

Has occasional cannabis use among adolescents also to be considered as a risk marker?

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Background: The association between cannabis use and health or behaviour problems is quite well established. Little is known about the risk markers related to occasional or former use. This work aims to explore associations between well-being in life and different levels of cannabis use. **Methods:** A total of 16 934 French adolescents completed self-administered multi-choice questionnaires (from the European Study ESPAD 2003) on substance consumption, psychopathology, socio-demographics and schooling. Four groups were defined according to cannabis use: Never-Users (no lifetime consumption and no consumption during the last month), Former Users (at least one lifetime consumption but none in the last month), Current Occasional Users (<5 times during the previous month) and Current Heavy Users (≥5 times during the previous month). Analyses were performed with SAS 8.2 software and adjusted for gender and age. **Results:** A total of 68.2% of students aged 12–19 years were Never-Users, 15.5% Former Users, 8.3% Current Occasional Users and 8.0% Current Heavy Users. When Former Users were compared with Never-Users, significant differences were found with regard to suicide attempt, odds ratio (OR)=2.9 (2.4–3.4); multiple acts of violence, OR=6.4 (5.4–7.7) and running away from home, OR=3.1 (2.5–3.8). These differences were greater when Current Occasional Users were compared with Never-Users: suicide attempt, OR=4.2 (3.5–5.0); multiple acts of violence, OR=12.6 (10.2–15.5) and running away from home OR=4.2 (3.4–5.4). Differences remain even after adjustment for alcohol and tobacco consumption. **Conclusions:** These results showed that occasional and even former marijuana use is associated with risky behaviour among adolescents.

Keywords: adolescent, former cannabis use, occasional cannabis use, risk markers, risky health behaviour

Introduction

In most European countries, rates of cannabis use have increased tremendously over the past 10 years,¹ especially in France. Cannabis use is now so common among adolescents that the word ‘smoking’ has become ambiguous.

The association between cannabis use and health problems is quite well established,^{2–4} especially with regard to the risks of dependence, psychotic disorders,⁵ fatal road crashes⁶ and unprotected sex.⁷ The need for medical care is also rising among cannabis users.⁸ So scientific and public health communities have become aware of the potential risks related to cannabis use.^{2,3} However, while most research has focused on cannabis dependence or problematic use,⁹ others have focused on cannabis use irrespective of the level of consumption.¹⁰ Little is known about the risk factors associated with occasional or former use.

This article investigates the behavioural and mood factors associated with the non-regular use of cannabis among a representative French sample of secondary school children (aged 12–19 years) and compares regular, occasional, former and non-users of cannabis on the basis of a variety of simple indicators, such as school absenteeism, running away from home, depressive mood and violent behaviour. The purpose of this study is not to highlight the causal association between these behaviours but to increase awareness regarding the

medical and educational concerns of the occasional consumption of cannabis among young people.

Methods

A school-based population survey was carried out in France in 2003 as a part of the European Study Project on Alcohol and Other Drugs (ESPAD) study (results published elsewhere).¹ A national representative sample of 6–12th grade students was randomly selected ($n=18\,500$) in 450 schools (junior high school, high school and vocational school) and 900 classes. A total of 16 532 students [participation rate=89%, mean age (SD)=15.4(2.3)] completed an anonymous self-administered multi-choice questionnaire in the course of a class period, including individual/demographic information, as well as data on alcohol, tobacco and illicit substance use.

The two questions on cannabis use were included in the present analysis: ‘In your lifetime, on how many occasions have you used marijuana or hashish?’ and ‘During the last 30 days, on how many occasions have you used marijuana or hashish?’. Response categories: 0, 1–2, 3–5, 6–9, 10–19, 20–39, 40 or more. Response rates for the two questions were 98.4% (lifetime) and 96.7% (current). Excluding non-responses (4.0%), four groups of respondents were taken into consideration: ‘Never-Users’ (no lifetime consumption and no consumption during the last month, $n=10\,823$), Former Users (at least one lifetime consumption but none in the last 30 days, $n=2453$), Current Occasional Users (1–5 times during the last 30 days without considering lifetime consumption, $n=1336$) and Current Heavy Users (6+ times during the last 30 days whatever the lifetime consumption, $n=1264$).

The following behavioural risk factors were taken into account: running away from home in the last 12 months (response rate to the question: 99.0%), school absenteeism in the last 12 months (response rate: 98.2%) and lifetime suicide attempt (response rate: 98.8%). The Kandel depressive mood scale for the last 12 months (response rate: 94.4%) was recorded

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(yes >13, no ≤13).¹¹ In the ESPAD questionnaire, 11 questions were concerned with students' violent behaviour in the last 12 months ('During the last 12 months, how often have you: hit one of your teachers; gotten mixed up in a fight at school or at work; taken part in a fight where a group of your friends were against another group; used any weapon to get something from a person; taken something from a shop without paying for it; taken something not belonging to you, worth over 15 Euros; set fire to somebody else's property on purpose; participated in a group starting a fight with another group; started a fight with another individual; damaged public or private property on purpose; sold stolen goods.' Response categories for each question were: 0, 12, 3–5, 6–9, 10–19, 20–39, 40 or more. Response rate was 97.6–98.4%, according to the question). Each question was recoded as no (0)/yes (1+). The present violent behaviour variable was the sum of the positive responses to the set of 11 questions.

Odds ratios (ORs, 95% confidence interval) were adjusted on different confounding factors: gender, age^{1,12} and also for tobacco and alcohol use during the previous month.^{13,14} Statistical analyses were performed using SAS 8.2 program.

Results

A total of 68.2% of these secondary school students (aged 12–19 years) had never tried cannabis, 15.5% had tried at least once during their lifetime but were not current users (90% of them had tried on less than five occasions during their lifetime), 8.3% were Current Occasional Users and 8.0% Current Heavy Users. Mean age and sex ratio of each group are presented in table 1.

Table 1 Age and sex ratio of the different groups of cannabis users (No. of total sample = 15 885)

	Never-Users	Former Users	Current Occasional Users	Current Heavy Users
N	10 823	2453	1336	1264
Mean age (SD)	14.7 (2.1)	16.9 (1.9)	16.7 (1.6)	17.3 (1.5)
Sex ratio (boys/girls)	0.84	0.92	1.13	2.22

Table 2 highlighted that: (1) Former Users compared with Never-Users were more likely to (in order of importance) run away from home, have a history of suicide attempt, be absent from school (OR = 2.1 and 3.0 for occasional or regular use, respectively) and show violent behaviour (OR from 1.7 for 1–2 violent behaviours to 6.4 for 5+ violent behaviours) and depressive mood. When adjusted for alcohol and tobacco use during previous month, all ORs remained significant.

(2) Current Occasional Users compared with Never-Users were also more likely to have a history of violent behaviour (OR from 2.5 for 1–2 violent behaviours to 12.6 for 5+ violent behaviours), attempt suicide, run away from home and be absent from school (OR = 2.8 for Occasional Users, OR = 4.4 for Regular Users).

When adjusted for alcohol and tobacco use, the ORs remained significant and were higher than those between Former Users and Never-Users, except for depressive mood.

(3) Current Heavy Use, when compared with Occasional Use, was associated with different levels of violent behaviour (OR from 1.3 for 1–2 to 2.6 for 5+), running away from home, absenteeism from school (OR = 1.5 and 2.5, respectively, for Occasional or Regular Users) and suicide attempt. No difference was found in relation to depressive mood. When results were adjusted for alcohol and tobacco use, no difference was observed between these two groups on suicide attempt and 1–2 violent behaviours.

Discussion

A total of 32% of the French adolescents in the sample had tried cannabis at least once during their lifetime. Among them, 16% used cannabis during their lifetime but not during the last 30 days (Former Users), 8% used cannabis 1–5 times during the last 30 days (Current Occasional Users) and 8% used cannabis >5 times during the last 30 days (Current Heavy Users). So, half of lifetime users did not become current users, while half of them did. Nevertheless, we hypothesized that those without current use were also potentially at risk.

These proportions seem quite high in comparison to the average rates that have been observed for 35 European countries¹ of 21% (lifetime), 12% (former), 6% (current occasional) and 3% (current heavy). In France, surprisingly,

Table 2 Current cannabis use and risk behaviour among French adolescents aged 12–19

N/N	Former Users (1+ lifetime but 0 last 30 days) vs. Never-Users		Current Occasional Users (1–5 last 30 days) vs. never-Users		Current Heavy Users (6+ /last 30 days) vs. Current Occasional Users	
	2453/10 823		1336/10 823		1264/1336	
	A	B	A	B	A	B
Lifetime suicide attempt (yes/no)	2.9 (2.4–3.4)***	1.9 (1.6–2.3)***	4.2 (3.5–5.0)***	2.1 (1.6–2.6)***	1.3 (1.0–1.6)*	1.1 (0.9–1.4)
During the last 12 months						
School absenteeism (Ref. = none)						
Sometimes	2.1 (1.8–2.3)***	1.8 (1.6–2.0)***	2.8 (2.5–3.3)***	2.2 (1.8–2.6)***	1.4 (1.1–1.8)**	1.4 (1.1–1.7)**
Often	3.0 (2.6–3.5)***	2.5 (2.1–3.0)***	4.4 (3.7–5.4)***	3.2 (2.5–4.1)***	2.5 (1.9–3.2)***	2.1 (1.6–2.8)***
Depressive mood (DSS scale 14–18/13-)	1.8 (1.7–2.0)***	1.5 (1.3–1.7)***	2.0 (1.8–2.3)***	1.5 (1.2–1.7)***	1.1 (0.9–1.3)	1.0 (0.8–1.2)
Running away from home (yes/no)	3.1 (2.5–3.8)***	2.1 (1.7–2.7)***	4.2 (3.4–5.4)***	2.0 (1.5–2.8)***	1.8 (1.4–2.3)***	1.5 (1.1–2.0)**
Violent behaviour (Ref. = none)						
1–2	1.7 (1.5–1.9)***	1.4 (1.2–1.6)***	2.5 (2.2–3.0)***	1.7 (1.4–2.1)***	1.3 (1.0–1.6)*	1.2 (0.9–1.5)
3–4	3.1 (2.6–3.6)***	2.2 (1.8–2.6)***	4.8 (3.9–5.8)***	2.4 (1.9–3.0)***	1.7 (1.3–2.2)***	1.5 (1.1–1.9)**
5+	6.4 (5.4–7.7)***	4.3 (3.5–5.3)***	12.6 (10.2–15.5)***	5.5 (4.2–7.2)***	2.6 (2.0–3.3)***	2.1 (1.6–2.7)***

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

A = OR adjusted on age and gender, IC 95%; B = OR adjusted on age, gender, current tobacco consumption (yes/no) and current alcohol consumption (yes/no), IC 95%.

the proportion of heavy cannabis consumers is now as high as the proportion of heavy alcohol consumers.^{15,16}

The most striking result of this study is that behavioural problems are high among Former and Occasional Users. Compared with Never-Users, Former Users are at risk for violent behaviour (OR=6.4), running away from home (OR=3.1), absenteeism from school (OR=3.0) and suicide attempt (OR=2.9). Compared with Never-Users, Occasional Users are at risk (by order of importance) for violent behaviour (OR=12.6), absenteeism from school (OR=4.4), running away from home (OR=4.2) and suicide attempt (OR=4.2). According to different authors,^{17,18} delinquent behaviour and problems at school have been found to be predictive factors for both initiation and development of cannabis use. As behaviour problems were reported among both Former Users and Current Occasional Users in this study, it might be correct to hypothesize that these behaviours existed before the beginning of cannabis use.

Similar to previous studies, this study also shows that heavy cannabis users have more behavioural problem than Occasional Users, even after adjustment for alcohol and tobacco use. The highest ORs were with violent behaviour, as has also been described by Olsson.¹⁹ The association is also strong with school absenteeism,²⁰ and this could explain the high frequency of academic years being repeated²¹ and dropout from the school system observed among cannabis users. Cannabis use is also linked to suicide attempt²² and to running away from home, which are more rarely studied.

The results of this study show that users were more severely depressed, but this does not vary according to the level of use. The association between cannabis use and depressive mood remains unclear and has been observed by some researchers²³ but not by others.²⁴ We might consider whether cannabis consumption is a way to cope with depressive mood, a question asked by Gruber *et al.*²⁵

But our data highlighted that the 'distance' between heavy consumers and occasional consumers is quite less important than those between occasional consumers and non-consumers. So, contrary to the general opinion, the risk is also related to occasional use, not only to regular use.

The ESPAD study has some limitations. It (i) is cross-sectional, so it does not allow us to conclude as to a cause/effect association between cannabis and risk factors and (ii) underestimates the proportion of cannabis users because of 11% students not participating in the survey. According to Faeh *et al.*,¹³ absent pupils have a higher consumption rates than non-absent pupils, as well as dropouts.

This study provides a potential practical implication. With just one simple question: 'Have you ever used cannabis in the last 30 days?' one can obtain a clear picture of a potential risk profile. In addition, as current cannabis users are known to resort more to medical care,⁸ we propose, in agreement with the American Family Physician proposals,²⁶ to include this question systematically in adolescent consultation and to use the positive answer as a warning sign.

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Conflicts of interest: None declared.

Key points

- Little is known about the risk markers associated with occasional cannabis use as well as former use by adolescents.
- Our data highlighted that the 'distance' between heavy consumers and occasional consumers is quite less important than those between occasional consumers and non-consumers.
- So, contrary to the general opinion, the risk is also related to occasional use, not only to regular use.
- According to our results, occasional cannabis use could be also considered as a warning message.

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