International Journal of Biomedicine 15(4) (2025) 722-726
http://dx.doi.org/10.21103/Article15(4)_OA12

ORIGINAL ARTICLE
Adolescent Health

INTERNATIONAL JOURNAL OF BIOMEDICINE

Narcotic Substance Abuse among Minors in Albania during 2020-2024

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Abstract

Background: The use of narcotic substances among minors represents an increasing public health concern in Albania and globally, carrying significant physical and mental health consequences. The goal of this study was to provide clinical and epidemiological evidence of psychoactive substance use among minors to inform national policy, optimize preventive strategies, and enhance therapeutic frameworks tailored to youth at risk in Albania.

Methods and Results: This study employed a retrospective observational design and was conducted at the Clinical Toxicology Service of the University Hospital Centre "Mother Teresa" in Tirana. The study included all patients who were treated for confirmed or suspected of intoxication by psychoactive substances from January 1, 2020, to December 31, 2024. Data were collected from clinical records and included types of substances used, treatment provided, and demographic factors. A total of 1,032 patients were treated for psychoactive substance intoxication. Among them, 27 (2.6%) were minors (<18 years), while 1,005 (97.4%) were adults. Among minors, 25 (92.6%) were male and 26 (96.3%) resided in urban areas. The majority of minors, 18(66.7%), lived in Tirana prefecture. Among minors, cannabis was the most prevalent substance used (37.0%), followed by opioids (22.2%), polysubstances (22.2%), and cocaine (18.5%). No alcohol-only intoxications were recorded among minors. A significantly higher proportion of minors had cannabis-related intoxication than did adults (37.0% vs. 5.7%), while cocaine use was more common among adults (39.1% vs. 18.5%). These differences were statistically significant (P<0.001).

Conclusion: This study highlights the urgent need to address narcotic substance use among minors in Albania. Strengthening national surveillance systems and integrating mental health services into prevention efforts will be key to protecting vulnerable populations and shaping effective policy responses.(**International Journal of Biomedicine. 2025;15(4):722-726.**)

Keywords: Albania • minors • narcotic substances • substance abuse • toxicology

For citation:Tahiri A, Vargu M, Shaska-Zilja E, Zenelaj E, Durmishi E, Gishto T, Begotaraj E, Vargu P. Narcotic Substance Abuse among Minors in Albania during 2020-2024. International Journal of Biomedicine. 2025;15(4):722-726. doi:10.21103/Article15(4)_OA12

Introduction

The use of narcotic substances among minors represents an increasing public health concern in Albania and globally, carrying significant physical and mental health consequences. Adolescence is a critical developmental stage characterized by neurobiological and psychosocial vulnerabilities that increase susceptibility to experimentation with psychoactive substances. Initiation of drug use during this period can lead to significant short- and long-term consequences, including academic underachievement, cognitive impairments, psychiatric disorders, and substance dependence in adulthood.[1,2]

Globally, early-onset substance use is associated with increased risk of chronic addiction, criminal behavior, and socio-occupational dysfunction in adulthood.[3,4] In Europe, approximately 11% of 15-year-olds have used cannabis at least once, with higher rates reported among boys than girls, according to the 2024 European Drug Report 2024, published by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA).[5] Despite modest reductions

in prevalence in some Western European nations over the past decade,[6,7] the availability of illicit drugs remains widespread. Adolescents today are increasingly exposed to a broader spectrum of psychoactive substances, including synthetic cannabinoids, nitrous oxide, and novel psychoactive substances, many of which are potent and poorly understood.[8,9]

In Albania, adolescent substance use remains understudied. According to the European School Survey Project on Alcohol and Other Drugs (ESPAD) reports, cannabis use among Albanian high school students increased from 5% in 2011 to 7% in 2015, which is below the European average but likely underreported due to stigma and limited screening practices.[10,11] Clinical observations and isolated toxicology reports suggest a rise in adolescent admissions due to psychoactive substances, raising concern over the actual burden of this issue on the national health system.

Cannabis is the most frequently used illicit substance among minors and is associated with a range of health complications, including cannabinoid hyperemesis syndrome, neurocognitive deficits, cardiovascular symptoms, and mental health disturbances such as depression and anxiety.[12-14] Cocaine, though less commonly used, carries a higher risk of acute toxicity and is associated with significant alterations in adolescent brain development, impulse regulation, and addiction potential.[15,16] These effects are particularly concerning given the heightened plasticity and vulnerability of the adolescent brain.

The risks of substance use are further exacerbated in adolescents with pre-existing psychiatric disorders, trauma history, or familial substance use.[17] Studies also suggest that early drug exposure is correlated with impaired educational attainment, juvenile delinquency, and risky sexual behavior.[18,19] Preventive efforts are often hampered by a lack of structured national surveillance and the absence of targeted public health campaigns addressing adolescents specifically.

Although international literature has extensively addressed substance abuse in adolescents,[20-22] regional and country-level studies, especially in the Balkans, are limited. Several case series and retrospective analyses have focused on adolescent poisoning, cannabis-induced psychosis, and polydrug toxicity in minors from Turkey, Serbia, and North Africa.[15] Such studies underscore the clinical relevance and global resonance of substance abuse in youth, but they also highlight the pressing need for Albania-specific data to guide local interventions.

This study seeks to address this research gap by analyzing data from minors treated for substance use at the Clinical Toxicology Service of the University Hospital Centre "Mother Teresa" (Tirana). The goal of this study was to provide clinical and epidemiological evidence of psychoactive substance use among minors to inform national policy, optimize preventive strategies, and enhance therapeutic frameworks tailored to youth at risk in Albania.

Materials and Methods

This study employed a retrospective observational design and was conducted at the Clinical Toxicology Service of the University Hospital Centre "Mother Teresa" in Tirana, the only national tertiary-level facility in Albania providing specialized care for substance abuse, intoxication, and overdose.

Study Population

The study included all patients who were treated for confirmed or suspected of intoxication by psychoactive substances from January 1, 2020, to December 31, 2024. Cases were identified through medical records, and patients with incomplete documentation or intoxications unrelated to psychoactive substances were excluded.

Data Collection

Clinical and demographic data were extracted from medical records using a standardized data extraction form completed by trained clinical staff. The variables included age, sex, residence, type of substance used, route of administration, clinical symptoms, diagnostic confirmation (when available, via urine or blood test), treatment interventions, and patient outcomes.

Statistical Analysis

Statistical analysis was performed using the statistical software package SPSS version 21.0 (Armonk, NY: IBM Corp.). Categorical variables were expressed as frequencies and percentages. Comparisons between minors (<18 years) and adults (≥18 years) were performed using Chi-square tests or Fisher's exact tests when appropriate. The probability value of $P \leq 0.05$ was considered statistically significant.

Results

A total of 1,032 patients were treated for psychoactive substance intoxication at the Clinical Toxicology Service from January 1, 2020, to December 31, 2024 (Table 1). Among them, 27 (2.6%) were minors (<18 years), while 1,005 (97.4%) were adults. The mean age of the entire cohort was 33.4 years (range: 10-84.9 years). Among minors, 25 (92.6%) were male and 26 (96.3%) resided in urban areas. The majority of minors, 18 (66.7%), lived in Tirana prefecture.

Table 1.

Demographic characteristics of study participants.

Variable	Number	Percentage
Gender		
Females	67	6.5
Males	965	93.5
Age		
<18 years	27	2.6
≥18 years	1005	97.4
Residence		
Rural	37	3.6
Urban	995	96.4
Region		
Tirana	564	54.7
Other regions	468	45.3
Total	1032	100.0

Analyzing the annual trend (Table 2), we found that patient admissions increased throughout the five-year study

period. In 2020, there were 92 (8.9%) cases, followed by 158 (15.3%) in 2021, 205 (19.9%) in 2022, 263 (25.5%) in 2023, and 314 (30.4%) in 2024. This steady rise suggests a growing burden of substance-related intoxications over time.

Table 2.

Annual trends in substance abuse in the study population.

Year	Number	Percentage
2020	92	8.9
2021	158	15.3
2022	205	19.9
2023	263	25.5
2024	314	30.4
Total	1032	100.0

Table 3 presents a comparative analysis of substance-related problems among minors and adults. For each substance category, the prevalence rates are reported alongside the χ^2 test values and corresponding *P*-values, indicating whether statistically significant differences exist between the two age groups.

Table 3.

Distribution of different types of substance abuse by age groups.

Substance Abuse	<18 years n (%)	≥18 years n (%)	χ^2	*P*-value
Alcohol-related problems	0 (0.0%)	20 (2.0%)	0.552	0.458
Opioid-related problems	6 (22.2%)	293 (29.2%)	0.641	0.423
Cocaine-related problems	5 (18.5%)	393 (39.1%)	6.196	0.013
Cannabis-related problems	10 (37.0%)	57 (5.7%)	40.169	<0.001
Mixed drug problems	6 (22.2%)	242 (24.1%)	0.046	0.83

Across all age groups, the most commonly abused substance was cocaine [398 (38.6%)], followed by opioids [299 (29.0%)], polysubstance use [248 (24.0%)], cannabis [67 (6.5%)], and alcohol [20 (1.9%)]. Among minors, cannabis was the most prevalent substance used [10 (37.0%)], followed by opioids [6 (22.2%)], polysubstances [6 (22.2%)], and cocaine [5 (18.5%)]. No alcohol-only intoxications were recorded among minors. A significantly higher proportion of minors had cannabis-related intoxication than did adults (37.0% vs. 5.7%), while cocaine use was more common among adults (39.1% vs. 18.5%). These differences were statistically significant ($P<0.001$).

Regarding alcohol-related problems, none of the minors reported such issues (0.0%) whereas 2.0% of adults did. The Chi-square test showed no statistically significant difference between the two groups ($\chi^2=0.552$, $P=0.458$), suggesting that alcohol use problems are similarly uncommon across both age groups in this sample.

In the case of opioid-related problems, 22.2% of minors reported use compared to 29.2% of adults. Although there is a numerical difference, it was not statistically significant ($\chi^2=0.641$, $P=0.423$), indicating that opioid use may affect both minors and adults at relatively similar rates within the studied population.

In contrast, a statistically significant difference emerged about cocaine-related problems. Among minors, 18.5% reported issues, whereas this figure rose to 39.1% among adults. The Chi-square test confirmed this difference as statistically significant ($\chi^2=6.196$, $P=0.013$), implying that adults are considerably more likely to experience problems related to cocaine use than are minors.

These findings emphasize the importance of age-specific intervention strategies, particularly in addressing the notably higher prevalence of cocaine-related issues among adults, while continuing to monitor emerging trends among youth.

Discussion

This study provides clinical and epidemiological insights into the use of psychoactive substances among minors in Albania, based on data from the only national tertiary-level toxicology service. Although minors represented a small fraction of patients (2.6%), their clinical profiles and substance use patterns reveal critical public health concerns.

Our findings show that cannabis was the most commonly used substance among minors (37.0%), followed by opioids (22.2%), multi-drug combinations (22.2%), and cocaine (18.5%). These results align with the broader European trends reported by EMCDDA in 2024,[3] which identify cannabis as the most prevalent illicit substance among adolescents across the continent. Moreover, similar patterns were observed in studies conducted in the UK by Fitzsimons & Villadsen in 2021[23] and in Western Balkan countries, such as Kosovo and North Macedonia, where cannabis and synthetic drug use among adolescents remains widespread.

The high percentage of minors presenting with cannabis-related intoxication is consistent with evidence that cannabis is often perceived as a low-risk drug by adolescents, despite its association with adverse mental and physical health outcomes. Previous research has shown that adolescent cannabis use is linked to increased risk of psychosis, depression, cannabinoid hyperemesis syndrome, and cardiovascular complications.[7,8] Our results reinforce these concerns, especially in the context of the increasing availability of high-potency cannabis products.

Cocaine use among minors (18.5%) in this study is particularly alarming, exceeding national estimates from ESPAD,[5] which reported a 2.5% usage rate among Albanian adolescents. This may reflect both increased accessibility and underreporting in national surveys. The neurodevelopmental risks associated with adolescent cocaine use, including

impaired cognitive control, addiction vulnerability, and psychiatric comorbidities, have been well documented in studies from Caffino et al.[9] and Ryan.[10] The presence of these cases in a clinical setting underscores the need for urgent intervention strategies.

Another concerning finding is that over 22% of minors were intoxicated by multiple substances. Polydrug use among adolescents increases the likelihood of unpredictable drug interactions, overdose, and severe withdrawal symptoms. This pattern mirrors findings from studies in North America and Europe showing a rise in combined use of stimulants, opioids, and alcohol among youth.[2,24] While this study contributes valuable data, several limitations must be acknowledged. Its retrospective nature restricts causal inference, and the sample may not be fully representative of the national adolescent population, given that it only includes hospital-based cases. Nevertheless, the strength of the study lies in its use of standardized clinical data from the only toxicology referral center in Albania, offering reliable insights into the most severe cases of adolescent substance use.

Conclusion

This study highlights the urgent need to address narcotic substance use among minors in Albania. Although representing a small proportion of clinical admissions, the presence of serious intoxication cases among adolescents signals broader public health challenges related to early drug initiation, particularly involving cannabis, cocaine, and drug combination use. Also, the data of the hospitalization has enabled an important conclusion that the main part of adults between the ages of 30 and 40 years who use drugs started drug abuse at a young age. Early identification, school- and community-based prevention programs, and stronger coordination between healthcare, education, and law enforcement institutions are critical for mitigating long-term risks and reducing the burden of substance abuse among youth. Strengthening national surveillance systems and integrating mental health services into prevention efforts will be key to protecting vulnerable populations and shaping effective policy responses.

Ethical Considerations

The study was approved by the Ethics Committee of the University Hospital Centre "Mother Teresa" and was conducted in accordance with the Declaration of Helsinki. All data were anonymized to ensure patient confidentiality, and no individual consent was required due to the retrospective nature of the study.

Sources of Funding

This study was funded by the National Agency for Scientific Research and Innovation of Albania (https://nasri.gov.al/).

Conflicts of Interest

The authors declare that they have no competing interests.

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