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AN ITALIAN NATIONWIDE STUDY OF HOSPITALIZATIONS AIMED TO ANALYSE PATHOLOGIES AFFECTING DRUG USERS, IN PARTICULAR CANNABIS USERS

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BACKGROUND

- Studies on the health consequences related to the use of illegal drugs - such as amphetamines, cannabis, cocaine, and opioids - are still few, and mostly focused on mortality risks and injecting use risks: literature concerning the burden of diseases caused just by substance abuse is poor.

- Moreover, these studies have been carried on mainly analysing **particular subgroups of people** (such as patients accessing to Emergency Rooms).

- **A strong point** of the present study is that it has been conducted using **exhaustive, official and nationwide collected data** regarding Italian hospital discharges, including both demographic and clinical data.

- These data have been analysed to identify the **pathologies most related to the use of illegal drugs, with a particular focus on cannabis** (*spoiler*: the hospitalization profile of cannabis users is fairly similar to that of general population)

METHODS (1/3) Data Source

To study the pathologies affecting persons hospitalized for drug-related diagnoses, records from the **National Hospitalizations Data Base (from now on NHDB**) were analysed.

The NHDB collects data regarding **all patients** discharged from any Italian hospital after an urgent or planned (diagnostic or interventional) admission.
For each patient, **demographic data** (e.g., gender, date, place of birth) as well as **discharge diagnoses**: the primary and up to five secondary diagnoses are recorded;
diagnoses are codified according to the World Health Organization (WHO) International Classification of Diseases, Ninth Revision, Clinical Modification **(ICD-9-CM).**

In the NHDB it is possible to take into consideration not only the **HOSPITALIZATIONS**, but also the **HOSPITALIZED PERSONS.**

METHODS (2/3)

Case definition

The “Cases” analysed in this study are the patients diagnosed with selected codes (presented in the following slide), reported as primary or secondary diagnoses in the discharge forms.

Study period 2006-2022

Incident cases

Patients diagnosed with at least one of the selected ICD codes in their first hospitalization, occurred during the study period.

A “washout” period (2001-2005) was used to avoid the inclusion of “prevalent” cases.

STATISTICAL METHODS

For each comorbidity, the **standardized hospitalization ratio (SHR)**, as well as its **95% CI**, were calculated using the indirect standardization method, considering the hospitalized Italian population (stratified by gender) as reference.

Sex ratio (M/F)

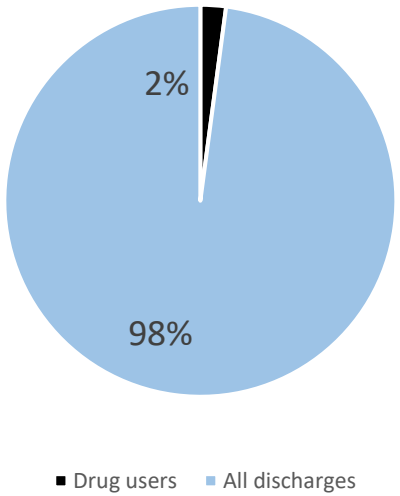
METHODS (3/3) ICD-9 Codes for investigated Drugs and Pathologies

DRUGS*	
	CANNABIS
3043	Cannabis dependence
3052	Cannabis abuse
	OPIOID
3040	Opioid type dependence
3055	Opioid abuse
9650	poisoning by opiates and related narcotics
	COCAINE
3042	Cocaine dependence
3056	Cocaine abuse
9685	Poisoning by surface (topical) and infiltration anesthetics
	AMPHETAMINE
3044	Amphetamine and other psychostimulant dependence
3057	Amphetamine or related acting sympathomimetic abuse
9697	Poisoning by psychostimulant
	Other
292	Disturbi mentali indotti da sostanze
3041	Sedative, hypnotic or anxiolytic dependence
3045	Hallucinogen dependence
3051	Tobacco use disorder
3053	Hallucinogen abuse
3054	Sedative, hypnotic or anxiolytic abuse
9670	Poisoning by barbiturates
9696	Poisoning by psychodysleptics (hallucinogens)
98984	Toxic effect of tobacco

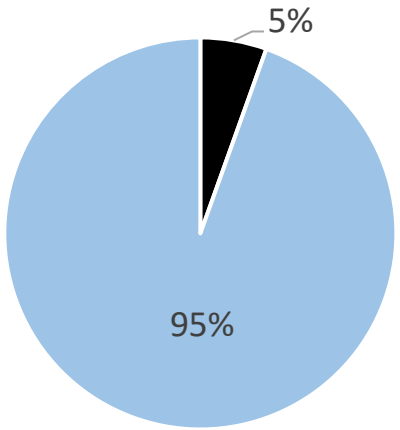
*Also included codes referring to ALCOHOL abuse (291,303,3050)

COMORBIDITIES	ICD9-CM
Infectious and parasitic diseases	001-139
Malignant neoplasms	140-208
Diseases of the circulatory system	390-459
Diseases of the respiratory system	460-519
Diseases of the digestive system	520-579
Diseases of the urinary system	580-599

Drug related Hospitalizations Vs Hospitalizations for all natural causes



Cannabis related Hospitalizations Vs Hospitalizations for all Drugs



Statistically significant SHR for people hospitalized for different drug use (no excesses for Cannabis Users)

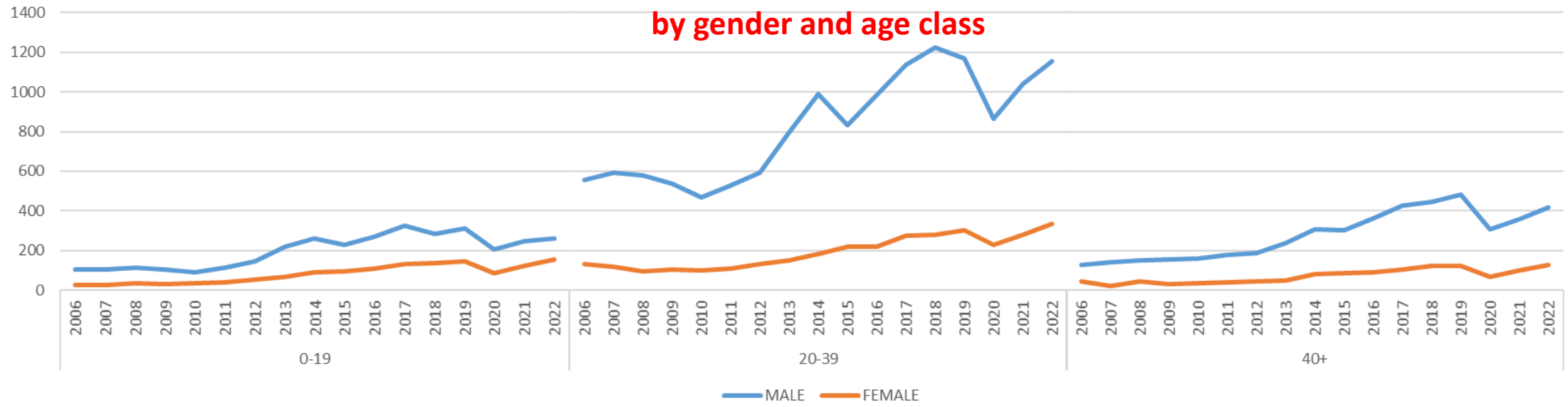
GENDER	AGE CLASS	Comorbidity	Drug	SHR
FEMALE	40+	Digestive diseases	Alcohol	137.2 (134.59-139.87)
	40+	Infective diseases	Alcohol	132.04 (126.85-137.45)
	20-39	Circulatory diseases	Other	127.88 (119.12-137.28)
	40+	Circulatory diseases	Other	128.61 (126.97-130.27)
	20-39	Respiratory diseases	Other	121.8 (114.14-129.98)
	40+	Respiratory diseases	Other	162.86 (160.19-165.57)
	40+	Infective diseases	Cocaine	193.42 (160.36-233.3)
	40+	Digestive diseases	Opioid	111 (104.17-118.27)
	20-39	Infective diseases	Opioid	416.67 (387.58-447.94)
	40+	Infective diseases	Opioid	358.83 (336.14-383.05)
	20-39	Respiratory diseases	Opioid	118.32 (107.38-130.37)
	40+	Respiratory diseases	Opioid	144.59 (135.58-154.2)
	40+	Urinary diseases	Opioid	126.7 (116.5-137.79)
MALE	40+	Digestive diseases	Alcohol	119.68 (118.51-120.86)
	40+	Infective diseases	Alcohol	114.47 (112.06-116.92)
	40+	Circulatory diseases	Other	138.19 (137.01-139.38)
	40+	Respiratory diseases	Other	115.08 (113.59-116.58)
	40+	Infective diseases	Cocaine	143.95 (133.36-155.37)
	0-19	Infective diseases	Opioid	187.35 (144.29-243.27)
	20-39	Infective diseases	Opioid	380.48 (365.52-396.04)
	40+	Infective diseases	Opioid	475.2 (459.66-491.26)
	40+	Respiratory diseases	Opioid	123.41 (118.55-128.47)

CANNABIS USERS (2006-2022) no. of patients

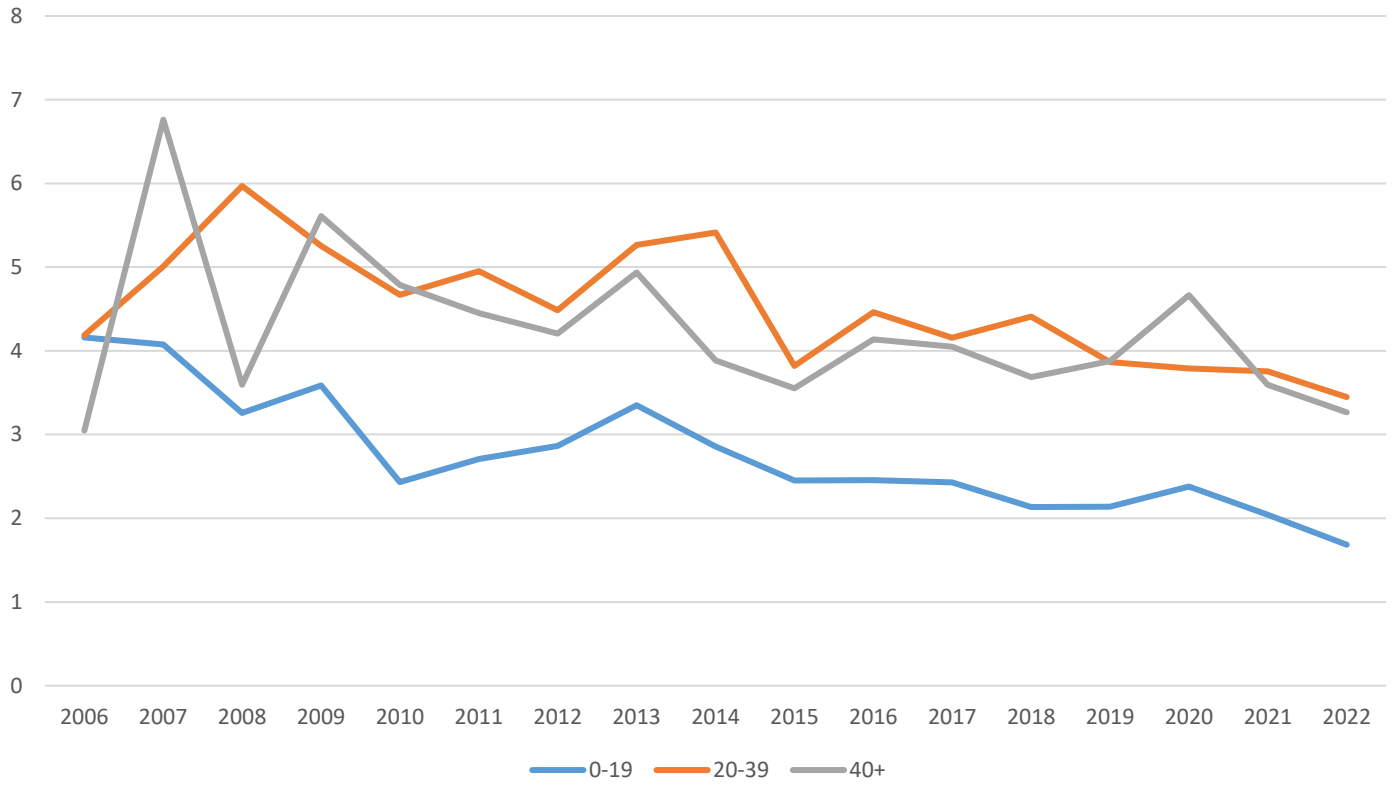
Number of patients

Age class	Only Cannabis		Cannabis+Opioid		Cannabis+Cocaine		Cannabis+Alcohol		Cannabis+Amphetamine		Cannabis+Other Drug		Cannabis+2 or more drug		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0-19	1938	775	45	35	198	119	322	175	26	9	349	74	510	192	3388	1379
20-39	5994	1324	279	80	1276	312	1619	371	49	12	1257	239	3574	918	14048	3256
40+	1494	361	156	47	363	69	871	250	10		245	67	1604	399	4743	1193
All age	**9426**	**2460**	**480**	**162**	**1837**	**500**	**2812**	**796**	**85**	**21**	**1851**	**380**	**5688**	**1509**	**22179**	**5828**

Temporal trend of cannabis users by gender and age class



Sex ratio of hospitalizations for cannabis use
Time trend 2006-2022



CONCLUSIONS

- Recently many countries in Europe have legalized recreational cannabis use for non-minors, including Germany, after Luxembourg and Malta.
- One of the main reasons was also related to the socio-health consequences of cannabis use, scientifically evaluated in several papers, of which the main authors are David Nutt and Jan van Amsterdam, who ranked different substances precisely according to socio-health consequences.
- Cannabis always shows lower scores than other substances and even legal substances, particularly alcohol.
- All of the works on which the studies are based are particular works on specific groups, no work is based on a dataset of the whole population of a whole country as this one is for the Italian population.
- This analysis on comorbidities showing health consequences for cannabis users similar to nonsubstance users is a key scientific step that opens the way for much further study.
- Nonetheless, it must also be remembered that cannabis in Italy is illegal, thus not controlled for quality, and this can cause health harms from possible pesticides and other things, but they do not turn out to be significant compared to nonuse.

Thank you for your attention