

## **Incidence of Substance Abuse Related Medical Disorders among Patients Presented to Mansoura, Emergency Hospital**

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### **ABSTRACT**

**Background:** Substance abuse is rapidly growing with changing patterns of substance use. There is a substantial amount of data as regards the correlation between drug abuse and injuries managed in the emergency department (ED).

**Objective:** The aim of the current work was to estimate the incidence of substance abuse related medical disorders among patients presented to Mansoura Emergency Hospital and the outcome of management of those cases

**Patients and methods:** This prospective observational clinical study included a total of 250 patients arrived at ED, Emergency Hospital-Mansoura University with positive history of drug abuse and verified by Urine drug screening.

**Results:** The incidence of substance use disorders (SUDs) among the studied cases was 11.2%. There were statistically significant correlations between toxicological screening results and studied cases presentation to emergency department. Male gender, single status, younger age and low income were the most frequently involved factors. Drug abusers were significantly increased among smokers.

**Conclusion:** Of all adult patients presented to ED at Emergency Hospital-Mansoura University, about 10% of them had SUD. They were mostly male, single, younger age with unsatisfactory income. The outcomes focus on the significance of the potential roles of the ED as a site for interventions aimed at reducing harm from SUDs.

**Keywords:** Substance abuse, Emergency, alcohol, Tramadol, cannabis.

### **INTRODUCTION**

Substance abuse is a patterned use of a drug where the user consumes the substance in amounts or with approaches that are hazardous to themselves, and is a form of substance associated disorder <sup>(1)</sup>.

Substance abuse is rapidly growing with changing patterns of substance use. In Egypt, we aren't away from the problem. A lot of researches revealed increases in the prevalence of the use of tobacco and illicit drugs, in particular between youth <sup>(2)</sup>.

Alcohol and drug abuse are main healthcare problems often associated with ED admission. The causes for such admissions are several: overdose, organ damage following prolonged abuse, psychosocial troubles, traumas <sup>(3)</sup>.

Over 20 million Americans experience SUDs annually <sup>(4)</sup>. In Middle Eastern Arab nations, in particular Egypt, there is limited data on the problem of patients with SUDs attending ED in general hospitals <sup>(5)</sup>.

It has been demonstrated that; there have been a lot of research that discussed the association between alcohol and injuries managed in ED. On the other hand, the majority of ED research comprising representative samples of injured patients haven't considered the use of different drugs. However, a considerable number of records on alcohol use 6h before injury have also demonstrated that other (illegal) drugs were utilized throughout the same 6-hour period, although SUDs isn't systematically comprised in all questionnaires <sup>(6)</sup>.

An ED visit for an acute change in health, whether from SUDs associated injury, pneumonia, infections or overdose, offers an opportunity for clinicians to involve cases in discussion in an active manner, to aid them to make the association between SUDs and their medical state, that might help offer motivation for behavior alterations <sup>(7)</sup>.

Gradually, the practice of actively screening, initiating psychosocial and pharmacologic interventions, and linking cases with SUDs to effective management has become very common, but for several reasons, several EDs haven't comprised the critical part they could play in this process <sup>(8)</sup>.

The aim of this study was to estimate the incidence of substance abuse related medical disorders among patients presented to Mansoura Emergency Hospital and the outcome of management of those cases.

### **PATIENTS AND METHODS**

This prospective observational clinical study included a total of 250 patients arrived at Department of Emergency, Emergency Hospital, Mansoura University. This study was conducted between February 2021 and January 2022.

Emergency Hospital, Mansoura University is a level one emergency center with about 250,000 visit and 25,000 cases per year.

**Inclusion criteria** involved patients of both genders, aged  $\geq 18$  years, with directly related to drug abuse. Patients with acute intoxication, and direct adverse

events of acute drug abuse, which include overdose-related cardiac arrest, rhabdomyolysis, and injection-related injury or disease. Cases indirectly affected by drug abuse, injuries, and illness in intoxicated patients. Patients with medical complications causally associated with chronic drug abuse and patient presented with tramadol overdose symptoms like serotonin syndrome, sedation, respiratory depression, and delayed onset seizure.

**Exclusion criteria** involved patients aged < 18 years, unable to give concern. Patients who did not fulfill the diagnostic criteria of drug abuse-related disorders according to DSM-V criteria, patients arrived arrested to ED and patients refused to be comprised in the study.

All patients were resuscitated according to the Airway, Breathing, Circulation, Disability, Exposure (ABCDE) approach which involve; airway maintenance and cervical spine immobilization, Breathing and ventilation, Circulation and control of hemorrhage, Disability and Exposure.

After that complete history taking was done which included personal history; (name, age, gender, occupation, marital status. Smoking, history of drug abuse and present history of illness including details about the onset, course, the duration of current illness, the association between of drug abuse and the current illness, mode of drug administration were taken. Past medical and surgical history were also done including major illnesses, any previous surgery, operations, and any concurrent illness e.g., diabetes.

Clinical examination involved assessment of general level of consciousness according to GCS, appearance and general condition, body temperature, pulse, blood pressure, heart rate, respiratory rate, pupil size, shape, symmetry, reactivity) and local examination.

The Cut down, Annoyed, Guilty, and Eye-opener (CAGE) questionnaire is a popular alcohol screening questionnaire. It is composed of 4 questions<sup>(7)</sup>: Has the patient felt himself should Cut down on his drinking? Have people Annoyed him by criticizing the drinking? Has the patient ever felt bad or Guilty as regards the drinking? Has the patient ever had a drink first thing in the morning (Eye-opener)? A variation, the CAGE-AID is used for such aims and substitutes 'drink' with 'drink or drugs' in each of the four questions. It was assessed and recorded to have a sensitivity of 70% and specificity of 85% for two positive responses<sup>(9)</sup>.

Laboratory investigations involve Non-Toxicological: (CBC, ABG, serum electrolytes, plasma glucose, ECG, liver, and kidney function tests) and Toxicological screening by urine sampling (forty ml urine was obtained from all patients at the onset of admission and before giving any treatment). Each sample was collected in a dry, labelled container. All urine samples were screened for

cannabinoids, opiates, benzodiazepines, amphetamines, tramadol, barbiturates, and cocaine using preliminary drug screen test by EMIT system. Radiological investigations involve CT-brain (patients presented with traumatic brain injuries or disturbed conscious level), Chest x-ray (patients presented with respiratory symptoms), abdominal ultrasound (patients presented with abdominal pain or vomiting), Echocardiography (patients suspected to have infective endocarditis), Duplex ultrasound study (cases suspected to have limb ischemia or DVT).

Management involved observation in ED, gastric lavage and antidotes, admission and conservative treatment in inpatient ward and admission to ICU. Outcome estimated by patient need either ward or ICU admission, mortality, or survival within one week, and hospital length of stay.

#### **Ethical consideration:**

**This study was ethically approved by IRB of Faculty of Medicine, Mansoura University. Written informed consent of all the participants was obtained. Confidentiality and personal privacy were respected. The researchers were available throughout the study. The research objectives were clarified to the participants' relatives individually and in groups. Collected data weren't utilized for any other purposes. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.**

#### **Statistical analysis:**

Data were fed to the computer and analyzed by utilizing IBM SPSS Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp. Qualitative data were defined by utilizing number and percent. Quantitative data were defined by utilizing median and mean, SD for parametric data following testing normality by utilizing Kolmogorov-Smirnov test. Significance of the obtained results was judged at the (0.05) level. Qualitative data were utilized and involve Chi-Square test and Monte Carlo test for comparison between at least 2 groups. Quantitative data were between groups involve Parametric tests; One Sample t test used to compare mean of studied parameters compared to standard reference value and Student t-test was utilized for comparison among 2 independent groups. Non-Parametric tests involve Mann-Whitney U test which was utilized to compare 2 independent groups. The Spearman's rank-order correlation was utilized to detect the strength and direction of a linear correlation between two non-normally distributed continuous variables and/or ordinal variables. The diagnostic performance of a test to differentiate diseased cases from non-diseased cases is assessed by utilizing ROC curve analysis. Binary stepwise logistic regression analysis was utilized to predict the independent variables of binary outcome. Significant predictors in

the Univariate analysis were introduced into after that into a regression model. AOR and their 95% CI were measured.

**RESULTS**

The initial number of cases examined was 2501 patients who are admitted to Mansoura ED during April 2022. We ruled out 12 patients who arrived with severe injuries, 257 patients with severe medical illnesses who refused or unable to give

consent to be included in the study. 250 (11.2%) of the remaining 2232 patients were case positive by history taking and verified by urine drug screening.

Table (1) shows percentage of ages groups (17-27), (28-38), (39-49), (50-60) and (61-68) were 54.4%, 20.8%, 15.2%, 5.6% and 4% correspondingly. Male to female (M/F) ratio was 74.4/25.6. Percentage of employee cases was 76.4%. Concerning marital status, Single, Married and Divorced/widow percentages represent 48.8, 47.2, 4.0 correspondingly.

**Table (1): Demographic characteristics of the studied cases (n=250)**

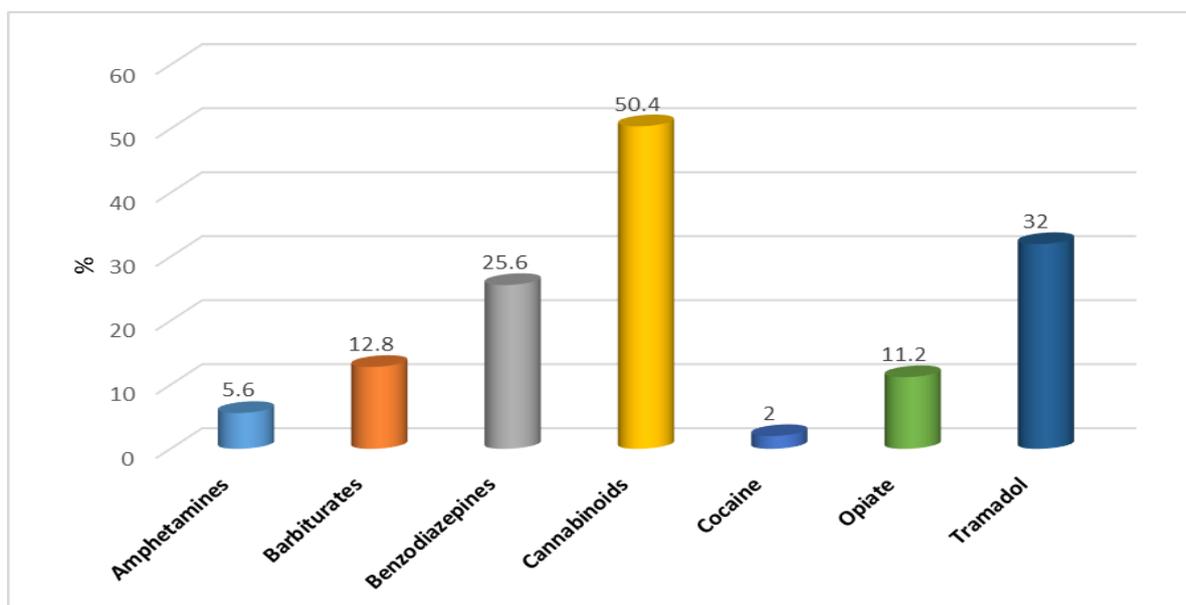
		n=250	%
Age/years		30.84±12.74 (17-68)	
17-27years		136	54.4
28-38years		52	20.8
39-49years		38	15.2
50-60years		14	5.6
61-68years		10	4.0
Sex	Male	186	74.4
	Female	64	25.6
Occupation	Unemployed	191	76.4
	Employed	59	23.6
Marital status	Single	122	48.8
	Married	118	47.2
	Divorced/widow	10	4.0

The percentages of psychiatric history, medical history and previous unsuccessful suicidal attempts among studied cases are 38.4%, 12.8% and 20.8% correspondingly (Table 2).

**Table (2): Past history distribution among studied cases.**

Past history	n=250	%
Psychiatric history	96	38.4
Medical history	32	12.8
Suicidal attempts	52	20.8

Figure (1) illustrates percentages of substance abuse results by urine screening from the studied cases; cannabinoids, tramadol, benzodiazepines, barbiturates, opiates, amphetamines, cocaine are 50.4%, 32%, 25.6%, 12.8%, 11.2%, 5.6%, 2% correspondingly.



**Figure (1): Toxicological screening distribution among the studied cases**

Table (3) illustrates the outcome of the studied cases. Half of the patients (50%) are admitted to regular ward followed 36.4% are admitted to ICU and 13.6% are discharged home from ED, while 8% of cases died. The table also shows the median of length of hospital stay is 3.0(1.0-31.0).

**Table (3): Outcome of the studied cases.**

Outcome	n=250	%
Recovery and discharge	34	13.6
Ward admission	125	50.0
ICU admission	91	36.4
Death	20	8.0
Length of hospital stay (days) Median (min-max)	3.0(1.0-31.0)	

Table (4) illustrates the correlation between urine toxicological screening results and age group. There are statistically significant correlations among positive urine results for 17-27 age group and barbiturates, benzodiazepines, cannabis, and tramadol (P=0.003, P=0.021, P<0.001 and P<0.001 correspondingly). Also, there are statistically significant correlations among positive urine results for 28-38 age group and cocaine and opiates (P=0.001 for both).

**Table (4): Relation between toxicological screening results and age of the studied cases.**

	Total number=250	Amphetamines N=14	Barbiturates N=32	Benzodiazepines N=64	Cannabinoids N=126	Cocaine N=5	Opiate N=28	Tramadol N=80
Age/years	136	5(3.7)	24(17.6)	29(21.3)	50(36.8)	0	8(5.9)	55(40.4)
17-27	52	5(9.6)	0	21(40.4)	33(63.5)	5(9.6)	11(21.2)	21(40.4)
28-38	38	4(10.5)	8(21.1)	9(23.7)	24(63.2)	0	4(10.5)	4(10.5)
39-49	14	0	0	5(35.7)	14(100)	0	5(35.7)	0
50-60	10	0	0	0	5(50)	0	0	0
61-68								
Monte Carlo test		MC=5.71 P=0.222	MC=16.34 P=0.003*	MC=11.54 P=0.021*	MC=29.92 P<0.001*	MC=19.43 P=0.001*	MC=18.78 P=0.001*	MC=25.48 P<0.001*

Parameters defined as number and percentage, Used test: Monte Carlo, \*statistically significant

Table (5) demonstrates statistically significant correlations among smoker patients and positive toxicological screening results for amphetamines, barbiturates, cannabis, cocaine, and opiates. (P=0.002, P=0.01, P<0.0001, P<0.005 and P<0.001 correspondingly). Also, there are statistically significant correlations among cigarette smoking and positive toxicological screening results for cannabis, opiates and tramadol. (P=0.002, P=0.004 and P<0.034 correspondingly).

**Table (5): Relation between toxicological screening results and smoking history of the studied cases.**

	Total number=250	Amphetamines N=14	Barbiturates N=32	Benzodiazepines N=64	Cannabinoids N=126	Cocaine N=5	Opiate N=28	Tramadol N=80
Smoking Negative	97	0	19(19.6)	19(19.6)	4(4.1)	5(5.2)	0	33(34.0)
Smoking Positive	153	14(9.2)	13(8.5)	45(29.4)	122(79.7)	0	28(18.3)	47(30.7)
test of significance		$\chi^2=9.40$ P=0.002*	$\chi^2=6.54$ P=0.01*	$\chi^2=3.01$ P=0.083	$\chi^2=135.78$ P<0.0001*	$\chi^2=8.05$ P=0.005*	$\chi^2=19.99$ P<0.001*	$\chi^2=0.29$ 7 P=0.586
Type of smoke shisha	7	7(100)	0	3(42.9)	7(100)	0	0	1(14.3)
Cigarette	116	9(7.8)	13(11.2)	31(26.7)	85(73.3)	0	28(24.1)	42(36.2)
Cigarette and shisha	30	5(16.7)	0	11(36.7)	30(100)	0	0	4(13.3)
test of significance		$\chi^2=3.01$ P=0.222	$\chi^2=4.53$ P=0.104	$\chi^2=1.77$ P=0.412	$\chi^2=12.40$ P=0.002*	....	$\chi^2=10.9$ 3 P=0.004*	$\chi^2=6.79$ P=0.034*
Cigarette severity index	10	0	0	5(50)	10(100)	0	5(50)	0
None	25	0	5(20)	5(20)	10(40)	0	0	15(60)
Mild	87	10(11.5)	4(4.6)	27(31)	75(86.2)	0	16(18.4)	23(26.4)
Moderate	31	4(12.9)	4(12.9)	8(25.8)	27(87.1)	0	7(22.6)	9(29)
Severe								
test of significance		$\chi^{2MC}=4.63$ P=0.201	$\chi^{2MC}=7.66$ P=0.054	$\chi^2=3.41$ P=0.332	$\chi^{2MC}=30.27$ P<0.001*	.....	$\chi^2=12.7$ 0 P=0.005*	$\chi^2=15.2$ 9 P=0.002*
Shisha severity index	4	0	0	0	4(100)	0	0	0
Mild	19	5(26.3)	0	9(47.4)	19(100)	0	0	0
Moderate	14	0	0	5(35.7)	14(100)	0	0	5(35.7)
Severe								
test of significance		$\chi^{2MC}=5.48$ P=0.07		$\chi^{2MC}=3.19$ P=0.202	...	....	....	$\chi^{2MC}=9.49$ P=0.009*

Parameters defined as number and percentage, Used tests: Chi-Square test/Monte Carlo, \*statistically significant

Tables (6) shows statistically significant correlations between toxicological screening results and presentation of the studied cases to ED as follow; amphetamine and DVT (p<0.001), barbiturates and suicide attempts (p<0.001), disturbed conscious level and benzodiazepines with tramadol (p<0.001), motor car accidents and cannabis (p<0.001), dyspnea and opiates (p<0.001),

**Table (6): Relation between toxicological screening results and clinical presentation of the studied cases.**

	n=250	Amphetamines N=14	Barbiturates N=32	Benzodiazepines N=64	Cannabis N=126	Cocaine N=5	Opiate N=28	Tramadol N=80
Presentation								
Vomiting	10	0	0	5(7.8)	0	0	0	0
Suicide	55	0	15(46.9)	10(15.6)	0	5(100)	0	15(18.8)
Stab chest	14	0	0	0	14(11.1)	0	0	0
Motor car accidents	39	5(35.7)	0	9(14.1)	39(31.0)	0	0	7(8.8)
Inguinal abscess	5	0	0	5(7.8)	5(4.0)	0	5(17.9)	0
Hemoptysis and dyspnea	5	0	0	0	0	0	0	5 (6.2)
Fits	24	0	9(28.1)	14(21.9)	9(7.1)	0	0	15(18.8)
Dyspnea	31	4(28.6)	4(12.5)	4(6.2)	23(18.3)	0	12(42.9)	8(10.0)
Disturbed conscious level	52	0	4(12.5)	17(26.6)	31(24.6)	0	11(39.3)	20(25.0)
DVT	5	5(35.7)	0	0	0	0	0	5(6.2)
Abdominal pain and vomiting	10	0	0	0	5(4.0)	0	0	5(6.2)
test of significance		$\chi^2_{MC}=101.64$ P<0.001*	$\chi^2_{MC}=37.57$ P<0.001*	$\chi^2_{MC}=48.57$ P<0.0001*	$\chi^2_{MC}=143.67$ P<0.0001*	$\chi^2_{MC}=18.09$ P=0.053	$\chi^2_{MC}=88.84$ P<0.001*	$\chi^2_{MC}=52.29$ P<0.001*

Parameters defined as number and percentage, Used tests: Chi-Square test/Monte Carlo, \*statistically significant

Tables (7) shows statistically significant correlations between toxicological screening results and outcome; ward admission and amphetamine (p=0.001). ICU admission and cannabis and cocaine (p<0.001 and p=0.012 correspondingly). While, death and cannabis (p=0.001).

**Table (7): Relation between toxicological screening results and outcome among the studied cases.**

Outcome	Total number =250	Amphetamines N=14	Barbiturates N=32	Benzodiazepines N=64	Cannabinoids N=126	Cocaine N=5	Opiate N=28	Tramadol N=80
Recover and discharge	34	0	0	5(14.7)	29(85.3)	0	0	10(29.4)
Ward admission	125	14(11.2)	19(15.2)	29(23.2)	42(33.6)	0	18(14.4)	37(29.6)
ICU admission	91	0	13(14.3)	30(33.0)	55(60.4)	5(5.5)	10(11.0)	33(36.3)
test of significance		$\chi^2_{MC}=14.83$ P=0.001*	$\chi^2_{MC}=5.82$ P=0.055	$\chi^2_{MC}=5.09$ P=0.078	$\chi^2_{MC}=34.34$ P<0.001*	$\chi^2_{MC}=8.92$ P=0.012*	$\chi^2_{MC}=5.58$ P=0.061	$\chi^2_{MC}=1.19$ P=0.550
Death	20	0	4(20)	8(40)	17(85.0)	0	0	3(15.0)
test of significance		$\chi^2=1.29$ P=0.256	$\chi^2=1.01$ P=0.315	$\chi^2=2.37$ P=0.124	$\chi^2=10.41$ P=0.001*	$\chi^2=0.444$ P=0.505	$\chi^2=2.74$ P=0.098	$\chi^2=2.89$ P=0.089
LOS								
one week	167	4(2.4)	28(16.8)	45(26.9)	63(37.7)	5(3.0)	24(14.4)	49(29.3)
two weeks	35	10(28.6)	4(11.4)	14(40)	25(71.4)	0	4(11.4)	17(48.6)
≥3 weeks	14	0	0	0	9(64.3)	0	0	4(28.6)
test of significance		$\chi^2_{MC}=33.75$ P<0.001*	$\chi^2_{MC}=3.26$ P=0.196	$\chi^2=8.11$ P=0.017*	$\chi^2=15.56$ P<0.001*	$\chi^2_{MC}=1.50$ P=0.472	$\chi^2_{MC}=2.45$ P=0.294	$\chi^2_{MC}=4.98$ P=0.083

Parameters defined as number and percentage, Used tests: Chi-Square test/Monte Carlo, \*statistically significant

## DISCUSSION

Emergency department has been identified as providing critical access to the healthcare system for many, yet only in the last years has the ED visit been identified as an opportunity to recognize and correlate the cases to care for SUDs<sup>(7)</sup>. A lot of research have recorded increase in the prescription rates of abusable medications comprising stimulants, opioid agents, and benzodiazepines<sup>(10, 11)</sup>. The increase in prescription rates have raised public health issues owing to the abuse potential of such medications and great prevalence rates of non-medical use, abuse, and dependence, in particular among young adults between 18 and 24 years of age<sup>(12, 13)</sup>.

This current study was a prospective observational clinical study conducted on patients arrived at ED at Emergency Hospital-Mansoura University over a period of one year from 1st of February 2021 to 31st January 2022 to estimate the incidence of substance abuse related medical disorders among patients presented to Mansoura Emergency Hospital and the outcome of management of those cases.

The current study comprised both genders with age more than or equal to 18 years old having the following: patients were directly related to drug abuse, acute intoxication as well as direct complications of acute drug intoxication, such as overdose-related cardiac arrest, rhabdomyolysis, and injection-related injury or disease, indirectly influenced by acute drug abuse. Injuries and illness in intoxicated patients, the injury mechanisms studied included motor vehicle accidents, falling, burns, violence/assault-associated traumas; a medical complication causally accompanied by chronic drug abuse, hepatic cirrhosis and/or upper GIT bleeding secondary to portal hypertension; alcoholic pancreatitis; fits, heroin nephropathy, patient presented with tramadol overdose manifestations such as Serotonin syndrome, sedation, respiratory depression and delayed onset seizure, intravenous drug use (IVDU) and cases with associated medical problems.

Concerning demographic features of the studied cases, the present study demonstrated that the average age of cases was 30. About half of these patients (54.4%) were encountered in the age group 17-27 years. As regards gender, the current study revealed that men represented 74.4% of the studied group with 25.6% only for women. Percentage of employee cases was 76.4%. Concerning marital status, Single, Married and Divorced/widow represented 48.8, 47.2, 4.0 correspondingly.

These outcomes came in the same line with a lot of records which demonstrated that SUDs in young people had increased in the past decade. It was found that consumption is higher among 18–24-year-old males. Additionally, the risk of substance abuse initiation increased gradually from ages 12-21 years<sup>(14, 15)</sup>. Also, **El-Sherbiny et al.**<sup>(16)</sup> have found that; about

three-fifths of the study group was younger than 40 years and about two-fifths were older than 40 years. There were nearly equal percentages of men and women.

As regard sex, the current study demonstrated that; male sex was significantly increased among drug abuse cases compared to female. Male to female (M/F) ratio was 74.4/25.6. In agreement, **Tollisen et al.**<sup>(17)</sup> have reported that; Male patients aged 18-39 had the greatest proportion of substance abuse-related Admissions (47/97, 49%). Also, **El-Sherbiny et al.**<sup>(16)</sup> have displayed that; drug abuse was significantly greater in the male population than in the female population, among subjects with low educational qualifications than among university graduates. In addition, **Hamdi et al.**<sup>(18)</sup> revealed that the prevalence of SUDs in the male population was 13.2% and that in the female population was 1.1%.

Concerning marital status, single, married and divorced/widow percentages represent 48.8, 47.2, 4.0 correspondingly. In addition, single cases were significantly associated with an increase in tramadol and opiate abuse in comparison with married ones ( $P < 0.001$  and  $P = 0.001$  correspondingly). Also, **El-Sherbiny et al.**<sup>(16)</sup> have displayed that; SUDs were significantly reduced among married subjects (2.9%) in comparison to those who were single, widow, or divorced (42.9, 13.0, and 71.4%, correspondingly). Likewise, **El-Sawy et al.**<sup>(19)</sup> have recorded that 60.6% of drug abusers were of single marital status. In accordance, **Amr et al.**<sup>(20)</sup> have demonstrated in their multivariate regression analysis that being of single (OR= 1.59) positively predict the abuse status included.

In our study, concerning toxicological screening, the present study demonstrated that; the prevalence of drug abuse among the studied cases was 11.2%. From which cannabinoid was the most frequently utilized drug (50.4%) followed by tramadol (32%) and benzodiazepine (25.6%) then Barbiturates (12.8%), Opiate (11.2%), Amphetamines (5.6%) and Cocaine (2%). In the same line, **Amr et al.**<sup>(20)</sup> have revealed that; out of 1,317 patients in an ED in eastern Nile delta, Egypt, 108 (8%) with substance abuse and 47(3.5%) with substance dependence. Likewise, **El-Sherbiny et al.**<sup>(16)</sup> performed a cross-sectional study on a total of 218 cases in Tanta to evaluate the ratio of drug abuse as well as its grades. The results demonstrated that 15.14% of this study group comprised drug abusers and most of which used more than one drug.

While, **Zaki et al.**<sup>(21)</sup> have demonstrated that; accidental overdose characterized the majority of (86.8%) cases. Tramadol was the most frequently abused drug (36.5%), and most of the drugs were ingested by oral route. In addition, **Chen et al.**<sup>(22)</sup> have found that; opioids (41.1%) were the drugs most frequently abused by the cases, followed by benzodiazepines (32.1%).

Of note, the current study also reported that; 22.4% (56 out of 250) of the studied drug abusers abused more than one drug. Similarly, **El-Sherbiny et al.** <sup>(16)</sup> revealed that most of the drug abusers abused more than one drug. They revealed that 14.7% of the study population abused more than one nonmedical drug, and this constituted about 97.0% of drug abusers. In agreement, **El-Sawy et al.** <sup>(19)</sup> have demonstrated that most of studied addicts were abusing more than one drug (84.6%).

Regarding smoking history, (61.2%) of the drug abusers were smokers in which cigarettes smoking (75.8%) was the most common form followed by both cigarettes and Shisha (19.6%) and lastly shisha (4.6%). Concerning correlation between smoking type and toxicological screening results, our study revealed that Cannabinoids, Opiate and Tramadol seemed to be significantly correlated with smoking cigarette with p values (P=0.002, P=0.004 and P<0.034 correspondingly).

In agreement, **Lai et al.** <sup>(23)</sup> who displayed that those who had smoked cigarettes were far more likely to use cocaine (OR=7.5;95%), heroin (OR=16), crack (OR=13.9) and marijuana (OR=7.3). This research recommends that cigarette smoking might be a gateway drug to illegal drug use. In the same line, **Vega and Gil** <sup>(24)</sup> have illustrated that; teenage who consistently smoke throughout adolescence were associated with a higher for cannabis as well as for other drug abuse substance. Also, **El-Sherbiny et al.** <sup>(16)</sup> have displayed that; drug abuse was significantly higher in cigarette smokers and alcohol users in comparison with non-smokers and non-alcohol users

The current study revealed that 96 out of 250 of the studied cases has psychiatric disorder. The percentages of cases, who have positive urine toxicological screening for tramadol, benzodiazepines, cannabis, barbiturates, opiates and cocaine were 38.5%, 30.2%, 29.2%, 14.6%, 12.5% and 5.2% correspondingly. In accordance, several epidemiologic studies reliably indicate that anxiety disorders and SUDs co-occur more frequently than would be expected by chance only <sup>(25, 26)</sup>. It has been recorded recently in a major survey that more than 43,000 adults were surveyed in the context of psychiatric and SUDs<sup>(27)</sup>.

The current study demonstrated that 20.8% has unsuccessful suicidal attempt. also, **Pompili et al.** <sup>(28)</sup> have demonstrated that subjects who had made critical suicide attempts had significantly greater ratios of cannabis compared to cannabis free ones probably owing to the sociodemographic drawbacks and to childhood adverse family circumstances. The OR between cannabis abuse and making a critical suicide attempt was 2.0. Likewise, **Fergusson et al.** <sup>(29)</sup> have recorded that regular cannabis use was accompanied by a higher possibility of other illicit drug use, increases in depression and suicidal behavior.

The present study revealed that there were significant correlations between toxicological screening results and studied cases presentation to emergency department. Fourteen of 250 (5.6%) studied cases presented with domestic violence and stabs in chest region. All the 14 studied cases were positive for cannabis. **Howard and Menkes**, <sup>(30)</sup> reported that acute cannabis intoxication is accompanied by impaired cerebral functions associated with goal-directed activity, whereby acute cannabis use negatively affects cognitive abilities, which include executive control, decision-making, and planning. Such outcomes recommend a neural mechanism which links the disinhibiting action of cannabis to violent behavior. This can be explained as cannabis usage could be associated with panic reactions and paranoid feelings, loss of control, and panic often accompanied by violence <sup>(31)</sup>.

Our study showed statistically significant correlations between urine toxicological screening results as regarding cannabis and injuries related to motor car accidents. 15.6 % of the studied cases presented to ER with motor car accidents related injuries whose urine toxicological screening was positive for cannabis in 100% of them. In the same line, **Fergusson et al.** <sup>(32)</sup> showed statistically significant correlations between recorded annual cannabis use and annual accident rates. In addition, those using cannabis more than 50 times per year had estimated rates of active accidents that were 1.6 times greater than the rate for non-users.

Regarding the prognosis and the outcome of management, the total number of studied cases in the current study were 250 patients; of them 13.6 % improved when received conservative treatment and discharged from ER. While 50 % admitted to regular ward and 36.4 % admitted to ICU. Mortality rate was 8 %. 33.6% of patients admitted to ward and 60.4% of patients admitted to ICU were positive for Cannabis.

Also, **Zhang et al.** <sup>(33)</sup> conducted their study on adult ED visits (N=27,609) in the US in 2016–2017, 11.1% of cases had SUD. Among ED patients with SUD, they were mostly non-Hispanic White (62.5%) and were more likely to be male.

**Chen et al.** <sup>(22)</sup> have reported that; more than 2/3 of the cases (n ¼ 38, 67.9%) required hospitalization, and three patients died (5.4%). There were significant between-hospital differences about patient sex, drugs of choice, mechanism of injuries and method and onset of the ED visit, as well as the need for hospital admission.

## CONCLUSION

Of all adult patients presented to ED at Emergency Hospital-Mansoura University, about 10% of them had SUD. They were mostly male, single, younger age with unsatisfactory income. The outcomes emphasized on the significance of recognizing co-existing SUD as a predisposing factor for increased morbidity in

acutely ill and injured cases, and the possible role of the ED as a site for interventions aimed at decreasing harm from SUD.

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