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Social and individual risk factors of alcohol and drug use among emerging adults in a nightlife setting

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Abstract

Introduction: Regular alcohol consumption, binge drinking, and the use of psychoactive drugs reach their peak in emerging adulthood. Among other factors, socialization contexts such as nightlife and individual differences in personality and motives for drug use contribute to adolescents' exposure to risk.

Methods: The current overnight project study was conducted in a summer nightlife setting. Italian adolescents aged 18 to 25 were invited to complete a short online survey about their lifetime, i.e., if ever used a substance, and past-month alcohol and drug use. A subsample also self-reported on a short Big Five personality measure, and another subsample on a measure of motives for drug use and perceived drug use among siblings and friends. A total of 770 people (54.8% females) provided valid self-reports.

Results: The prevalence of binge drinking, frequent alcohol use, stimulants, and club drugs use was higher in the nightlife sample compared to a normative sample, with significant odds ratios indicating moderate to high risk, particularly for the male nightlife population. The Big Five personality profiles helped distinguish between frequent alcohol use and binge drinking, between regular cannabis use and use of other drugs, including poly-drug use. In the case of stimulant use, socially oriented motives predominated, while in the case of regular cannabis use and poly-drug use

in the past month, self-related motives such as coping with anxiety also emerged. Finally, drug users were 2 to 4 times more likely than their peers to report substance use among their friends.

Discussion: To date, no studies have been conducted in nightlife settings in Italy. The results of the present Overnight project confirm that the nightlife environment represents a risk factor for alcohol and substance use, and that personality and motives for substance use help identify young people at higher risk for substance misuse. Prevention projects can benefit from these findings.

Take-home message: Nightlife is a social environment where there is a higher risk of excessive alcohol and drug use. Prevention programs should be implemented in such environments, and personality and substance use motives could help identify at-risk youth who need professional support.

Keywords: Big Five; binge drinking; drug use; nightlife; poly-drug use.

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INTRODUCTION

Alcohol and psychoactive drug use represent a global emergency in Western countries, with the trend towards substance use increasing rapidly from early adolescence, and then peaking in emerging adulthood [1, 2], i.e. the least structured period of the life course, when identity exploration, self-focus, instability, feeling- in-between, and (un)fitting opportunities are typical of those years [3]. In addition, young males are generally at higher risk for alcohol and substance use and for meeting clinical criteria for alcohol and (poly)substance use disorders, compared to their female peers [1,4,5].

Environmental, social, and individual factors contribute to a young person's risk of alcohol and substance use [6-8]. Among the environmental factors, the socialization context with peers may play an important role, in that alcohol, cannabis, and club drug use are social rather than solitary behaviours [9-11]. Nightlife is among the socialization contexts that facilitate the encounter with substances, thereby exposing individuals to the risk of initiation and maintenance of alcohol and drug use [12,13]. Indeed, empirical survey report that alcohol and substance consumption among young nightlife revellers is 4 to 25 times higher than in the general population [14], approximately 80% of men and 65% of females are at risk of becoming hazardous drinkers or having an active alcohol use disorder [15], and use of stimulants such as cocaine and MDMA is up to ten times higher in nightlife and party settings than in other social contexts [1,16]. Hannemann and colleagues [17] found that four main patterns can be identified among German youths who attend electronic music and dance events during the night: Around 35 percent use only cannabis, 37 percent use club drugs, 17 percent use both psychedelics and club drugs, and 11 percent are at high risk of using multiple substances. Conversely, opioid use has negative effects on socialization, and indeed a reciprocal relationship between social isolation and opioid dependence has been found [12,18].

When the attention is turned to friends, research consistently shows a correlation between a young person's substance use and peer use [8]. Empirical concurrent data not only show that two-thirds of adolescent students have at least one friend who uses cannabis, but also that one-third of them use and purchase cannabis with and from peers [19]. Furthermore, the percentage of friends reported to use substances is remarkably higher compared to family members [20]. Research has supported both socialization and selection processes in substance use among peers. Indeed, the use of alcohol, including binge drinking, and illicit drugs among best friends and high-status peers carries the risk of increasing the substance use in adolescence and later years [13,21] and, in turn, an adolescent's alcohol and cannabis use predicts the increase in substance use among peers [8].

Siblings who use substances represent another established risk factor for the initiation and maintenance of alcohol and drug use from adolescence [8]. Indeed, not only do parents pose a risk to their offspring [7,13,20], but substance use in older siblings is also predictive of excessive alcohol and substance use in their younger siblings, especially if close in age [22,23]. In general, less attention has been paid to siblings compared to parents or peers, but English and colleagues [20] found that 20 per cent of adolescents from a representative sample reported that their siblings use cannabis recreationally. According to the current literature, nightlife attendees generally report their substance use, whereas the perceived substance use in their friends and siblings has remained unexplored.

The importance of peers also becomes clear when examining individual differences in the motives behind substance use [24]. For example, recreational use of club drugs is associated with the desire to improve socialization skills and opportunities, and to feel a greater enhancement, i.e., having more fun [25]. Alcohol use and cannabis use are also associated with socially oriented motives [26], although self-focused motives also play a relevant role, especially for cannabis use and heavy drinking [26,27]. In addition, a recent longitudinal study has shown how motives of better socialization and anxiety coping were associated with a younger age of initiation into cannabis use as well as with an increase in cannabis use and its negative consequences one year later [28]. To our knowledge, no study has investigated the motives for substance use in nightlife among young adults.

Finally, individual differences in trait-like personality profiles warrant attention, because they also contribute to predicting regular and disordered alcohol and drug use. When applying the Big Five/Big Five Factor model of personality traits [29], research studies have shown that emerging and young adults with frequent binge drinking generally have higher scores on Emotional Instability or Neuroticism (N+), lower scores on Agreeableness (A-) and especially Conscientiousness (C-) compared to their peers [30,31]. Comparable FFM/Big Five personality profiles emerge from both cross-sectional and longitudinal studies examining recreational and disordered cannabis use [32,33], and hard drug use and dependence, including cocaine and opioids [34,35], in both younger and older individuals. Such an N+ A- C- profile is associated with greater difficulties in socialization, behavioural self-control, and clinical treatment [31].

Indeed, individuals with substance use disorders have consistently been found to have impaired emotion regulation compared to controls [36]. Less consistent results are available for Extraversion, with binge drinkers, but not drug users, showing higher scores [30,32]. As for Openness to experience, in their meta-analysis Winters and colleagues [33] suggest that openness (O+) distinguishes cannabis use from other drug use and dependence. Overall, different personality profiles might put people at different risk for certain substance use disorders. Less is known about the distinctive Big Five profiles of excessive alcohol drinkers and (poly)drug users in emerging adulthood and nightlife.

The present study and research hypotheses

To our knowledge, no studies have been conducted on emerging adults in a nightlife setting in Italy. Thus, for two consecutive years, 2022 and 2023, we collected self-report data from 18- to 25-year-old people, on summer weekend nights, in an urban venue full of bars, and examined the lifetime and past-month prevalence of alcohol use, binge drinking, and the use of cannabis and other drugs, together with the associations between self-reported substance use and Big Five personality profiles, motives behind substance use, and perceived use among friends and siblings.

Hypothesis 1. Self-reported prevalence of alcohol and substance use (especially stimulants, including cocaine and club drugs) among nightlife attendees is higher than available national post-pandemic data for 2022 among Italian youth, *ESPAD, European School Survey Project on Alcohol and Other Drugs* [19].

Hypothesis 2. Big Five N+A-C- profiles characterize participants reporting frequent alcohol consumption, binge drinking and substance use, with higher openness among participants reporting regular cannabis use (H2A) and higher emotional instability among at-risk participants who are polysubstance users (H2B).

Hypothesis 3. Socially-oriented motives prevail among stimulant users, whereas self-focused (coping) motives emerge among regular cannabis users and at-risk polydrug users.

Hypothesis 4. A higher prevalence of friends and siblings using substances is expected among participants who also report using substances.

Overall, focusing on the interplay between individual characteristics and motives and the social context in which substance use occurs, i.e., the nightlife social environment, may help to hone prevention strategies for at-risk youth.

METHODS

A priori power analysis

Following H1, we estimated that reaching a sample size of approximately 20 per cent (i.e., $n = 880$) of the normative ESPAD sample ($n = 4402$) would allow us to detect effects in the range of $OR = 1.50$ ($\alpha = 0.05$ and $\beta = 0.10$, or $\alpha = 0.01$ and $\beta = 0.20$) when the expected prevalence is in the range of 5 per cent in the normative sample, and effects in the range of $OR = 1.20$ ($\alpha = 0.05$ and $\beta = 0.10$, or $\alpha = 0.01$ and $\beta = 0.20$), when the expected prevalence is in the range of 30 per cent in the normative sample.

Moreover, we planned to reach a comparable proportion of males and females in the local sample, which would allow us to detect gender difference in the range of $OR = 1.75$ ($\alpha = 0.05$ and $\beta = 0.10$, or $\alpha = 0.01$ and $\beta = 0.20$) when a hypothetical small prevalence of 5% is observed in females, and in the range of $OR = 1.35$ when a hypothetical prevalence of 30% is observed in females. As to H2 and H3, a sample size > 350 would allow the detection of effects in the range of $OR = 1.20$ ($\alpha = 0.05$ and $\beta = 0.20$), when multiple estimators are considered simultaneously.

Participants

Nine hundred participants were invited to take part in the study, but 47 declined, 42 respondents were excluded because their age did not fall within the range of 18-25 years, and 41 because they provided incomplete information. The study included 770 respondents: 418 (54.2%) completed the online survey in summer 2022, 352 in summer 2023. The final sample size approximated the expected sample size, thus allowing enough statistical power to detect modest effects.

Study instruments

Socio-demographic descriptors

Gender (male, female, other), age, student (yes/no) and work (yes/no) conditions were self-reported.

Big Five Inventory (BFI)

BFI is a measure of the Big Five personality domains with 2 items for each of the five scales [37]; administered in summer 2022 ($n = 418$), participants completed it twice, first as a self-report, then in reflected-appraisal form (i.e., *how they believe other people generally rated them*); responses were given on a 5-point Likert scale (1=agree strongly disagree, 5=agree strongly agree). The forms of self-evaluation and reflected evaluation correlated on matching scales (i.e., convergent validity, $.48 \leq r \leq .62$), whereas no-matching scales were essentially independent (i.e., divergent validity, $-.01 \leq r \leq .16$). Cronbach's alpha for each Big Five scale was $> .70$ for aggregate self- and reflected-appraisal responses.

When confirmatory factor analysis (maximum likelihood) was applied to the self and reflected scale scores, the fit indices supported a 5-factor solution in agreement with the expected model (RMSEA = 0.04, $.02 \leq 90\% \text{ CI} \leq .06$; TLI = 0.97; CFI = 0.98), whereas other factor solutions such as a general factor or a 2-factor solution did not (TLI $< .40$; CFI $< .78$). Factor covariances were significant ($p \leq .01$), but marginal, for Agreeableness and Openness ($\beta = 0.15$), Agreeableness and Emotional stability ($\beta = 0.17$), and Conscientiousness and Emotional stability ($\beta = 0.11$). For the current study, we used the Big Five factor scores.

Substance Use Motives Measure (SUMM)

SUMM assesses eight motives for alcohol and drug use, i.e., Enhancement ("to get high"), Social ("it helps you enjoy a party"), Conformity ("to be liked"), Self-expansion ("to be more open to experiences"), Performance ("to give me more energy"), Boredom-Coping ("to relieve boredom"), Anxiety-Coping ("it helps me when I'm feeling nervous"), and Depression-Coping ("to turn off

negative thoughts about myself”) [26]; responses on motives to use substances (no specific drug was indicated) were provided along a 5-point Likert scale. Following the authors of the Italian version of the SUMM scale, we administered two representative items for each scale. In summer 2023, participants were asked to complete this measure, if they had reported cannabis use throughout their lives ($n = 143$). For the present sample, internal consistency was in the range of $0.63 \leq \alpha \leq .82$, and confirmatory factor analysis yielded acceptable fit indices for an eight factor solution in accordance with the expected model (RMSEA = 0.079, TLI = 0.91, CFI = 0.95, after adjusting for inter-item covariances, i.e., item 1 Self-enhancement was allowed to covary with item 1 Anxiety and item 1 Social, and item 2 Boredom to covary with both the Performance items).

Sibling and friend substance use

Two items (yes/no options) asked if their siblings and friends use any substance; the respondents reported on these items in summer 2023.

Outcome variables: Past-month Alcohol and Drug Use.

Participants reported first on a filter question, i.e., on whether they have ever had any alcohol beverage in the past-month, and then, if yes, they reported on how frequently they have had alcohol beverages, on whether they have had 6 or more alcohol beverages in a couple of hours, and on when they usually have had alcohol beverages, in the part-month. If they indicated that they had alcoholic beverages on 20 or more days in the past month, they were classified as frequent drinkers vs. recreational drinkers, following ESPAD criteria [19]. If they had 6 or more beverages in a couple of hours, they were coded as binge drinkers vs. not, following ISTISAN criteria [38].

The respondents also reported on a second filter question, i.e., on whether they have ever used a drug throughout their lives, and if yes, they were asked to report on their past-month use of substances. We distinguished past-month regular (at least once a week) vs. daily cannabis users as well as lifetime vs. past-month regular (at least once a week) polysubstance users. Table 1 summarizes the study variables; Table 2 lists the substances we asked the participants to report on.

Table 1. The study variables.

Independent variables	
Socio-demographic variables	Gender (male, female, other) Age (continuous variable) Student (yes/no) Employee (yes/no)
Personality	BFI-10 (Big Five Inventory)
Substance use motives	SUMM (Substance Use Motives Measure)
Substance use in peers	Use in friends (yes/no) Use in siblings (yes/no)
Outcome variables	
Past-month alcohol use	Filter question: “Have you ever drunk at least one alcoholic beverage in the past month?” (yes/no) If YES “How many days have you drunk at least one alcoholic beverage?” (open response, with respondents coded as frequent alcohol consumers if indicated 20 or more days per month) “When do you usually take alcoholic beverages?” (Weekend/With meals); “Have you ever drunk 6 or more alcoholic beverages in a couple of hours?” (yes/no)
Past-month substance use	Filter question: “Have you ever used any drug in your life?” (yes/no). If YES “Have you ever used [substance] in the past month?” (yes/no) If yes, “How frequently have you used [substance] in the past month?” (1=never/almost never; 2=once a week; 3=twice or more a week; 4=daily)

Note: Response options are given in parentheses.

Procedure and setting

The data set was collected as part of the Overnight project, which has been carried out by the ASUGI Addiction Department in cooperation with local institutions since 2006. In a summer nightlife venue, professionals and trained volunteers provide information and support for young people to promote safe behaviour and prevent and reduce the negative consequences of heavy drinking and drug use in particularly vulnerable contexts. The team operates on weekend nights, from 11 p.m. to 3 a.m., in a pavilion that is also equipped with medical first aid and is always placed in the same area, so that it is easily recognizable and accessible to all those interested and in need.

Nightlife revellers who spontaneously contacted the Overnight team were invited to participate in the research project; receiving a cab voucher was not conditional on completing the online form. After reading an online consent form describing the objectives, content, treatment of data, guarantee of complete anonymity, and consenting to respond, participants voluntarily completed an online self-report. There were no exclusion criteria, except age or being visibly drunk or high. Data were collected from June 17 to September 4, 2022, and from July 1 to September 3, 2023, between 11 p.m. and 1 a.m. or later.

Compliance with ethical standards

The research complied with the 1964 Declaration of Helsinki and its subsequent amendments or comparable ethical standards required for the conduct of research involving human subjects, including compliance with Italian legal requirements. No additional ethical approval was required as participation was entirely voluntary, no sensitive personal data were requested, anonymity was fully guaranteed, and data were analyzed at the sample level only. There was no medical treatment or procedure that could cause psychological or social discomfort in the participants, nor were patients involved in data collection. Online informed consent was obtained from all individuals who took part in the study, before they began answering the anonymous self-report form.

Data analysis

In addition to the descriptive statistics for the outcome variables, odds ratios were used to compare the prevalence of alcohol and substance use in the present male and female subsamples as well as in the present nightlife participants and the national ESPAD sample [19] of 18- and 19-year-old students ($n=4,402$, 51% female) when appropriate prevalence criteria were present. Binary logistic regression analysis was applied to predict alcohol and drug use from Big Five (2022 data) and substance use motives and peer and sibling use (2023 data), adjusting for gender, age, and occupational status.

RESULTS

Socio-demographic descriptors

Fifty-seven (56.9%) percent of the respondents reported female gender, 0.9% non-binary gender, and 42.9% male gender, with no age differences between males and females ($M=21.3\pm2.0$ years); 49.6% reported being students, 24.7% studying and working at the same time, 21.6% being workers, and 3.9% resulted being NEET.

Prevalence of drug use, alcohol, and binge drinking (H1)

We first compared the prevalence of alcohol and drug use between the 2022 and 2023 data and found no differences; we conducted our subsequent analysis on the whole sample. Table 2 shows lifetime prevalence, i.e., if ever used, as a percentage of drug use among nightlife attendees. Lifetime cannabis was reported by almost 40% of respondents; lifetime use of other drugs ranged from 1.4% (opium/heroin, crack) to 9.1% (stimulants). Males systematically reported a higher prevalence of drug use, including the use of multiple substances, than their female peers. In addition, some systematic differences also emerged between respondents who reported having a job vs. those who did not. Specifically, binary logistic regression results showed that those who reported having a job had a higher risk of using stimulants ($OR = 2.82$, $p < .001$), especially cocaine ($OR = 3.21$, $p < .001$) and MDMA-ecstasy ($OR = 2.28$, $p = .02$), and were more likely to report polydrug use over their lifetime ($OR = 2.54$, $p < .001$), after controlling for the student (or not) condition.

Before comparing our data set with the available national data [19], we checked and found no statistical differences between younger (18-19 years) and older (20-25 years) respondents in terms of the prevalence of alcohol and drug use. Therefore, we compared our sample with the national ESPAD sample of 18- and 19-year-old students. The results showed that lifetime cannabis use was statistically the same in males, but slightly lower in the female sample. In general, the male nightlife sample was at higher risk ($2.52 \leq OR \leq 3.68$) for stimulant, cocaine, and ketamine use compared to national data, while females reported comparable prevalence, except for legal cannabis, whose use prevalence was higher among female nightlife attendees. Conversely, non-prescription drugs were unlikely to be reported in the study sample. The prevalence of lifetime multiple drug use was 12.6 percent and was higher among males; national comparative data were not available. Remarkably, however, when ESPAD prevalence was compared with the nightlife subsample who reported to study only ($n=382$), no significant differences emerged, while significant differences emerged when compared with the nightlife subsample of respondents who reported to work only ($n=166$), who were found to be at higher risk of taking stimulants ($OR = 4.02$, $p < .001$), cocaine ($OR= 5.32$, $p<.001$) and ketamine ($OR=4.37$, $p< .001$).

Table 2. Prevalence as reported percentage of lifetime illegal substance use, gender comparisons, and comparisons with ESPAD normative national data.

	Overall sample	Males	Females	Male/Female Odds ratio	ESPAD 2022 prevalence	Overnight/ESPAD Odds ratio		
						Overall	Males	Females
Cannabis	38.7	47.6	31.6	1.96***	42.6	0.85*	1.09	0.70**
Synthetic cannabis ^a	6.7	9.0	4.8	1.96*	8.6	0.83	0.96	0.71
Cannabis light (legal) ^b	29.5	37.7	24.0	1.14	17.7	1.95***	2.52***	1.66**
Stimulants	9.1	15.1	4.8	3.69***	5.4	1.75***	3.37***	0.79
Cocaine	7.3	12.1	3.7	3.60***	3.5	2.15***	2.91***	1.45
MDMA	–	11.2	2.3	5.34***				
Ecstasy	6.1							
Amphetamines		6.4	0.9	7.23***				
– Speed	3.2							
Psychedelics (LSD – Mushroom)	4.5	7.0	2.5	2.87**	3.9	1.17	1.29	1.06
Ketamine	3.0	5.8	0.9	6.55***	1.3	2.27**	3.68***	0.87
Opium-Heroin	1.4	1.8	1.1	1.56	3.0	0.47*	0.53	0.44
Non-prescription psychiatric drugs	3.5	4.8	2.3	2.16	17.9	0.17***	0.26***	0.10***
Polysubstance use	12.6	19.7	7.2	3.18***				

Note: Stimulants and Psychedelics as overall prevalence of the specific substances included in the category. PSU if self-reported use of two or more psychoactive substances. Past-month regular cannabis use/PSU as once or more times per week. ESPAD data for 2022 are reported for 18- and 19-year-old Italian students ($n = 4402$); ^a Available data for summer 2022 only ($n = 418$); ^b Available data for summer 2023 only ($n = 352$). * $\leq .05$, ** $\leq .01$, *** $\leq .001$.

Table 3 shows the prevalence of alcohol and cannabis consumption in the past month. Almost all participants stated that they had consumed alcoholic beverages; 94.5% consumed alcohol on weekends, 49.0% had binge drinking, 13.6% had frequent alcohol consumption (20 or more days/month, 2022 data) and 11.0% reported both frequent alcohol consumption and binge drinking (2022 data). Males were systematically at higher risk than their female peers (Table 3). No differences were found between participants who reported being workers and studying no longer and the remaining participants.

Compared to the national ESPAD data, the prevalence of alcoholic beverage consumption, frequent alcohol consumption and binge drinking was higher in the study sample. Binge drinking was higher in nightlife among both students only (OR = 1.43, $p = .009$) and workers only (OR = 2.53, $p < .001$), whereas frequent alcohol consumption was comparable to the national data among students, but higher among workers (OR = 2.50, $p = .001$). The prevalence of binge drinking was also higher compared to the available national ISTISAN data (2023) for 18- to 24-year-old Italians, i.e., 18.3% for males and 11.0% for females.

Table 3 also shows the prevalence of past-month regular cannabis use (15.8%), further reporting that 4.8% of the respondents were daily cannabis smokers and their prevalence was statistically comparable to national ESPAD data, although additional analyses again indicated a greater risk for young workers (OR= 2.55, $P = .006$) among nightlife goers. Moreover, past-month regular cannabis users were more at risk of reporting binge drinking (OR=3.59, $p < .001$), and the risk remained significant (OR=2.46, $p = .003$) also when we controlled for frequent alcohol consumption (OR=3.62, $p < .001$), gender and work (being workers only vs. not) condition. Lastly, 2.7 per cent of respondents reported past-month regular consumption of two or more different substances, with a neat prevalence among males (i.e., 19 males and 2 females, OR = 8.48, $p < .01$). Overall, the results are in line with *H1*, further indicating socio-demographic risk factors for alcohol and drug use.

Table 3. Prevalence of past-month alcohol, cannabis, and polysubstance consumption, gender comparisons, and comparisons with ESPAD national data.

	Overall Sample	Males	Females	Male/Female Odds ratio	ESPAD percentage	Overnight/ESPAD Odds ratio		
						Overall samples	Males	Females
Alcoholic beverages	94.9	94.5	95.4	0.84	75.6	6.60***	5.31***	7.01***
Frequent alcohol consumption ^a	13.6	19.0	9.2	2.33**	8.4	1.73***	1.81***	1.77***
Binge drinking	49.0	61.2	39.3	2.44***	35.7	1.73***	2.41***	1.36**
Regular cannabis use	15.8	27.9	8.3	4.26***				
Daily cannabis use	4.8	8.5	2.1	4.37***	4.9	1.06	1.40	0.56
Regular cannabis use and binge drinking	11.9	20.6	5.3	4.62***				
Past-month regular polysubstance use	2.7	9.8	0.5	13.17***				
N	770	330	433			4402	2144	2258

Note: Frequent alcohol consumption distinguishes between respondents who reported having past-month alcohol 20 or plus days or less; ^a available data for Summer 2022. Regular cannabis use as at least once a week

consumption. ESPAD data are reported for 18- and 19-year-old Italian students (ESPAD, 2023). * $\leq .05$, ** $\leq .01$, *** $\leq .001$

Alcohol and substance use and the Big Five (H2)

Table 4 presents results from hierarchical binary logistic regression analyses. Adjusting for gender (age was not a significant predictor and was excluded from the final regression models), the results in Table 4 show that binge drinking in the past month was associated with lower Conscientiousness, both before and after controlling for regular cannabis use; frequent alcohol use was instead associated with higher levels of Extraversion, both before and after controlling for regular cannabis use. Table 4 also shows results for cannabis use.

Lower Conscientiousness and higher Openness were associated with regular cannabis use, both before and after equating participants for binge drinking in the past month (H2A). Specifically, odds ratio or exp (β) showed that a 1 standard deviation increase in Openness was associated with a 34% increase in the odds of reporting cannabis use, whereas a 1 standard deviation increase in Conscientiousness was associated with a 39% decrease in the odds of reporting regular cannabis use in the past month. After accounting for gender and occupation, the increase in pseudo- R^2 indicated that the Big Five improved the outcome prediction.

Table 4 also shows that lifetime cannabis use was associated with higher Openness and lower Conscientiousness; nevertheless, Conscientiousness only remained a significant predictor (OR=0.72, $p=.01$) of lifetime cannabis use, when also adjusting for past-month regular cannabis taking. Emotional stability was associated with stimulant use (Table 4), with a 78% increase in the odds of reporting stimulant use over a lifetime for every 1 SD decrease in emotional stability.

Finally, for male participants, our dataset revealed 278% increased odds (OR = 0.36, $p=.03$) of having regular poly-drug use in the past month for every 1 SD decrease in Emotional stability (H2B). In contrast, the Big Five were not associated with the use of cocaine or psychedelics. Overall, the results supported the H2 hypotheses, except for Agreeableness.

Table 4. Predicting alcohol and substance use from Big Five domains.

Past-month frequent alcohol consumption	Model		Past-month Binge drinking		Lifetime cannabis use		Past-month regular cannabis use		Lifetime stimulants use	
	1	2	1	2	1	2	1	2	1	2
Gender	2.19*	1.58	2.26***	1.92**	2.31***	1.97**	4.17***	3.56***	8.74***	7.02***
Occupational status	1.47	1.63	1.31	1.37	0.63	0.57	0.73	0.68	1.65	1.58
Extraversion	1.35*	1.36*	1.20	1.20	0.90	0.86	1.04	1.00	1.01	0.97
Agreeableness	1.08	1.06	0.98	0.97	0.86	0.85	1.02	1.01	1.04	1.02
Conscientiousness	1.22	1.37	0.77*	0.80*	0.68***	0.71**	0.69**	0.72*	0.82	0.85
Emotional Stability	1.21	1.26	1.08	1.09	0.95	0.93	0.94	0.92	0.58*	0.56**
Openness	1.07	0.98	1.23*	1.18	1.32**	1.27*	1.40**	1.34*	1.25	1.17
Regular cannabis use		4.82***		2.68***						
Binge drinking						2.83***		2.70***		3.32**
Δ Pseudo- R^2 Cox and Snell ^a	0.023		0.030*		0.052***		0.032*		.026*	
Δ Pseudo- R^2 Cox and Snell ^b		0.046***		0.025***		0.0048***		0.034**		.018**
Overall Pseudo- R^2 Cox and Snell		.092***		0.107***		0.135***		0.121***		.102***

Note: Male gender coded as 1. Occupational status distinguishes between youth who works only (=1) vs. the remaining respondents. Alcohol and substance use coded as 1. Regular cannabis use if reported at least once a week in the last month (=1). Preliminary models also adjusted for individual differences in age, which was not significant and excluded from these models. Big Five factor scores as predictors. N = 418 (Summer 2022). ^a Δ

Pseudo-R² Cox and Snell: Increase in Pseudo-R², in addition to gender and occupational status; ^b *Δ Pseudo-R² Cox and Snell*: Increase in Pseudo-R², controlling for gender and Big Five scores. * p ≤ .05, ** p ≤ .01, *** p ≤ .001

Substance use motives behind drug use (H3).

In summer 2023, lifetime cannabis users, i.e., those who reported they had used cannabis in the course of their lives, completed the SUMM questionnaire (n=143). Preliminarily, we examined the mean scores for each SUMM scale (Table 5) and found that the Enhancement and Social scales had the highest scores. Table 5 presents the results of the backward logistic regression and show that higher Anxiety coping, higher Self-enhancement, and lower social motives predicted regular cannabis use in the past month, controlling for gender and occupational status. In addition, among lifetime cannabis users, lifetime cocaine use was predicted by higher Self-enhancement, lower Boredom-coping, and higher Performance motives; lifetime stimulant use by Self-enhancement motives; and past-month polysubstance use by higher Anxiety coping and Conformity motives (Table 5), whereas lifetime polysubstance experience depended on Self-enhancement (OR = 1.61, p=.01).

Overall, increases in pseudo-R² were statistically significant, and the results supported the general hypothesis that club drug use is mainly associated with social motives, whereas cannabis use is also associated with self-focused motives. The results are consistent with H3.

Table 5. Internal consistency, descriptive statistics, and SUMM predictors of substance use among lifetime cannabis smokers.

	alpha	M±SD	<i>Expected betas</i>			
			Past-month regular cannabis use	Lifetime stimulants use	Lifetime cocaine use	Past-month PSU
Anxiety-Coping	0.79	2.16±1.99	2.42***			2.15*
Enhancement	0.77	3.11±1.19	1.87**	1.85**	1.79*	
Conformity	0.68	1.63±0.90				1.97*
Social	0.79	2.70±1.19	0.51**			
Depression-Coping	0.82	2.01±1.27				
Boredom-Coping	0.75	2.25±1.24			0.55*	
Self-Expansion	0.74	2.40±1.23				
Performance	0.63	1.85±1.07			1.81*	
<i>Δ Pseudo-R² Cox and Snell</i>			0.166***	0.068**	0.094***	0.097***

Note: n = 143 cannabis users. Expected beta values are presented from binary logistic regression analysis, with backward procedure, adjusting for gender and occupation; *Δ Pseudo-R² Cox and Snell* indicates the increase in accounted variance after entering SUMM predictors, controlling for gender and occupation. Substance use coded as 1. *≤.05, **≤.01, ***≤.001.

Prevalence of substance use among siblings and friends (H4)

Almost half of participants in summer 2023 reported having a friend or sibling who uses substances; 41.7% reported having at least one friend and 11.7% a sibling; most respondents with a sibling who uses substances also reported having friends who use substances (90%), thus referring an overall peer social context at risk. Overall, exploratory binary regression analysis showed that lifetime cannabis use was uniquely predicted by having friends (OR = 5.06, p < .001) and siblings who use substances (OR = 2.97, p=.009), adjusting for gender and occupation. In addition, regular cannabis smokers (OR = 3.67, p=.001) and users of stimulants (OR = 3.73, p=.002) and cocaine (OR = 2.94, P=.02) were also likely to report substance use among friends; no other associations were observed. Lastly, ANOVA for mixed design 2 (friends or siblings using substances vs. not) x 8 (SUMM scales) showed

that the only significant effect was the between effect due to friends ($F = 4.43$, $p < .05$, $\eta^2 = .03$), i.e., the overall SUMM scores were higher for participants with friends who also use substances, with post-hoc analysis showing that social motives were significantly higher among cannabis users with friends who also use substances.

DISCUSSION

Emerging adulthood represents a life stage at risk for the development and exacerbation of alcohol and drug use and dependence [3], and participation in nightlife as one of the most popular activities among Western adolescents facilitates initiation and utilization of both alcohol and drugs [14].

However, to our knowledge, few field studies have been conducted in nightlife settings [15,17], and no research has been conducted in Italy. Our cross-sectional study contributes to describing the prevalence and risk rate of alcohol and drug use among 18- to 25-year-old adults living in a medium-sized city and spending their nights in a recreational area. Compared to national data [19], the present results support previous research findings indicating that past-month alcohol use, binge drinking and frequent alcohol use are higher among social nightlife revellers [9,13-14], especially if workers; lifetime use of stimulants, including cocaine and MDMA, and ketamine is also higher for males and for workers.

The present results also show that cannabis use is associated with excessive alcohol consumption, including binge drinking, which is in line with the literature reporting a high percentage of joint use of these substances, especially in social contexts [5,11,39]. In general, males are more at risk than females, and the current findings also draw attention to the occupational status of participants, with emerging adult workers being more at risk of excessive alcohol use and stimulant use, particularly cocaine [16,40].

Overall, the current study shows that recreational nightlife is a context at risk for alcohol and drug use also in a medium-sized urban area, in addition to metropolitan and metropolitan areas [15,17] and provides complementary information to ESPAD report [19] by including not only both high-school and university students, but also young workers. The current study also suggests that young people who use opioids or non-prescription drugs such as antidepressants are generally not in a recreational nightlife setting, with many people, and need to be reached differently for policy interventions.

The present results confirm the relevance of low Conscientiousness, which generally stands for low cognitive and behavioural impulse control, for the concurrent prediction of binge drinking, regular cannabis use, use of psychedelics, and use of multiple substances [30-31,33,35]. In addition, the present results indicate that binge drinkers tend to describe themselves as less conscientious, whereas frequent drinkers as more extraverted.

An association between extraversion and excessive drinking in a social context has been reported, although not consistently [30,32], and the current findings suggest that two distinct personality profiles for binge drinkers and frequent (likely social) drinkers should be considered in the future. Finally, our study supports the hypothesis that Openness is characteristic of marijuana users [33], further revealing that a profile with self-reported low Conscientiousness and higher Openness characterizes regular rather than occasional cannabis users. The observed relevance of Emotional Instability for both stimulant users and regular male multiple-drug users is consistent with research findings indicating an increase of neuroticism with a greater substance use and abuse, as people with substance use disorders have greater difficulties in emotion regulation [5,10,30,36,41]. In contrast to relatively consistent findings in the literature [32,42], Agreeableness did not concurrently predict alcohol or drug use in our sample, when adjusting for the other Big Five; we could hypothesize that the nightlife setting in which we conducted this study favours social encounters rather than hostile attitudes. Overall, the current results showed effect sizes of the Big Five as unique predictors in line with the literature [33,35], that is, in the range of modest size, thus suggesting that additional and hierarchically organized personality tools should be applied. For example, sensation seeking is significantly associated with the misuse and abuse of alcohol and drugs [13,30,41].

Lifetime use of stimulants was mostly related to social motives, i.e. having fun, with cocaine use also depending on the desire to enhance one's performance; conversely, regular cannabis use as well as poly-drug use served rather at coping with anxiety; furthermore, the present findings suggest that having fun is also paramount for regular cannabis users [26], whereas conformity might prevail among young people who also use additional drugs. Furthermore, we confirmed that emerging adults who report using cannabis and/or stimulants were also likely to report having siblings and friends using substances [8,20] and refined our knowledge of motives for drug use by revealing that social rather than self-focused motives prevail among cannabis users with siblings and/or friends who also use cannabis. These are preliminary findings, but they suggest that different motive profiles could help to improve prevention by showing how social rather than self-focused motives might predominate in relation to different drug use as well as different interpersonal contexts.

Implications for prevention programs.

Overall, the present findings are consistent with the literature: They indicate the need to implement prevention programs in nightlife contexts [14]. Generally, a prevention program like the Overnight project allows the dissemination of professional information on substance and drug use among young people with different educational background and work conditions; moreover, administering surveys in nightlife contexts represents a useful tool for health operators to establish a first approach with those young people in need of professional support and help.

Specifically, data collected in nightlife settings provide relevant information about risk factors that should be addressed. For example, prevention programs aimed at improving personal social resistance skills as well as social and emotional competence skills in adolescents and emerging adults, conducted in educational contexts such as high schools [43], could also be implemented in nightlife settings in response to those individual factors that consistently emerge as facilitating the encounter with substances and their use and misuse, i.e., emotional difficulties and socially oriented motives.

Furthermore, nightlife projects favor meeting NEET youth, who generally is challenging, because heterogeneous and difficult to reach, but in need of targeted prevention programs [44]. A nightlife setting represents a channel to encounter them and support them, i.e., by adopting prevention interventions aimed at reducing social stigma, according to which NEET condition implies substance use [45].

The present results further confirm that two more categories of young people need attention and are accessible through projects conducted in nightlife settings: Emerging adults with a job and siblings of drug users. Literature has demonstrated that social policies should prioritize group rather than individual prevention interventions towards young workers who use substances [46]. For example, a nightlife project could inform them about local self-help groups to promote a first encounter with health-related structures.

Lastly, focusing attention also on young siblings of drug users, prevention at the family level remains essential. Nevertheless, in addition to school prevention programs, targeted intervention could also be implemented in a nightlife setting to reach "the forgotten ones" [47] who are at higher risk compared to their peer who has no sibling users [48].

Limitations

The present ecological study, conducted in a nightlife setting, has the advantage of focusing on emerging adult revellers, thus extending national prevalence data on alcohol and drug use, and helping describe Big Five and substance use motive risk profiles for alcohol and drug use.

Nevertheless, we acknowledge several limitations of the study. These include the representativeness of both social contexts of nightlife, such as rave parties and nightclubs, and nightlife party-goers, including the a priori exclusion of too drunk or high people in the present study; low statistical power to find predictors of hard drug use; the cross-sectional design of the study preventing the detection of early vulnerable profiles for risky alcohol and drug use; the lack of the middle facets of the Big Five to refine personality profiles to predict use of different substances; the need for additional predictors of substance use and addiction to improve detection of at-risk young alcohol and drug users; refined information on friends, siblings, and family.

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References

1. EMCDDA European Monitoring Centre for Drugs and Drug Addiction (2023). Available from: https://www.emcdda.europa.eu/publications/european-drug-report/2023_en [Accessed 29 Jan 2025].
2. NCDAS (2022). Available from: <https://drugabusestatistics.org/teen-drug-use/#:~:text=2.08%20million%20or%208.33%25%20of,marijuana%20in%20the%20last%20month> [Accessed 29 Jan 2025].
3. Arnett JJ. The developmental context of substance use in emerging adulthood. *J Drug Issues*. 2005; 35(2):235–254. <https://doi.org/10.1177/002204260503500202>.
4. Cotto JH, Davis E, Dowling GJ, Elcano JC, Staton AB, Weiss SR. Gender effects on drug use, abuse, and dependence: a special analysis of results from the National Survey on Drug Use and Health. *Gend Med*. 2010 Oct;7(5):402-13. doi: 10.1016/j.genm.2010.09.004.
5. de Jonge MC, Bukman AJ, van Leeuwen L, Onrust SA, Kleinjan M. Latent Classes of Substance Use in Young Adults - A Systematic Review. *Subst Use Misuse*. 2022;57(5):769-785. doi: 10.1080/10826084.2022.2040029. Epub 2022 Feb 21.
6. Schulte MT, Ramo D, Brown SA. Gender differences in factors influencing alcohol use and drinking progression among adolescents. *Clin Psychol Rev*. 2009 Aug;29(6):535-547. doi: 10.1016/j.cpr.2009.06.003. Epub 2009 Jun 11.
7. Stone AL, Becker LG, Huber AM, Catalano RF. Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addict Behav*. 2012 Jul;37(7):747-775. doi: 10.1016/j.addbeh.2012.02.014. Epub 2012 Feb 24.
8. Trucco EM. A review of psychosocial factors linked to adolescent substance use. *Pharmacol Biochem Behav*. 2020 Sep;196:172969. doi: 10.1016/j.pbb.2020.172969. Epub 2020 Jun 18.
9. Allen HK, Barrall AL, Beck KH, Vincent KB, Arria AM. Situational context and motives of alcohol use among graduate student drinkers. *Addict Behav*. 2020 May;104:106267. doi: 10.1016/j.addbeh.2019.106267. Epub 2019 Dec 24.
10. Beck KH, Caldeira KM, Vincent KB, O'Grady KE, Wish ED, Arria AM. The social context of cannabis use: relationship to cannabis use disorders and depressive symptoms among college students. *Addict Behav*. 2009 Sep;34(9):764-768. doi: 10.1016/j.addbeh.2009.05.001. Epub 2009 May 18.
11. Looby A, Prince MA, Villarosa-Hurlocker MC, Conner BT, Schepis TS, Bravo AJ. Stimulant Norms and Prevalence (SNAP) Study Team. Young adult use, dual use, and simultaneous use of alcohol and marijuana: An examination of differences across use status on marijuana use context, rates, and consequences. *Psychol Addict Behav*. 2021 Sep;35(6):682-690. doi: 10.1037/adb0000742. Epub 2021 Apr 22.
12. de Wit H, Sayette M. Considering the context: social factors in responses to drugs in humans. *Psychopharmacology (Berl)*. 2018 Apr;235(4):935-945. doi: 10.1007/s00213-018-4854-3. Epub 2018 Feb 22.
13. Kuntsche E, Kuntsche S, Thrul J, Gmel G. Binge drinking: Health impact, prevalence, correlates and interventions. *Psychol Health*. 2017 Aug;32(8):976-1017. doi: 10.1080/08870446.2017.1325889. Epub 2017 May 17.

14. Brunn J, Brunner S, Mütsch M. Preventive Interventions for Young Adults in Nightlife: Coproduction for a Systematic Literature Assessment Followed by a Stakeholder Dialogue Process. *Eur Addict Res.* 2021;27(5):311-325. doi: 10.1159/000511191. Epub 2021 Feb 26.
15. Gilmore W, Symons M, Liang W, Graham K, Kypri K, Miller P, et al. Association between Nightlife Goers' Likelihood of an Alcohol Use Disorder and Their Preferred Bar's Closing Time: A Cross-Sectional Observational Study in Perth, Australia. *Int J Environ Res Public Health.* 2021 Dec 10;18(24):13040. doi: 10.3390/ijerph182413040. Erratum in: *Int J Environ Res Public Health.* 2022 Aug 05;19(15):9684. doi: 10.3390/ijerph19159684.
16. Kelly D, Hughes K, Bellis MA. Work hard, party harder: drug use and sexual behaviour in young British casual workers in Ibiza, Spain. *Int J Environ Res Public Health.* 2014 Sep 26;11(10):10051-10061. doi: 10.3390/ijerph111010051.
17. Hannemann TV, Kraus L, Piontek D. Consumption Patterns of Nightlife Attendees in Munich: A Latent-Class Analysis. *Subst Use Misuse.* 2017 Sep 19;52(11):1511-1521. doi: 10.1080/10826084.2017.1290115. Epub 2017 May 19.
18. Christie NC. The role of social isolation in opioid addiction. *Soc Cogn Affect Neurosci.* 2021 Jul 6;16(7):645-656. doi: 10.1093/scan/nsab029.
19. ESPAD European School Survey Project on Alcohol and other Drugs (2023). Available from: <https://www.epid.ifc.cnr.it/online-il-libro-espada-italia-2022-2/>.
20. English F, Whitehill JM. Risk Factors for Adolescent Cannabis Use in a State With Legal Recreational Cannabis: The Role of Parents, Siblings, and Friends. *Clin Ther.* 2023 Jun;45(6):589-598. doi: 10.1016/j.clinthera.2023.04.002.
21. Kuntsche E, Knibbe R, Gmel G, Engels R. Why do young people drink? A review of drinking motives. *Clin Psychol Rev.* 2005 Nov;25(7):841-861. doi: 10.1016/j.cpr.2005.06.002.
22. Maiya S, Whiteman SD, Serang S, Dayley JC, Maggs JL, Mustillo SA, et al. Associations between older siblings' substance use and younger siblings' substance use intentions: Indirect effects via substance use expectations. *Addict Behav.* 2023 Jan;136:107493. doi: 10.1016/j.addbeh.2022.107493. Epub 2022 Sep 15.
23. Trim RS, Leuthe E, Chassin L. Sibling influence on alcohol use in a young adult, high-risk sample. *J Stud Alcohol.* 2006 May;67(3):391-398. doi: 10.15288/jsa.2006.67.391.
24. Cooper ML, Kuntsche E, Levitt A, Barber LL, Wolf S. Motivational models of substance use: A review of theory and research on motives for using alcohol, marijuana, and tobacco. In K. J. Sher (Ed.), 2016, *The Oxford handbook of substance use and substance use disorders* (pp. 375–421). Oxford University Press; 2016.
25. Parks KA, Kennedy CL. Club drugs: reasons for and consequences of use. *J Psychoactive Drugs.* 2004 Sep;36(3):295-302. doi: 10.1080/02791072.2004.10400030.
26. Biolcati R, Passini S. Development of the Substance Use Motives Measure (SUMM): A comprehensive eight-factor model for alcohol/drugs consumption. *Addict Behav Rep.* 2019 Jun 28;10:100199. doi: 10.1016/j.abrep.2019.100199.
27. Rowicka M. Differences and Similarities in Motives to Decrease Drinking, and to Drink in General Between Former and Current Heavy Drinkers-Implications for Changing Own Drinking Behaviour. *Front Psychol.* 2022 Jan 12;12:734350. doi: 10.3389/fpsyg.2021.734350.
28. Pedersen ER, Tucker JS, Davis JP, Dunbar MS, Seelam R, Rodriguez A, et al. Tobacco/nicotine and marijuana co-use motives in young adults: Associations with substance use behaviors one year later. *Psychol Addict Behav.* 2021 Mar;35(2):133-147. doi: 10.1037/adb0000638. Epub 2020 Jun 18.
29. McCrae R. The Five-Factor Model of personality: Consensus and controversy. In P. Corr and G. Matthews (eds.), 2020, *The Cambridge handbook of Personality Psychology* (Cambridge handbooks in Psychology, pp. 129-141). Cambridge: Cambridge University Press. doi: 10.1017/9781108264822.013.
30. Adan A, Forero DA, Navarro JF. Personality Traits Related to Binge Drinking: A Systematic Review. *Front Psychiatry.* 2017 Jul 28;8:134. doi: 10.3389/fpsyg.2017.00134.
31. Malouff JM, Thorsteinsson EB, Rooke SE, Schutte NS. Alcohol involvement and the Five-Factor model of personality: a meta-analysis. *J Drug Educ.* 2007;37(3):277-294. doi: 10.2190/DE.37.3.d.
32. Allen MS, Laborde S. A prospective study of personality and illicit drug use in Australian adults. *Pers Individ Diff.* 2020; 163:110048. <https://doi.org/10.1016/j.paid.2020.110048>.
33. Winters AM, Malouff JM, Schutte NS. The association between the Five-Factor Model of personality and problem cannabis use: A meta-analysis. *Pers Individ Diff.* 2022;193:111635. <https://doi.org/10.1016/j.paid.2022.111635>.

34. Dash GF, Martin NG, Slutske WS. Big Five personality traits and illicit drug use: Specificity in trait-drug associations. *Psychol Addict Behav*. 2023 Mar;37(2):318-330. doi: 10.1037/adb0000793. Epub 2021 Nov 11.
35. Kang W. Big Five personality traits predict illegal drug use in young people. *Acta Psychol (Amst)*. 2022 Nov;231:103794. doi: 10.1016/j.actpsy.2022.103794. Epub 2022 Nov 8.
36. Stellern J, Xiao KB, Grennell E, Sanches M, Gowin JL, Sloan ME. Emotion regulation in substance use disorders: a systematic review and meta-analysis. *Addiction*. 2023 Jan;118(1):30-47. doi: 10.1111/add.16001. Epub 2022 Aug 11.
37. Guido G, Peluso AM, Capestro M, Miglietta M. An Italian version of the 10-item Big Five Inventory: An application to hedonic and utilitarian shopping values. *Pers Individ Diff*. 2015;76:135–140. <https://doi.org/10.1016/j.paid.2014.11.053>.
38. ISTISAN (2023). Available from: <https://www.iss.it/documents/20126/9340234/23-3+web.pdf/003ea68f-60dc-c98a-3d97-ae698b5d146e?t=1711720073417>.
39. Fischer AM, King AC, Cao D, Fridberg DJ. Drinking context, alcohol use, and subjective responses during binge drinking episodes measured by high-resolution ecological momentary assessment (HR-EMA). *Psychol Addict Behav*. 2023 Mar;37(2):258-266. doi: 10.1037/adb0000887. Epub 2022 Nov 3.
40. Palamar JJ, Ompad DC. Demographic and socioeconomic correlates of powder cocaine and crack use among high school seniors in the United States. *Am J Drug Alcohol Abuse*. 2014 Jan;40(1):37-43. doi: 10.3109/00952990.2013.838961. Epub 2013 Nov 5. Erratum in: *Am J Drug Alcohol Abuse*. 2014 Mar;40(2):176-177.
41. Malmberg M, Overbeek G, Monshouwer K, Lammers J, Vollebergh WA, Engels RC. Substance use risk profiles and associations with early substance use in adolescence. *J Behav Med*. 2010;33(6):474-485. doi: 10.1007/s10865-010-9278-4. Epub 2010 Jul 13.
42. aan het Rot M, Russell JJ, Moskowitz DS, Young SN. Alcohol in a social context: findings from event-contingent recording studies of everyday social interactions. *Alcohol Clin Exp Res*. 2008 Mar;32(3):459-471. doi: 10.1111/j.1530-0277.2007.00590.x. Epub 2008 Jan 22.
43. Griffin KW, Botvin GJ. Evidence-based interventions for preventing substance use disorders in adolescents. *Child Adolesc Psychiatr Clin N Am*. 2010 Jul;19(3):505-526. doi: 10.1016/j.chc.2010.03.005.
44. Manhica H, Yacamán-Méndez D, Sjöqvist H, Lundin A, Agardh E, Danielsson AK. Trajectories of NEET (Not in Education, Employment, and Training) in emerging adulthood, and later drug use disorder - a national cohort study. *Drug Alcohol Depend*. 2022 Apr 1;233:109350. doi: 10.1016/j.drugalcdep.2022.109350.
45. Davis JP, Smith DC, Briley DA. Substance use prevention and treatment outcomes for emerging adults in non-college settings: A meta-analysis. *Psychol Addict Behav*. 2017 May;31(3):242-254. doi: 10.1037/adb0000267.
46. Juberg A, Skjefstad NS. 'NEET' to work? – substance use disorder and youth unemployment in Norwegian public documents. *Eur J Soc Work*. 2018;22(2):252–263. <https://doi.org/10.1080/13691457.2018.1531829>.
47. Smith-Genthös KR, Logue EM, Low BE, Hendrick SS. The Forgotten Ones: Siblings of Substance Abusers. *J Loss Trauma*. 2016;22(2):120–134. <https://doi.org/10.1080/15325024.2016.1202005>.
48. Caspi J, Lardier DT, Barrios VR. The Double Bind of Siblings in Adolescent Substance Abuse Treatment. *J Child Fam Stud*. 2018;27:2232–2244. <https://doi.org/10.1007/s10826-018-1068-6>.



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