



COVID-19 pandemic and Emergency Department presentations with acute recreational drug toxicity in Southern Switzerland

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Introduction

- According to the 2021 European Drug Report from the European Monitoring Centre for Drugs and Drug addiction (EMCDDA), it is estimated that around 29% of adults have used illicit drugs at least once in their lifetime.
- The COVID-19 pandemic and the restrictions implemented because of it significantly affected drug markets, with implications for drug users, having an impact on the availability of some drugs, reducing opportunities to consume drugs within social environments, and changing the patterns of illicit drug use.
- Drug consumption and related harm changed in Europe during the COVID-19 pandemic in different ways depending on the country. Currently there are no data about the impact of the COVID-19 pandemic on recreational drug consumption and related Emergency Department (ED) presentations due to acute toxicity in Switzerland.
- Data from ED presentations due to acute recreational drug toxicity represent an important source to estimate the magnitude of drug use, related toxicity, and health consequences, and to determine factors that may influence these aspects. With this respect, the European Drug Emergencies Network Plus (Euro-DEN Plus) has been collecting data on acute recreational drug presentations to the EDs across Europe since 2013, by using a sentinel centre model covering a wide range of countries, among which Switzerland with the sentinel centre of Southern Switzerland.

Aim

- To compare ED presentations due to acute recreational drug toxicity collected from the Swiss sentinel centre of Southern Switzerland before and during the COVID-19 pandemic.
- To assess potential risk factors for the disposition from the ED to "non-discharge at home" (i.e. admission to the Intensive care units or to other hospital ward or to psychiatric care) of presentations due to acute recreational drug toxicity that occurred before and during the COVID-19 pandemic.

Methods

- Observational retrospective study on ED presentations due to acute recreational drug toxicity recorded at the sentinel centre of Southern Switzerland (including a network of four public hospitals managed by the Ente Ospedaliero Cantonale).
- Description and comparison of the main characteristics of ED presentations due to acute recreational drug toxicity before (from March 2018 to end of July 2019) and during (from March 2020 to end of July 2021) the COVID-19 pandemic.
- Assessment of the potential risk factors for disposition from the ED to "non-discharge at home" of presentations due to acute recreational drug toxicity that occurred before and during the COVID-19 pandemic.

Results

1. Comparison of the ED presentations due to acute recreational drug toxicity that occurred before (March 2018-July 2019) and during (March 2020-July 2021) the COVID-19 pandemic

	Before pandemic	During pandemic	P value
ED presentation due to acute recreational drug toxicity/total ED presentations, n/n (%)	348/169'979 (0.2%)	235/126'823 (0.2%)	0.241
Patient demographics			
Age (years), median (IQR), years	29 (22-41)	34 (24-45)	0.006
Male, n (%)	248 (71.3)	172 (73.2)	0.611
Arrival at the ED and length of hospital stay			
Ambulance, n (%)	231 (67)	157 (66.8)	0.870
Weekend (Friday 5pm-Monday 8am) arrival, n (%)	163 (46.8)	85 (36.2)	0.011
Night (8 pm-8 am) arrival, n (%)	183 (52.5)	111 (47.2)	0.205
Length of hospital stay ≥48 hours, n (%)	22 (6.3)	7 (3)	0.081
Substances used			
One substance used (excl. ethanol), n (%)	233 (67)	158 (67.2)	0.944
Cannabis, n (%)	152 (43.7)	92 (39.2)	0.277
Cocaine, n (%)	106 (30.5)	82 (34.9)	0.261
Benzodiazepine/Sedatives, n (%)	48 (13.8)	39 (16.6)	0.352
Heroin, n (%)	19 (5.5)	25 (10.6)	0.020
Methadone, n (%)	13 (3.7)	11 (4.7)	0.573
Opiates (excl. methadone and heroin), n (%)	9 (2.6)	8 (3.4)	0.620
Amphetamine/Methamphetamine, n (%)	14 (4)	2 (0.9)	0.021
MDMA/Ecstasy, n (%)	11 (3.2)	6 (2.6)	0.804
LSD, n (%)	2 (0.6)	4 (1.7)	0.518
Ketamine, n (%)	1 (0.3)	1 (0.4)	1
Methylphenidate, n (%)	1 (0.3)	1 (0.4)	1
Psychotropic mushrooms, n (%)	0	1 (0.4)	0.403
GHB, n (%)	0	1 (0.4)	0.403
Poppers, n (%)	0	1 (0.4)	0.403
Ethanol co-ingestion, n (%)	178 (51.3)	108 (47.4)	0.357
Clinical features			
Severity of the drug intoxication*			0.002
minor, n (%)	123 (35.3)	58 (24.7)	0.012
moderate, n (%)	201 (57.8)	170 (72.3)	0.012
severe, n (%)	23 (6.6)	6 (2.6)	NS
fatal, n (%)	1 (0.3)	1 (0.4)	NS
Treatment of intoxication			
Pre-hospital treatment, n (%)	56 (16.1)	40 (17)	0.767
In-hospital treatment, n (%)	223 (64.1)	147 (62.6)	0.707
Intubation, n (%)	11 (3.2)	6 (2.6)	0.804
Sedation, n (%)	113 (32.5)	69 (29.4)	0.427
Antidote, n (%)	21 (6)	22 (9.4)	0.132
Disposition from the EDs			
Medically discharged, n (%)	203 (58.3)	126 (53.6)	0.260
Psychiatric care, n (%)	65 (18.7)	79 (33.6)	<0.001
Intensive care unit, n (%)	41 (11.8)	14 (6)	0.018
Other hospital wards, n (%)	27 (7.8)	5 (2.1)	0.003
Self-discharge, n (%)	11 (3.2)	10 (4.3)	0.487
Death, n (%)	1 (0.3)	1 (0.4)	1

*According to the Poisoning Severity Score; Significant results (p<0.05) are in bold and italic; IQR: Interquartile range (Q1-Q3); NS: non-significant; Weekend defined as

2. Logistic regression model to assess potential risk factors for disposition from the ED to "non-discharge at home" of presentations due to acute recreational drug toxicity

Before (from March 2018 to end of July 2019) COVID-19 pandemic						
Variable	Univariate logistic regression			Multivariable logistic regression		
	Unadjusted OR	95% CI	P value	Adjusted OR	95% CI	P value
Age	1.05	1.03 – 1.07	<0.001	1.04	1.01 – 1.06	0.001
Sex	1.09	0.68 – 1.76	0.716	1.10	0.65 – 1.89	0.716
Weekend (Friday 5pm-Monday 8am) arrival	0.68	0.44 – 1.06	0.087	0.82	0.50 – 1.34	0.424
Night (8 pm-8 am) arrival	0.70	0.45 – 1.07	0.100	0.90	0.55 – 1.49	0.692
Ambulance	1.92	1.18 – 3.12	0.008	1.15	0.65 – 2.03	0.629
Severity of drug intoxication*	3.32	2.18 – 5.07	<0.001	3.027	1.90 – 4.83	<0.001
Poly-drug use	2.59	1.66 – 4.04	<0.001	2.120	1.29 – 3.48	0.003
Pre-hospital treatment	1.75	0.99 – 3.12	0.056	1.336	0.68 – 2.64	0.405
During (from March 2020 to end of July 2021) COVID-19 pandemic						
Variable	Univariate logistic regression			Multivariable logistic regression		
	Unadjusted OR	95% CI	P value	Adjusted OR	95% CI	P value
Age	1.02	1.00 – 1.04	<0.047	1.02	1.00 – 1.04	0.073
Sex	1.24	0.69 – 2.22	0.464	1.49	0.79 – 2.79	0.215
Weekend (Friday 5pm-Monday 8am) arrival	1.09	0.64 – 1.87	0.743	1.40	0.80 – 2.51	0.261
Night (8 pm-8 am) arrival	0.88	0.53 – 1.49	0.641	0.85	0.49 – 1.49	0.577
Ambulance	1.36	0.78 – 2.37	0.280	1.04	0.55 – 1.94	0.910
Severity of drug intoxication*	2.33	1.31 – 4.13	0.004	2.26	1.23 – 4.16	0.009
Poly-drug use	2.22	1.30 – 3.79	0.003	2.02	1.15 – 3.55	0.014
Pre-hospital treatment	1.66	0.84 – 3.28	0.147	1.37	0.64 – 2.91	0.418

Significant results (p<0.05) are in bold and italic; *According to the Poisoning Severity Score; Abbreviations: OR, odds ratio; CI, confidence interval; Age was considered as continuous variable, Severity of drug intoxication as categorical variable with four levels: "minor", "moderate", "severe", and "death". Sex as dichotomous variable "male" versus "female", the others all as dichotomous variables "yes" versus "no".

Conclusions

- ED presentations due to acute recreational drug toxicity before the COVID-19 pandemic differed from those during the COVID-19 pandemic in timing of arrival at the ED, type of substances used for recreational purposes, grade of severity of drug intoxication, and disposition from the ED. Moreover, before as compared to during COVID-19 pandemic, median patient age was younger.
- In contrast, the proportion of ED presentation due to acute recreational drug toxicity before and during the COVID-19 pandemic did not differ.
- A more severe drug intoxication and poly-drug use appeared as risk factors for disposition from the ED to "non-discharge at home" of presentations due to acute recreational drug toxicity both before and during the COVID-19 pandemic.
- The characteristics found in this study contribute to the recognition of ED presentations with acute recreational drug toxicity at high odds of admission for further health care services.