THE IMPACT OF THE COVID-19 PANDEMIC ON THE PATTERN OF ACUTE INTOXICATION BY SUBSTANCES OF ABUSE IN PATIENTS ADMITTED TO TANTA UNIVERSITY POISON CONTROL CENTER

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ABSTRACT

Background: Substances use poisoning is considered a great social dilemma. The attention to this dilemma has increased in response to the stress and isolation occurred as consequences to COVID19 pandemic lockdown. **Aim of the work:** The aim of this work was to evaluate the impact of lockdown due to COVID-19 on the pattern of acute intoxication by substances of abuse in Tanta University Poison Control Center (TUPCC), Egypt. **Patients and Methods:** Substance abusers' patients with acute intoxication who were admitted to Tanta University Poison Control Centre (TUPCC) in Egypt were the subjects of this cross-sectional comparative study. The study was carried out over two years. The first year was prior to the COVID-19 lockdown, which lasted from early March 2019 to late February 2020 (group 1). The second year was the year following Egypt's COVID-19 lockdown, which lasted from early March 2020 to late February 2021 (group 2). **Results:** The overall number of admitted patients decreased (from 112 to 72). There was significant increase in proportion of urban poisoned patient after the pandemic declaration (from 25% to 55.6%, P <0.001). Significant increase in time delay from (3.0±3.13) before the pandemic declaration to (9.1±16.25) (P<0.001) after the pandemic declaration. The need for ICU admission increased after the pandemic declaration from 7 cases to 14 cases (P=0.006). The mortality rate statistically increased after the declaration of pandemic from 5 patients to 11 patients (P=0.011). Sedative and hypnotics were the most prevalent poisons used by the patients in both years, with a statistical significant decrease after pandemic declaration (from 49.1% to 31.9%, P=0.021). **Conclusion:** Sedative and hypnotics were the most commonly used poison in the year after the pandemic was declared. This year also had high rates of ICU admissions and deaths, as well as significant delays in getting to the hospital.

Keywords: *Substance abuse; Pattern, COVID-19, Acute intoxication, Lockdown.*

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INTRODUCTION

Substance Use Disorder is a major global health issue, affecting millions of people worldwide. According to the World Drug Report 2023 published by the United Nations Office on Drugs and Crime (UNODC), approximately 275 million people (aged 15-64) used substance of abuse at least once in the past year. This reflects a 5.6% global prevalence rate for substance of abuse. The report also highlights that 36 million people globally suffer from drug use disorders, which are characterized by a dependence on or problematic use of substances ***(UNODC, 2023)***.

In Egypt, according to a 2019 report by the Egyptian Anti-Drug Authority (EADA), around 10% of the Egyptian population aged 15 and above have reported using drugs at least once in their lifetime. This indicates a significant number of individuals who may be at risk for developing substance use disorders ***(EADA, 2019)***. The higher incidence of substance abuse reported by the national research for addiction from 2007 to 2014 was documented in Greater Cairo ***(Hamdi et al., 2016)***. According to a 2018 survey, the lifetime rate of drug usage among students in Egyptian university was 22.5%. A 2016 study of 100 opioid users at Mansoura University revealed that 12 had used heroin and 88 had used tramadol. In 2018, Zagazig University conducted another study that revealed a 10.29% incidence of alcohol consumption and a 5.2% prevalence of sedatives. The prevalence of drug dependence is rising

in Egypt, and it is linked to both peer pressure and adverse life experiences. Religious beliefs and strict parenting are viewed as protective factors but become unable to cope with the rising rate of substance abuse especially among young generations ***(Amin et al., 2018; Bassiony et al., 2018; Mahgoub et al., 2016)***.

In March 2020, the Egyptian government implemented a partial lockdown due to COVID-19 pandemic ***(El Sheekh and Hassan, 2020)***. This lockdown significantly challenged our society due to economic collapse, social isolation, and lack of access to healthcare consequently resulting in increased mental health struggles along with increased substance abuse ***(Lundahl and Cannoy 2021; NIDA, 2020)***.

Many people turned to substances of abuse to cope with stress, anxiety, and isolation. Reports suggested that substance use disorders became more pronounced in vulnerable populations, especially among youth. The pandemic also made accessing treatment more difficult due to disruptions in healthcare services and the closure of rehabilitation centers. This lack of support, combined with increased stress and mental health issues, worsened the overall situation ***(Wang et al., 2021)***.

According to the Centers for Disease Control and Prevention, as of June 2020, 13% of Americans reported starting or increasing substance abuse as a way of coping with stress related to COVID-19. Overdoses have also spiked since the onset of the pandemic. According to the Overdose Detection Mapping Application Program (ODMAP), overdoses increased countrywide by 18% over the first few months of the pandemic as compared to the same period in 2019 ***(ODMAP, 2020)***.

As reported in December by the American Medical Association, the trend has persisted throughout 2020, with rises in opioid-related mortality and persistent concerns for individuals with substance use disorders observed in over 40 U.S. states ***(AMA, 2020)***.

Regretfully, research on substance use disorders in Egypt during the COVID-19 pandemic is restricted to predicting shifts in drug use patterns and treatment difficulties.

THE AIM OF THE WORK

This study aimed to evaluate the rate, pattern and severity of acute toxicity by substance of abuse in patients who were admitted to Tanta University Poison Control Center (TUPCC) in Egypt, one year before and one year following the COVID-19 pandemic declaration in Egypt.

PATIENTS AND METHODS

Design and setting of the study

Substance abusers' patients with acute intoxication who were admitted to Tanta University Poison Control Centre (TUPCC) in Egypt were the subjects of this cross-sectional comparative study.

The study's duration

Over two years, the study was carried out. The first year was prior to the COVID-19 lockdown, which lasted from early March 2019 to late February 2020 (group 1). The second year was the year following Egypt's COVID-19 lockdown, which lasted from early March 2020 to late February 2021 (group 2).

Inclusion and exclusion criteria

All patients admitted with acute substance abuse intoxication during the studied period with complete hospital medical records were included. Accurate and complete hospital records served as the basis for data collection. If there was any data missing from the records, the case was excluded.

Data collection tools

From the admission hospital file, demographic data such as age, gender, and place of residence as well as toxicological data such as the type of poison administrated, whether it was single or co-administered, severity according to poison severity score (PSS), and the delay time (the time elapsed between administration and hospitalization) were obtained. Clinical signs and laboratory tests were used to confirm the diagnosis of poisoning in TUPCC, which was made in accordance with the International Classification of Diseases. Every diagnosed and verified case was recorded in the database. Patients' histories, or those of their guardians in the case of mentally challenged patients, are used to diagnose substance-abused patients. Certain cases carry a poison container, making detection easier. In most

cases, toxicological urine test could easily identify the drug of abuse.

Outcomes

The mortality of patients was considered the primary outcome while the duration of hospitalization and the requirement for admission to Intensive Care Unit (ICU) were the secondary outcomes.

Compliance with ethical standards

The current study began following approval by the Tanta Faculty of Medicine Research Ethical Committee *(Approval code 36264PR707/5/24).* Without a declaration of the patients' identity, data were taken from the admission records. All information was processed anonymously to protect confidentiality of the data.

Statistical Analysis:

SPSS software (Statistical Package for Windows, version 25) was used to statistically analyze the gathered data on an Excel sheet (IBM Corp., Armonk, N.Y., USA). The distribution of numerical data was evaluated using the Shapiro-Wilk test for normality. The mean, standard deviation, range, median, and interquartile ranges (25th to 75th percentiles) were used to depict nonparametric quantitative data. Numbers and percentages were used to display the qualitative data.

The following tests were used to tabulate, group, and statistically analyze the results:

Mann Whitney U test (U): for comparison between 2 independent groups regarding nonparametric quantitative variables.

Pearson Chi Square Test (χ^2): To detect whether there is a significant association between different categorical variables and when it was inappropriate, it was replaced by Fischer Exact test.

P value: Used to indicate the level of significance ($P \leq 0.05$: significant).

RESULTS

During the study period (From early March 2019 to late February 2021), the whole number of substances of abuse poisoned patients presented to TUPCC was 184 patients. The included patients were divided into two groups (group 1; patients admitted before declaration of COVID pandemic and group 2; patients admitted after declaration of COVID pandemic).

Despite there was no statistically significant difference among all Gregorian months before and after the lockdown from COVID pandemic however, **table (1)** showed that the total number of substance abusers' patients treated in Tanta Poison Control Centre was decreased after declaration of COVID pandemic from 112 to 72.

Table (2) showed that the total number of male poisoned patients decreased from 62 before declaration of the pandemic to be 44 after declaration of the pandemic. The same observation was noticed in female patients without statistical significant difference between both groups. The median age of patients was 18.5 (3.0–29.0) before the pandemic declaration and 22.0 (4.625–32.0) after the pandemic declaration with no statistical significant difference.

The number of rural poisoned patients decreased statistical significantly after pandemic declaration (decreased from 75% to 44.4%, P <0.001), while there was a statistical significant increase in number of urban poisoned patient after the pandemic declaration (from 25% to 55.6%, P <0.001) **(Table 2)**

Regarding delay time, there was a statistical significant increase in the delay time from (3.0±3.13) before the pandemic declaration to (9.1±16.25) after the pandemic declaration (P<0.001) **(Table 2)**

There was a statistically significant difference between both groups regarding severity according to PSS. Asymptomatic cases decreased from 71.4% in group 1 to 54.2% in group 2 while severe cases increased from 1.8% in group 1 to 8.3% in group 2 **(Table 2)**

There was a statistically significant increase in ICU admission after the pandemic declaration from 7 cases to 14 cases (P=0.006). Moreover, the mortality rate statistically increased after the declaration of pandemic from 5 patients to 11 patients (P=0.011) **(Table2)**

Table (3) illustrated that sedative and hypnotics were the most prevalent poison used by substance abused patients in both groups, with a statistical significantly decrease after pandemic declaration (from 49.1% to 31.9%, P=0.021).

Table (4) showed that the year after the declaration of the pandemic, there was a statistical significant difference in the rates of administration of sedative and hypnotics, decreased from 37.5% to 13.6% and from 56.7% to 36.4% in children and adults age groups, respectively (P=0.048 and 0.041 respectively).

Regarding the relation between delay time and poison severity score (PSS), **table (5)** revealed a significant difference in group 2 (P= 0.006), with moderate patients having the highest range (0.5-120).

Table (6) showed male patients significantly represent 90.9% of died patients in group 2 (P=0.042). In addition, sedative and hypnotics showed significant correlation with survival in all patients in group 2 (P=0.013). However, opiate/ opioid administration had significant correlation with mortality in both groups (P=0.010 in group 1 and P<0.001 in group 2).

Table (1): Monthly numbers of admitted substance abused patients one year before and one year after the COVID-19 pandemic declaration in March (2020).

Admission month	2019 – 2020 (Group 1) (n=112)		2020 – 2021 (Group 2) (n=72)		Test of sig.	p
	No.	%	No.	%		
January	7	6.3	4	5.6	χ^2 14.675	0.198
February	10	8.9	7	9.7		
March	6	5.4	7	9.7		
April	6	5.4	5	6.9		
May	4	3.6	5	6.9		
June	11	9.8	3	4.2		
July	15	13.4	6	8.3		
August	11	9.8	9	12.5		
September	22	19.6	8	11.1		
October	11	9.8	6	8.3		
November	2	1.8	8	11.1		
December	7	6.3	4	5.6		

χ^2: Chi square test

Table (2): Demographic and toxicological data of substance abused patients one year before and one year after the COVID-19 pandemic declaration in March (2020).

	2019 – 2020 (Group 1) (n=112)		2020 – 2021 (Group 2) (n=72)		Test of sig.	p
	No.	%	No.	%		
Age					U 3613.5	0.235
Mean ± SD.	18.2 ± 13.67		20.7 ± 14.65			
Min. – Max.	0.75 – 55.0		0.125 – 75.0			
Median (IQR)	18.5 (3.0 – 29.0)		22.0 (4.625 – 32.0)			
Age groups					χ^2 3.017	0.389
Children <14y	40	35.7	22	30.6		
Adolescents 14 - <18y	12	10.7	5	6.9		
Adults 18 - <60y	60	53.6	44	61.1		
Elderly ≥ 60	0	0.0	1	1.4		
Sex					χ^2 0.594	0.441
Male	62	55.4	44	61.1		
Female	50	44.6	28	38.9		
Residence					χ^2 17.562	<0.001*
Rural	84	75.0	32	44.4		
Urban	28	25.0	40	55.6		
Number of poison					χ^2 1.461	0.227
Single	98	87.5	67	93.1		
Multiple	14	12.5	5	6.9		
GCS					U 3823.5	0.504
Mean ± SD.	12.8 ± 3.84		11.9 ± 4.42			
Min. – Max.	3.0 – 15.0		3.0 – 15.0			
Median (IQR)	15.0 (12.0 – 15.0)		15.0 (9.0 – 15.0)			
Delay time					U 2412.5	<0.001*
Mean ± SD.	3.0 ± 3.13		9.1 ± 16.25			
Min. – Max.	0.5 – 18.0		0.5 – 120.0			
Median (IQR)	1.0 (1.0 – 5.0)		6.0 (1.125 – 11.75)			

PSS					χ^2 8.531	p^{MC} 0.037*
Asymptomatic	80	71.4	39	54.2		
Mild	16	14.3	17	23.6		
Moderate	14	12.5	10	13.9		
Severe	2	1.8	6	8.3		
Need for ICU admission					χ^2 7.546	0.006*
No	105	93.8	58	80.6		
Yes	7	6.3	14	19.4		
Mortality					χ^2 6.455	0.011*
Improved	107	95.5	61	84.7		
Died	5	4.5	11	15.3		
Length of hospital stay						
Mean ± SD.	20.8 ± 70.03		10.9 ± 20.86		U 3383.0	0.065
Min. – Max.	1.0 – 552.0		1.0 – 145.5			
Median (IQR)	5.0 (3.0 – 12.0)		3.125 (1.25 – 11.0)			

PSS: Poison Severity Score *IQR: Interquartile range* *U: Mann Whitney U test* *χ^2: Chi square test*
MC: Monte Carlo Exact test **p ≤ 0.05 (Statistically significant)*

Table (3): Manner and Types of poisons used by substance abused patients one year before and one year after the COVID-19 pandemic declaration in March (2020).

	2019 – 2020 (Group 1) (n=112)		2020 – 2021 (Group 2) (n=72)		Test of sig.	p
	No.	%	No.	%		
Manner					χ^2 0.068	0.795
Intentional	71	63.4	47	65.3		
Accidental	41	36.6	25	34.7		
Cannabis	21	18.8	14	19.4	χ^2 0.014	0.907
Synthetic cannabinoid	0	0.0	3	4.2	χ^2 4.744	p^{FE} 0.058
Sedative & hypnotics	55	49.1	23	31.9	χ^2 5.286	0.021*
Opiate /opioid	26	23.2	20	27.8	χ^2 0.487	0.485
Alcohol	18	16.1	12	16.7	χ^2 0.011	0.915

χ^2: Chi square test *FE: Fischer Exact test* **p ≤ 0.05 (Statistically significant).*

Table (4): Types of poisons used by substance abused patients one year before and one year after the COVID-19 pandemic declaration in March 2020 according to age groups.

	Children <14y				Adolescents 14 - <18y				Adults 18 - <60y				Elderly ≥60
	2019–2020 (Group 1) (n=40)	2020–2021 (Group 2) (n=22)	Test of sig.	p	2019–2020 (Group 1) (n=12)	2020–2021 (Group 2) (n=5)	Test of sig.	p	2019 – 2020 (Group 1) (n=60)	2020 – 2021 (Group 2) (n=44)	Test of sig.	p	2020–2021 (Group 2) (n=1)
Cannabis	18 (45.0%)	11 (50.0%)	χ^2 0.143	0.706	0 (0.0%)	1 (20.0%)	χ^2 2.550	p^{FE} 0.294	3 (5.0%)	2 (4.5%)	χ^2 0.011	p^{FE} 1.000	0 (0.0%)
Synthetic cannabinoid	0 (0.0%)	0 (0.0%)			0 (0.0%)	1 (20.0%)	χ^2 2.550	p^{FE} 0.294	0 (0.0%)	2 (4.5%)	χ^2 2.781	p^{FE} 0.177	0 (0.0%)
Sedative and hypnotics	15 (37.5%)	3 (13.6%)	χ^2 3.923	0.048*	6 (50.0%)	3 (60.0%)	χ^2 0.142	p^{FE} 1.000	34 (56.7%)	16 (36.4%)	χ^2 4.192	0.041*	1 (100.0%)
Opiate/opioid	4 (10.0%)	3 (13.6%)	χ^2 0.187	p^{FE} 0.691	2 (16.7%)	0 (0.0%)	χ^2 0.944	p^{FE} 0.559	20 (33.3%)	17 (38.6%)	χ^2 0.311	0.577	0 (0.0%)
Alcohol	3 (7.5%)	5 (22.7%)	χ^2 2.928	0.087	4 (33.3%)	0 (0.0%)	χ^2 2.179	p^{FE} 0.261	11 (18.3%)	7 (15.9%)	χ^2 0.104	0.799	0 (0.0%)

χ^2: Chi square test *FE: Fischer Exact test* **p ≤ 0.05 (Statistically significant)*

Table (5): Relation between delay time, demographic, clinical outcomes and type of poison of the participants.

	Delay time (2019 – 2020 (Group 1) (n=112)			Delay time (2020 – 2021 (Group 2) (n=72)		
	Mean±SD	**Min–Max**	**Median (IQR)**	**Mean±SD**	**Min–Max**	**Median (IQR)**
Age groups						
Children <14y	3.4 ± 3.84	0.5 – 18.0	1.75 (1.0 – 4.75)	4.5 ± 4.69	0.5 – 18.0	3.5 (1.0 – 6.75)
Adolescents 14 - <18y	2.5 ± 2.31	0.5 – 7.0	1.0 (1.0 – 4.75)	9.1 ± 5.32	0.5 – 15.0	10.0 (4.75 – 13.0)
Adults 18 - <60y	2.8 ± 2.73	0.5 – 8.0	1.0 (1.0 – 1.75)	11.3 ± 20.17	0.5 – 120.0	7.0 (2.0 – 12.0)
Elderly ≥ 60	No cases			One case 13.0		
Kruskal Wallis test (p)	0.773 (0.679)			6.940 (0.074)		
Sex						
Male	3.5 ± 3.65	0.5 – 18.0	1.25 (1.0 – 6.0)	11.2 ± 20.15	0.5 – 120.0	7.0 (1.0 – 12.75)
Female	2.4 ± 2.19	0.5 – 8.0	1.0 (1.0 – 4.0)	5.9 ± 5.52	0.5 – 20.0	3.5 (1.5 – 10.0)
Mann Whitney U test (p)	1320.0 (0.155)			504.5 (0.196)		
Residence						
Rural	3.1 ± 2.94	0.5 – 16.0	1.0 (1.0 – 6.0)	10.4 ± 20.79	0.5 – 120.0	6.25 (1.125 – 12.0)
Urban	2.9 ± 3.69	0.5 – 18.0	1.0 (1.0 – 4.0)	8.1 ± 11.61	0.5 – 72.0	5.5 (1.125 – 11.0)
Mann Whitney U test (p)	1084.0 (0.514)			609.5 (0.729)		
PSS						
Asymptomatic	2.8 ± 2.53	0.5 – 8.0	1.0 (1.0 – 4.75)	4.7 ± 4.69	0.5 – 18.0	2.5 (1.0 – 7.0)
Mild	2.6 ± 2.53	0.5 – 8.0	1.25 (1.0 – 5.0)	9.8 ± 5.57	1.0 – 20.0	11.0 (4.5 – 14.0)
Moderate	2.9 ± 2.54	1.0 – 7.0	1.0 (1.0 – 6.0)	24.3 ± 39.91	0.5 – 120.0	8.5 (1.0 – 32.25)
Severe	17.0 ± 1.41	16.0 – 18.0	17.0	10.5 ± 2.43	6.0 – 13.0	11.0 (9.0 – 12.25)
Kruskal Wallis test (p)	6.639 (0.084)			12.343 (0.006*)		
Need for ICU admission						
No	2.9 ± 3.16	0.5 – 18.0	1.0 (1.0 – 5.0)	8.6 ± 15.94	0.5 – 120.0	5.0 (1.0 – 12.0)
Yes	3.7 ± 2.69	1.0 – 7.0	4.0 (1.0 – 6.0)	11.3 ± 17.95	1.0 – 72.0	8.0 (2.125 – 11.0)
Mann Whitney U test (p)	299.5 (0.388)			376.5 (0.674)		
Mortality						
Improved	3.0 ± 3.16	0.5 – 18.0	1.0 (1.0 – 5.0)	9.5 ± 17.55	0.5 – 120.0	5.0 (1.25 – 12.0)
Died	2.4 ± 2.61	1.0 – 7.0	1.0 (1.0 – 4.5)	7.0 ± 4.69	1.0 – 13.0	7.0 (1.0 – 11.0)
Mann Whitney U test (p)	258.5 (0.893)			323.0 (0.844)		
Type of poison						
Cannabis	2.5 ± 2.29	0.5 – 7.0	1.0 (1.0 – 5.0)	6.1 ± 5.80	0.5 – 18.0	4.0 (0.875 – 10.5)
Mann Whitney U test (p)	883.0 (0.568)			339.5 (0.342)		
Synthetic cannabinoid	No cases			6.0 ± 7.81	1.0 – 15.0	2.0
Mann Whitney U test (p)				95.5 (0.821)		
Sedative & hypnotics	3.1 ± 3.67	0.5 – 18.0	1.0 (1.0 – 4.0)	7.8 ± 5.89	0.5 – 20.0	7.0 (2.0 – 12.0)
Mann Whitney U test (p)	1523.0 (0.785)			486.5 (0.351)		
Opiate /opioid	3.3 ± 2.56	0.5 – 7.0	2.0 (1.0 – 6.0)	6.9 ± 4.73	0.5 – 15.0	6.5 (1.75 – 11.0)
Mann Whitney U test (p)	943.5 (0.204)			507.5 (0.875)		
Alcohol	2.6 ± 2.83	0.5 – 8.0	1.0 (1.0 – 4.75)	19.9 ± 37.27	0.5 – 120.0	4.0 (1.0 – 15.0)
Mann Whitney U test (p)	717.0 (0.281)			352.5 (0.909)		

*PSS: Poison Severity Score, * $p \leq 0.05$ (Statistically significant).*

Table (6): Relation between mortality, demographic and type of poison of the participants.

	Mortality (2019 – 2020 (Group 1) (n=112))		Mortality (2020 – 2021 (Group 2) (n=72))	
	Improved (n=107)	**Died (n=5)**	**Improved (n=61)**	**Died (n=11)**
Age groups				
Children <14y	39	1	21	1
	36.4%	20.0%	34.4%	9.1%
Adolescents 14 - <18y	11	1	5	0
	10.3%	20.0%	8.2%	0.0%
Adults 18 - <60y	57	3	34	10
	53.3%	60.0%	55.7%	90.9%
Elderly ≥ 60	No cases		1	0
			1.6%	0.0%
χ^2 (p^{MC})	0.823 (0.681)		4.926 (0.219)	

Sex				
Male	58	4	34	10
	54.2%	80.0%	55.7%	90.9%
Female	49	1	27	1
	45.8%	20.0%	44.3%	9.1%
χ^2 (p^{FE})	1.286 (0.378)		4.851 (0.042*)	
Residence				
Rural	81	3	29	3
	75.7%	60.0%	47.5%	27.3%
Urban	26	2	32	8
	24.3%	40.0%	52.5%	72.7%
χ^2 (p^{FE})	0.628 (0.597)		1.551 (0.325)	
Cannabis	21	0	14	0
	19.6%	0.0%	23.0%	0.0%
χ^2 (p^{FE})	1.208 (0.582)		3.134 (0.107)	
Synthetic cannabinoid	No cases		3	0
			4.9%	0.0%
χ^2 (p^{FE})			0.565 (1.000)	
Sedative and hypnotics	53	2	23	0
	49.5%	40.0%	37.7%	0.0%
χ^2 (p^{FE})	0.174 (1.000)		6.094 (0.013*)	
Opiate /opioid	22	4	11	9
	20.6%	80.0%	18.0%	81.8%
χ^2 (p^{FE})	9.468 (0.010*)		18.9 (<0.001*)	
Alcohol	18	0	10	2
	16.8%	0.0%	16.4%	18.2%
χ^2 (p^{FE})	1.002 (0.591)		0.021 (1.000)	

*χ^2: Chi square test MC: Monte Carlo Exact test FE: Fischer Exact test *$p \leq 0.05$ (Statistically significant)*

DISCUSSION

The prevention and treatment of substance of abuse are difficult with easy accessibility of potent drugs, increasing number of substances, and their combinations. The most common compounds associated with acute drug intoxication are ethyl alcohol, heroin, cocaine, benzodiazepines, and cannabis. Synthetic cannabinoids are a new psychoactive substance, leads to increased number of adverse effects. COVID-19 pandemic had a profound impact on people's lives universally. It had a forceful effect on the health of all population as well as medical facilities. It also affects the flow, nature, and severity of cases presented to poison control centers ***(Aboubakr et al., 2023)***.

On March 24, 2020, governments implemented a nationwide lockdown in reaction to this global public health emergency, which included closing all luxury services, limiting public travel, and advising social separation and self-isolation. From previous restrictions, dramatic psychosocial changes occurred leading to drug abuse ***(Bhatia et al., 2021)***.

Social separation and loneliness leading to increased incidence of depression and unexpected responsive behaviors. This depression may increase the usage of illegal medications during the first wave of the pandemic ***(Campitelli et al., 2021)***.

It could be observed that the total number of substance dependence poisoned patients admitted to Tanta poison control center was decreased in both males and females poisoned patients. This was consistent with earlier research conducted in Italy by ***Milella et al. (2021)*** and Egypt by ***Fayed and Sharif, (2021***) which found a lower rate of poisoning during the lockdown period than in prior years. The decline in the number of admitted poisoning cases during the shutdown has been attributed by the authors of the Egyptian study to quarantine regulations that prohibited all forms of transportation during the lockdown. However, they showed that the mortality rate of poisoned patients admitted to TUPCC significantly increased during the lockdown ***(Fayed and Sharif, 2021)***. Similarly, compared to the two years before the pandemic, the Mansoura Emergency Hospital Poison Unit, Egypt reported a 26.2% decrease in patients in 2020 ***(Motawei et al., 2022)***.

Hospital mortality rates in Tehran a year before and a year after pandemic, however, did not differ significantly, according to ***Hadeiy et al. (2022)***. They explained the lower rates early in the pandemic by claiming that the lockdown period improved family get-togethers more than loneliness and provided better assistance for individuals experiencing anxiety-related conditions. In the early months of the pandemic, increases of cases in the 1st half of 2020 were noted in Nepal ***(Shrestha et al., 2021)***. This research's primary limitation, though, was its lack of long-term evaluation, which made it challenging to generalize their findings ***(Dubé et al., 2021)***. Furthermore, even though there were fewer poisoning cases during the initial lockdown. ***Neumann et al. (2020***) hypothesized that poisoning rates may rise as lockdowns and pandemic progression progressed because of the subsequent depression.

Different population groups were affected by the pandemic in different ways. The response varied depending on the age group and the country ***(Tanaka and Okamoto, 2021)***. Children and adults in the current study used sedatives and hypnotics at lower rates during the pandemic. Japan similarly reported decreased rates among adults. Reduced working hours and working from home were blamed for this reduction, which relieved the strain on working people who were more productive and satisfied with their lives ***(Tanaka and Okamoto, 2021)***.

In Tehran, the reduction in patients was attributed to home help during the lockdown ***(Hadeiy et al., 2022)***. The lockdown, however, might have had the opposite impact, increased housework and raising the possibility of marital violence, which would have had an adverse effect on the psychological well-being of the housewives. However, closing the schools could have also been a double-edged weapon. Some students' mental health may have suffered because of fewer outside activities ***(Tanaka and Okamoto, 2021)***.

The study found that during the year after the pandemic was declared, the prevalence of substance abuse from rural regions significantly decreased among the patients involved. This might be clarified by ***Kasemy et al. (2022)***, who observed that individuals with low socioeconomic status and those residing in rural areas had a lower incidence of poisoning. This was related to low income ***(Sun et al., 2015; Liu et al., 2018)***.

The most prevalent poisons used by abused patients in both years were sedative and hypnotics with a significant decrease after the pandemic declaration. Social distancing gave clarification for the reduction in substance use after closure of nonessential services, according to data collected using an online survey. Decreasing the rate of abuse drugs from decreasing the obtainability and commercial availability of these drugs from friends, stores and not online as well as stay-at-home, closed shops and decreased social contact ***(Lundahl and Cannoy, 2021)***.

On the other hand, ***Rauf et al. (2021***) reported increase in a population's use of sedatives, hypnotics, and anxiolytics within the COVID-19 shutdown period in UK because of increasing prescription. The results of another study were done in Northern California similar to the current study results. ***Hirschtritt et al. (2021***), analyzed the prescribing psychotropic drugs before, and after the C-19 pandemic. They found that there was a minor reduction in sedative and hypnotics medication in March – June 2020. These results could be explained by the reduction in the number of admitted patients with sedative hypnotic's abusers.

In this study, the pre-hospitalization period increased significantly in the year after the pandemic was declared. Numerous studies conducted during the pandemic have documented people avoiding hospital visits and delaying emergency room presentations due to their concern of contracting COVID-19 ***(Czeisler et al., 2020; Pikoulis et al., 2020; Nab et al., 2021)***.

Additionally, postponing hospital admission, consulting a physician, and starting resuscitation techniques could all contribute to increased severity, complications requiring ICU admission and mortality in 2020 throughout the lockdown ***(Abdelkader et al., 2023)***.

In addition, ***Smythe et al. (2021***) discussed that when the time elapsed increased, the

possibility of poison to reach its peak in the serum increased and medical intervention was delayed leading to increase the PSS.

On the other hand, ***Sam et al. (2009)*** and ***Nour Eldeen and Abouhatab, (2024)*** demonstrated that there was no statistically significant association revealed between the time of the delay and PSS, obtaining the same result without changing in the clinical outcome. This was clarified as the cases of accidental poisoning in which the dose is always low.

Opiate/opioid intake had significant association with mortality in both groups. Similar results were found by ***Qeadan et al. (2021)*** and ***Zhu et al. (2022)*** that showed increased opioid overdose mortality rates in COVID-19. Opioid usage has been linked to respiratory issues that may lead to additional cardiovascular, pulmonary, or brain-related conditions ***(Zibbell et al., 2019)***.

Furthermore, many people who use opioids have co-morbid disorders (such as diabetes, cancer, heart disease, lung diseases, etc.) ***(Hudson et al., 2008; Hser et al., 2017)***, which may raise their risk of contracting COVID-19 and dying from it ***(Sun et al., 2020)***. Furthermore, ***Ghose et al. (2022***) observed that changing drug use patterns during pandemics, coupled with an increase in drug dosage alone, which raises the risk of death.

CONCLUSION

Compared to the prior year, there were fewer patients who were substance abused overall the year after the pandemic was declared. During the epidemic, adults were the most at risk. In urban areas, the prevalence of substance abuse patient poisoning has significantly increased. During the year after the pandemic was declared, sedatives and hypnotics were the most used poisons. The high rates of intensive care unit admissions and fatalities during this year may have been caused by the lockdown, which caused major delays obtaining admission to the hospital.

Researching the way the COVID-19 pandemic affected substance abuse could aid in the planning of preventative measures against future lockdowns and crises, particularly in poor countries with little resources like Egypt. Adults' mental and psychological well-being should be closely monitored to lower the prevalence of drug abuse in this demographic, particularly during times of disaster or pandemic. Substance abuse may be reduced by considering long-term adjustments of the working system and implementing new stress-reduction techniques for adults.

Limitations of the study:

It is important to note that this study was the first to investigate the pattern and severity of substance abuse patients in Egypt across a one-year period prior to and one year after the COVID-19 outbreak began. TUPCC is a one-center study even though it is one of the largest Egyptian central poison control centers. Therefore, longer-term, larger-scale research with thorough analysis of the effects on treatment outcomes is needed.

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تأثير جائحة كوفيد-١٩ على نمط التسمم الحاد بالمواد المخدرة لدى المرضى الذين تم دخولهم بمركز السموم بجامعة طنطا

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الملخص العربى

المقدمة: يعتبر التسمم الناتج عن تعاطي المواد المخدرة من المشاكل الكبيرة في المجتمع. وقد زاد الاهتمام بهذه المعضلة نتيجة للتوتر والعزلة التي حدثت عقب لجائحة كوفيد-١٩ والإغلاق.

هدف الدراسة: يهدف هذا العمل إلى تقييم تأثير الإغلاق بسبب فيروس كورونا المستجد (كوفيد-١٩) على نمط التسمم الحاد بالمواد المخدرة في مركز مكافحة السموم بجامعة طنطا ، مصر.

النتائج: انخفض العدد الإجمالي للمرضى الذين تم قبولهم (من ١١٢ إلى ٧٢). كانت هناك زيادة كبيرة في نسبة مرضى التسمم الحضري بعد إعلان الوباء (من ٢٥٪ إلى ٥٥.٦٪، ع<٠،٠٠١). وزيادة كبيرة في التأخير الزمني من (٣.٠±٣.١٣) قبل إعلان الوباء إلى (٩.١±١٦.٢٥) (ع< ٠،٠٠١) بعد إعلان الوباء. زادت الحاجة إلى دخول وحدة العناية المركزة بعد إعلان الوباء من ٧ حالات إلى ١٤ حالة (ع=٠،٠٠٦). ارتفع معدل الوفيات إحصائيًا بعد إعلان الوباء من ٥ مرضى إلى ١١ مريضًا (ع=٠،٠٠١١). كانت المهدئات والمنومات هي السموم الأكثر انتشارًا التي استخدمها المرضى في كلا العامين، مع انخفاض كبير بعد إعلان الوباء (من ٤٩.١٪ إلى ٣١.٩٪، ع=٠،٠٢١).

الخلاصة: كانت المهدئات والمنومات هي السموم الأكثر استخدامًا خلال العام الذي أعقب إعلان الوباء. كما شهد هذا العام أيضًا ارتفاعًا في معدلات دخول وحدات العناية المركزة والوفيات، فضلاً عن التأخير الكبير في الوصول إلى المستشفى.

الكلمات المفتاحية: المواد المخدرة؛ النمط؛ كوفيد-١٩؛ التسمم الحاد؛ الإغلاق.