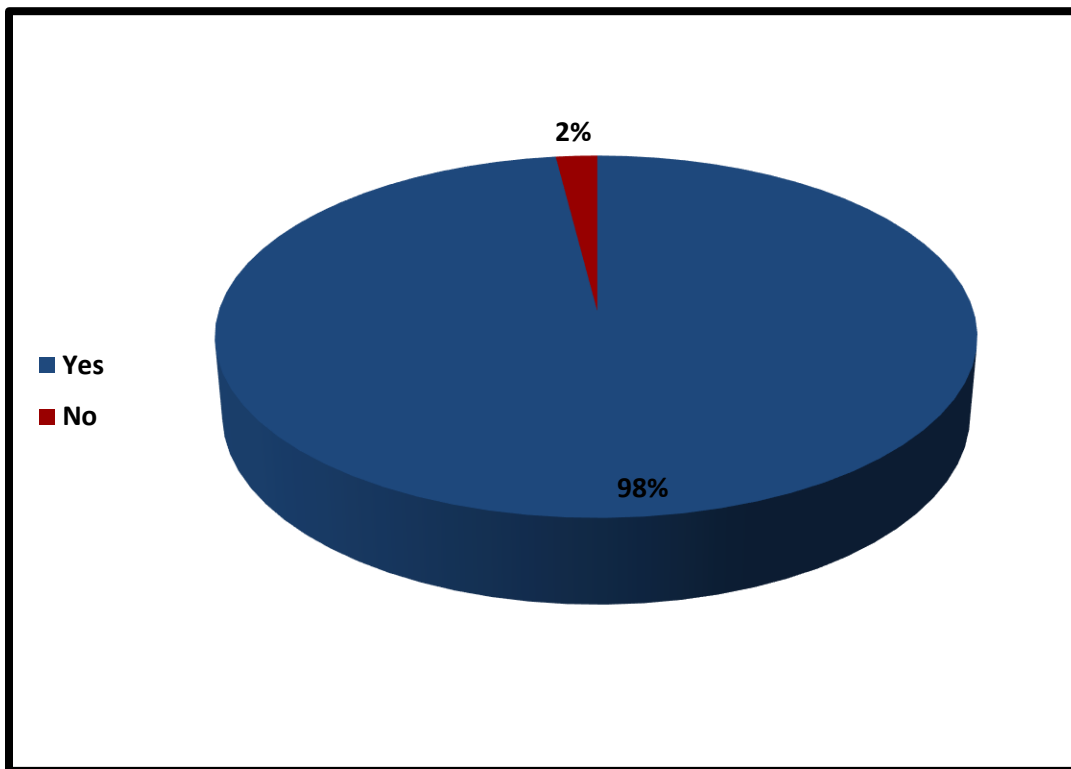
**Fig (14) Awareness that the misuse of Tramadol cause addiction**



**Table (15) Poly drug use with Tramadol**

	<i>Frequency</i>	<i>Percentage</i>
<b>Yes</b>	49	98%
<b>No</b>	1	2%
<b>Total</b>	<b>50</b>	<b>100%</b>

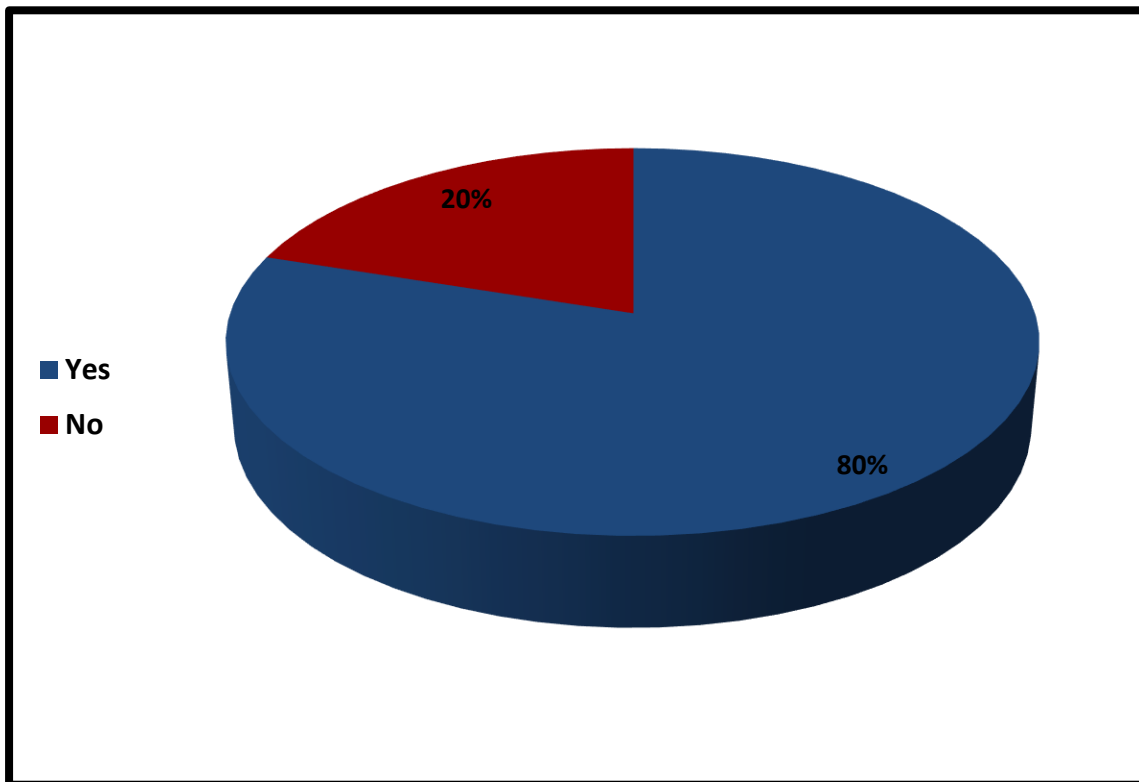
**Fig (15) Poly drug use with Tramadol**



**Table (16) Smoking cigarettes while using Tramadol**

	<i>Frequency</i>	<i>Percentage</i>
<b>Yes</b>	40	80%
<b>No</b>	10	20%
<b>Total</b>	<b>50</b>	<b>100%</b>

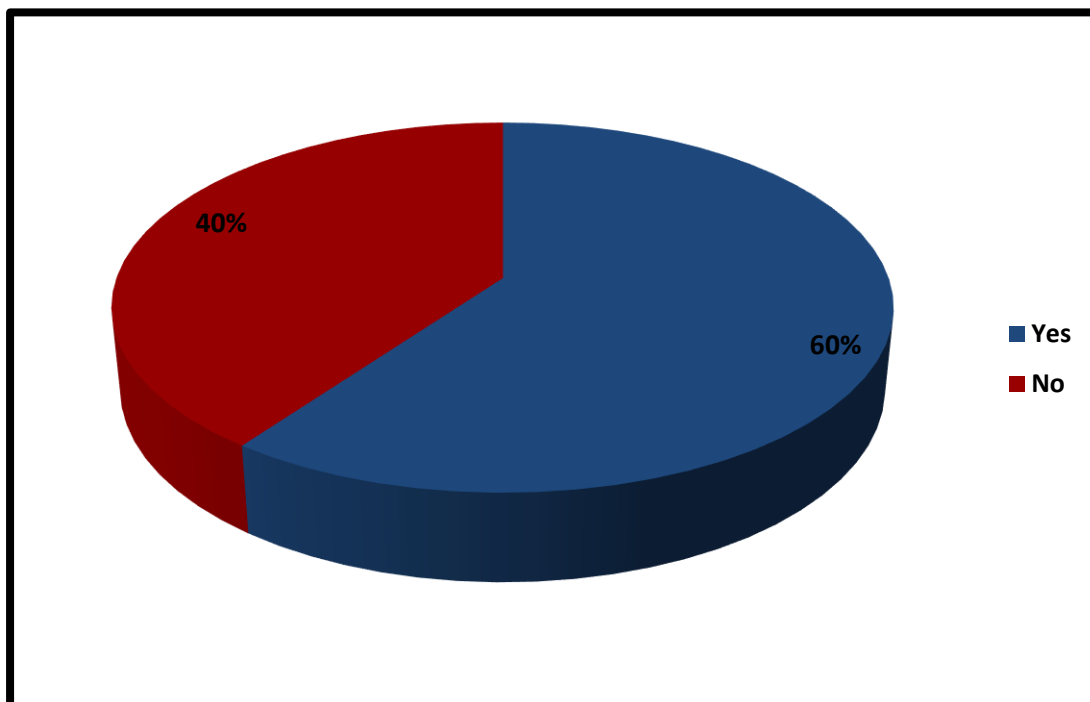
**Fig (16) Smoking cigarettes while using Tramadol**



**Table (17) Affect of Tramadol in increasing the number of cigarettes and change the euphoria of smoking**

	<i>Frequency</i>	<i>Percentage</i>
<b>Yes</b>	24	60%
<b>No</b>	16	40%
<b>Total</b>	<b>40</b>	<b>100%</b>

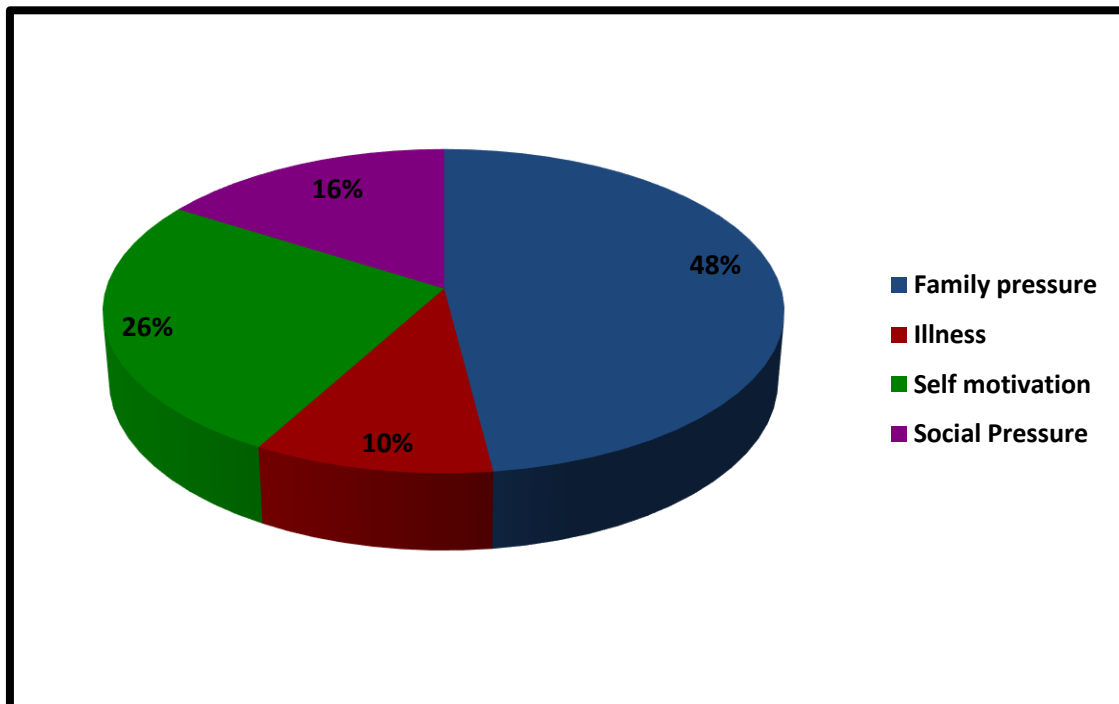
**Fig (17) Affect of Tramadol in increasing the number of cigarettes and change the euphoria of smoking**



**Table (18) Reason/s for seeking treatment now**

<b>Reason/s</b>	<b><i>Frequency</i></b>	<b><i>Percentage</i></b>
<b>Family pressure</b>	24	48%
<b>Illness</b>	5	10%
<b>Self motivation</b>	13	26%
<b>Social Pressure</b>	8	16%
<b>Total</b>	<b>50</b>	<b>100%</b>

**Fig (18) Reason/s for seeking treatment now**



# *Chapter five*

*Discussion,  
Conclusion &  
Recommendations*

## **5. Discussion, Conclusion & Recommendations**

### **5-1 Discussion:**

The majority of the participants (52%) were of young age group (20-30 years) It has been observed that mostly persons of young age group are involved in drug abuse because it is the most vulnerable age for it. So it can be said that the most productive years of life are wasted due to substance abuse.

Considering gender proportion, out of total study sample, we had (86.0%) from the samples are " male" , and (14.0%) from the samples are " female" , this attributed to the seriousness of this phenomenon, as the abuse of Tramadol is not limited to men, but that there are ladies slating Tramadol. These results are consistent with the findings of other study conducted to Assess Tramadol Abuse Among Clients Who Are Attending Private Psychiatric Clinics –in Gaza ,and it show that (89.0%) from the samples are " male",and 14.0% from the samples are " female", and this attributed to the psychological reality of the situation in which citizens live in Gaza <sup>[29]</sup> .

The majority of participants in our study were Undergraduate (40%), employed.(72%),unmarried (86%) and urban Residence(88%).Since the present study was carried out on urban population and majority of our subjects were belonging to relatively young age group, this may justify the higher percentage of literacy, employment and unmarried status of the subjects. Similar results were reported by Ziaddini *et al.* <sup>[30]</sup>in their study on Iranian population, who reported

that (67.9%) of their subjects were employed, and (52%) were unmarried and Nigam *et al.* [31] who reported that (91.7%) of the subjects were employed, and (86.1%) had education below 10 years.

The Age at time of starting use of Tramadol in the present study was 20-30yr (48%), and the Duration of use of Tramadol was <1 years (34%). which is consistent with the age of the majority of the participant (52%).

The major route of drug administration in our studied population was oral route (94%). This may be justified by the fact that the diverted pharmaceutical products used by our subjects are available mainly in oral preparations.

Enjoyment as the reason for substance initiation was reported by (50%) of patients, and It is seen that Motivations of peers play a pivotal role in the onset of substance use, and also (66%) of the patients gets Tramadol from their friends .This can be explained by the fact that youth are mostly influenced by their peers and that the choice of friends will in part determine their social behaviors or misbehaviors. A study carried out by Kalra and Bansal reported that (20%) of their subjects started addiction for enjoyment/or experimentation,( 95%) because of peer pressure and in (9%) of cases it was secondary to iatrogenic cause [32]. Almost similar findings were seen in another study carried out in adolescents by Naskar *et al* [33]

Other important thing which came into notice was that 6% of patients had started abusing Tramadol because they were prescribed



to them by medical personal (iatrogenic cause), which shows that the unethical use of medication is very much contributing to increased prevalence of diverted pharmaceutical substance abuse.

(76%) of the patients cannot get Tramadol from pharmacies/hospitals easily while (24%) can, this result can be confirm that the get of Tramadol is easily accessible to everyone. . By being watchful for prescription falsifications or alterations, pharmacists can serve as the first line of defense in recognizing prescription drug abuse.

Regarding the knowledge of the patient about the Tramadol (80%) of them know that Tramadol is pain reliver and (58%) of them aware that misuse of Tramadol cause addiction. This could be attributed to social expectations of peers, or peer pressure.

Of the 50 patients only (2%) were on Tramadol alone and 98% on poly drugs. The drugs most frequently used in combination with Tramadol were cough syrup, Benzodiazepines ,alcohol, hasheish or antidepressant drugs. Poly drug use often carries with it more risk than use of a single drug, due to an increase in side effects, and drug synergy. The risk level will depend on the dosage level of both substances. This cumulative effect can lead to further unintended harm to health dependant on what is being maliciously added.

According to this study there is strong association between Tramadol and smoking as (80%) of patients were smoker, and (60%) of them were reporting increasing the number of cigarettes and change the euphoria of smoking. This result can be explained that Tramadol has an effect on CNS that may increase euphoria produce by the nicotine

and this consistent with study of (Liu ZM; 1999) that confirm that abuse of Tramadol produce euphoria <sup>[34]</sup> .

In the present study main reasons given by the patients for seeking treatment were family pressure in the majority (48%) of cases, and self-motivation (26%) .Over the years, most of these patients realized that their life has now been more of driven by the drugs. They were totally dependent on the availability of drugs and at times they had to face embarrassment for this reason. Illness (10%) and social pressure (13%) were the other reasons for seeking the treatment in the studied population. Almost similar results were reported by Kalra and Bansal<sup>[32]</sup>.

## **5-2 Conclusion:**

1-The findings of the present study showed that a relatively young age group is involved in opioid addiction and, therefore, many years of their productive life are lost in substance abuse.

2-Abuse of Tramadol is not limited to men, but there are ladies slating Tramadol .

3-The Tramadol abuse is prevalent in any segment of population irrespective of educational and marital status.

4-Enjoyment is the main reason for substance initiation and it is seem that Motivations of peers play a pivotal role in the onset of substance use.

5-Most of the patients cannot get Tramadol from pharmacies/ hospitals easily but they can get it easily from other sources.

6-Other important thing which came into notice was the polydrug abuse phenomena on which most of the patients were use the Tramadol with other drugs.

7-According to this study there is strong association between Tramadol and smoking.

8-In the present study main reasons given by the patients for seeking treatment were family pressure.

9-The above data shows that a significant amount of time and money is spent in drug abuse in addicts.

### **5-3 Recommendations:**

- 1-All authorities including political, social, academic and religious authorities should be engaged to know the reasons for the spread of this phenomenon.
- 2- Legal bodies should enforce strict laws against drug dealers.
- 3-Encourage media programs across various media, to educate people about the dangers of abuse of Tramadol.
- 4-Organizing awareness campaigns against Tramadol abuse at schools and universities
- 5-Only licensed pharmaceutical companies should be allowed for importing narcotic drugs.
- 6- Doctors should not only prescribe medications, but also should be able to identify abuse (or nonmedical use) of prescription drugs and prevent the escalation to addiction.
- 7-Development of well-trained psychiatric clinics to deal with addicted people.
- 8-Publication of books, brochures, flyers that address the problem of addiction.
- 9-Dissemination of legal awareness and clear warning against Tramadol use and marketing
- 10-Dissemination of religious consciousness, and religious culture, and the consolidation of the social and educational values to the members of the community.

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# *Appendix*

**Tramadol abuse questionnaire**

**Case NO:.....**

**1/AGE:**

20     20-30     31-40     41-50     50

**2/ SEX:**

male                       female

**3/EDUCATIONAL STATUS:**

illiterate     Middle     undergraduate     graduate

**4/EMPLOYMENT STATUS:**

Employed                       Un-employed

**5/MARITAL STATUS :**

Married     Unmarried     divorced     Widower   
Widow

**6/RESIDENCE:**

Rural                       Urban

**7/ Age at time of starting use of substance (yrs):**

20     20-30     31-40     41-50     50

**8/Duration of use of tramadol (yrs):**

1  1-2  2-3  3- 4  4-5

5

**9/Route of tramadol abuse:**

Oral  intravenous  oral+intravenous

**10/Were did you get the tramadol from?**

Hospital  friend/s  drug dealers

**11/What is/are your reason/s to start the use of the tramadol ?**

Curiosity  prescribed by a doctor

Enjoyment  psychological stress.

**12/Can you get tramadol from pharmacies/hospitals easily?**

Yes  No

**13/Were you aware that the tramadol is a pain reliever. ?**

Yes  No

**14/Were you aware that the misuse of tramadol cause addiction?**

Yes  No

**15/Did you abuse another drug with tramadol ?**

Yes

No

**If yes mention it/them**

.....  
.....

**16/Are you smoking?**

Yes

No

**17/Did the use of tramadol affect in increasing the number of cigarettes and change the euphoria of smoking?.**

Yes

No

**18/Reason/s for seeking treatment now?**

Family pressure

self motivation

non availability

social pressure

illness