



Lifetime sexual violence and tobacco, alcohol, and cannabis use among French adults: A national survey

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ABSTRACT

Objective: Sexual violence can lead to significant health impacts, including higher risk of substance use. This study examines the association between lifetime experiences of sexual violence and substance use in a large nation-wide sample of French adults.

Methods: Data were drawn from the 2017 Health Barometer, a cross-sectional survey of 25,319 French adults aged 18–75, conducted in Mainland France between January and July 2017. Five substance use outcomes were examined: daily tobacco use, heavy drinking, regular binge drinking, monthly cannabis use, and problematic cannabis use. Multivariable logistic regression models were used to assess the association between sexual violence and each of these outcomes.

Results: A total of 9.5% of women and 2% of men reported having experienced sexual violence. In adjusted analyses, lifetime experience of sexual violence was associated with increased odds of all five substance use outcomes. Lifetime sexual violence was also linked to study outcomes in stratified analyses by sex, with particularly strong associations for monthly cannabis use (women aOR = 2.53, 1.90–3.34; men aOR = 2.10, 1.37–3.16).

Conclusions: These findings support the need for integrated care addressing both sexual violence history and substance use among sexual violence victims-survivors.

1. Introduction

Sexual violence refers to any sexual act or attempt to obtain a sexual act through coercion, including rape or non-consensual touch (World Health Organization, 2002). Recent meta-analyses indicate that 8.7% of children globally have experienced contact sexual violence (Piolanti et al., 2025). Overall, the prevalence of sexual violence is higher among women than men, although data for the latter is limited (Borumandnia et al., 2020).

Sexual violence is a traumatizing experience associated with potentially lifelong mental health consequences. Among women, the experience of sexual violence increases the risk of harmful health behaviors, including high-risk sexual behaviors, eating disorders, and psychoactive substance use such as alcohol, cannabis, and tobacco (Fletcher, 2021). The use of these substances may suggest self-medication and a desire to regulate stress and face adversity (Mandavia et al., 2016). Having

experienced sexual violence is also strongly associated with more frequent diagnoses of depression, suicidal ideation, anxiety and/or phobic disorders, and post-traumatic stress disorder (PTSD) (Hailes et al., 2019).

Although sexual violence is generally associated with higher use of tobacco, alcohol, and cannabis, the evidence base is constrained by small samples and a focus on specific populations (e.g., women, adolescents, military) and specific forms of sexual violence, particularly childhood sexual violence (Fletcher, 2021). Mixed-population findings also suggest that associations may vary by substance and sex (Choudhary et al., 2008; Draucker and Mazurczyk, 2013; Halpern et al., 2018).

To address these gaps, population-based data from a general adult sample are needed to better characterize the association between lifetime sexual violence and psychoactive substance use and to inform appropriate care and support for survivors.

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Accordingly, this study investigates the association between lifetime experiences of sexual violence and the use of tobacco, alcohol, and cannabis in a national sample of French adults.

2. Methods

2.1. Study design and population

The present study drew data from the 2017 Health Barometer, a cross-sectional survey of the general population living in Mainland France carried out by the French National Public Health Agency (Santé publique France). Randomly-generated landline and mobile phone (dual frame; df) numbers lists were used to call participants up to 40 times using a computer-assisted telephone interviewing (CATI) system (Richard et al., 2017). For mobile phones, the selected interviewee was the person who picked up the phone. In the case of a landline call, a secondary randomization among eligible individuals, per the Kish method (Kish, 1949), made it possible to select the respondent person within the household. Thus, the sampling design was one-stage for cell interviews and two-stage for landline interviews.

Design weights, reflecting the individual selection probability, were calculated for the dual frame sample using information about the number of phone numbers generated, the number of phone numbers owned by the respondent (reported in the questionnaire), and the number of eligible persons in the household for landlines.

The Health Barometer survey was carried out from January 5th to July 18th 2017. The participation rate was 48.5% and the average interview duration was 31 min long. A representative sample of 25,319 French-speaking people aged 18 to 75 was drawn up.

Data from the survey were weighted by considering the probability of inclusion of an individual, and adjusted based on the structure of the population (age and sex stratification, education level, region of residence, household size, and urban area size), obtained from the 2016 employment survey from the French National Institute of Statistics and Economic Studies. The detailed survey protocol and its questionnaire are available online (Richard et al., 2018).

2.2. Measures

2.2.1. Lifetime experiences of sexual violence

To determine whether respondents had experienced sexual violence, the following questions were asked: "Throughout your life, have you ever been forced to touch or be touched by someone in a sexual manner? Have you ever been forced into sexual activity against your will? Yes or No". If answered yes, they were asked if it had happened several times, and their age at the time of the event (or at first experience if they've had several experiences).

2.2.2. Psychoactive substance use outcomes

Tobacco use outcome. One of the variables of interest in our study was the daily use of tobacco. We included data from respondents who declared themselves as smokers and answered yes to the question: "Do you smoke every day?", or declared daily consumption of cigarettes (manufactured or roll-your-own). Exclusive e-cigarette users were excluded from the analysis, as they represent a heterogeneous category for whom the relationship to active conventional tobacco use is ambiguous.

Alcohol use outcomes. Heavy Drinking was measured with the Alcohol Use Disorders Identification Test Consumption (Audit-C) (Bradley et al., 2007). An Audit-C score greater than 4 was used as cutoff for heavy drinking in men, and 3 for women (Khadjesari et al., 2017). We also examined regular binge drinking defined as having six or more drinks on one occasion on a weekly basis.

Cannabis use outcomes. Finally, we analyzed two variables associated with cannabis use. To obtain the variables, we examined answers to the Cannabis Abuse Screening Test (CAST) scale. This scale assessed

cannabis use in the 12 months preceding the survey interviews. The first variable identified users with a high risk of cannabis dependence (i.e. with a CAST score greater than or equal to 7 out of 24) (Spilka and Janssen, 2013), while the second identified the use of cannabis (including hashish, marijuana, weed, a joint or hash) in the 30 days preceding the survey interviews. Questions about cannabis were only asked for participants aged 18 to 64 years old, that is 82% of the unweighted sample ($n = 20,665$).

The analysis of the two outcome variables for alcohol and cannabis allowed us to estimate the association between sexual violence and both the regular and problematic use of these substances.

2.2.3. Covariates

Uniform covariables were used across all substance use outcome models, and were selected based on their documented relevance to substance use behaviors and known associations with sexual violence in the literature. These characteristics were age, country of birth, marital status, education level, employment status, and childhood trauma. The last variable was obtained by summing responses to the following interview questions: "Before age 18, did either of your parents deal with a major health problem or pass away? [1] did you experience serious arguments between your parents or a violent home environment? [2] did your parents divorce or separate? [3]". We considered that a respondent had a traumatic experience in childhood if they responded "Yes" to at least one of the three questions.

Major depressive episodes were assessed using the standardized Composite International Diagnostic Interview Short Form (CIDI-SF) questionnaire, which measures DSM-IV criteria over the past 12 months. Given that mental health factors such as post-traumatic stress disorder have been shown to partially mediate the association between sexual violence and substance use, no adjustment was made to these variables to avoid collider bias.

2.3. Statistical analysis

The distribution of substance use outcomes, lifetime sexual violence experiences, and all covariates are presented for the total sample and by sex. The presented numbers are unweighted, while the percentages are weighted as previously described.

Bivariate analyses were conducted for each substance use variable in both the general population and by sex.

All analyses were stratified by sex to account for differences in drinking patterns between men and women (McHugh et al., 2018). Adjusted odds ratios (ORa) and 95% confidence intervals were obtained for each dependent variable in each model.

For tobacco and alcohol use variables as well as for lifetime sexual violence, the proportion of missing data was 0.4%, at a maximum. Respondents with this missing data were thus excluded from analyses. Around 18.4% of data was missing for cannabis use **outcome** variables, as cannabis questions were only asked to participants aged 18–64 years. These missing data were not imputed to avoid introducing potential bias. To examine whether the association between sexual violence and substance use varied by repetition of sexual violence (testing the hypothesis of cumulative effects), we created a three-level categorical variable: (1) non-victims (no lifetime sexual violence), (2) single assault (SV once), and (3) repeated assault (SV multiple times). Logistic regression models were then fitted with this categorical sexual violence variable as the primary exposure and each substance use outcome as the dependent variable, using non-victims as the reference category.

Data analyses were performed using R version 4.2.3.

2.4. Ethical approval

The French Health Barometer surveys were approved by the French Data Protection Authority (Commission Nationale de l'Informatique et des Libertés, CNIL). In accordance with the guidelines of the CNIL, all

participants included in this study provided their informed verbal consent to participate, at the start of the telephone interview. All methods were carried out in accordance with relevant guidelines and regulations.

3. Results

3.1. Descriptive analysis

Respondents had a mean age of 45.9 years ($SD = 16$), of which 51.3% were women. The majority of respondents were born in France, lived with a partner and had an education level greater than or equal to the French Baccalaureate (i.e. a high school diploma). More than 50% of respondents were employed and nearly 80% had a household income of over 1500 € per month. Finally, nearly 10% of respondents had symptoms indicative of a moderate to severe depressive episode and more than 40% had traumatic childhood experiences (Table 1).

3.1.1. Lifetime sexual violence experiences and substance use

Among the 25,319 respondents, 1468 individuals, or 5.8% of the sample reported experiencing sexual violence in their lifetime (72 respondents refused to answer and 17 others said they did not know). Of these respondents, sexual violence was nearly five times more prevalent in women (9.5%) than in men (2%). Nearly two thirds of respondents (64.0%) had experienced sexual violence more than once and the average age at first experience (or the first assault) was 13.4 years ($SD = 8$). Of respondents who had experienced sexual violence, 65% first experienced sexual violence before the age of 15 (62.9% for women and 75.9% for men).

As shown in Table 2, over 26.9% of respondents reported smoking every day, over 15% reported heavy drinking, and nearly 4.5% reported having at least 6 drinks on the same occasion once a week. Finally, more than 6.4% of respondents reported using cannabis in the last 30 days and more than 25% of regular users had a high cannabis dependence risk as per their CAST score. Analysis by sex showed significant differences, indicating that women are generally less likely to use tobacco, alcohol or cannabis than men (Table 2).

3.2. Adjusted analyses

Multivariable analyses show, after adjustment, that experiencing sexual violence across a lifetime is associated with substance use in both the total sample and the sample stratified by sex (Fig. 1). We will only be discussing the results of the analysis for the stratified analyses. Results for the total sample and for each model are available in Appendices A to E.

Tobacco use. First, we found that the association between lifetime experiences of sexual violence and daily consumption of tobacco is comparable between men (aOR = 1.60, 1.19, 2.14) and women (aOR = 1.47, 1.29, 1.68).

Alcohol use. Victims of sexual violence were also more likely to be heavy drinkers in adjusted analyses (aOR = 1.21, 0.90, 1.61 for men / aOR = 1.28, 1.11, 1.48 for women), and regular binge drinkers (aOR = 1.71, 1.11, 2.55 for men / aOR = 2.01, 1.36, 2.91 for women).

Cannabis use. Finally, there appears to be a strong association between experiences of sexual violence and cannabis use in the last month (men aOR = 2.10, 1.37, 3.16; women aOR = 2.53, 1.90, 3.34). This association is again stronger for women than for men. For cannabis use at high risk for dependence, the association is strong for women (aOR = 2.00, 1.23, 3.22) but is not found in men (aOR = 1.46, 0.75, 2.75).

3.2.1. Repeated sexual violence

Both single and repeated sexual violence were associated with increased substance use across most outcomes (Supplementary Table S1). However, the pattern of associations was inconsistent across outcomes and by sex, with overlapping confidence intervals.

Table 1

Characteristics of French adults aged 18 to 75, Health Barometer survey (weighted %). Mainland France, 2017.

	Unweighted number (% weighted)		
	Overall sample	Women	Men
	N = 25,319	12,986 (51.3)	12,333 (48.7)
Age **			
Weighted average (Standard deviation)	45.9 (15.8)	46.2 (15.4)	45.5 (16.3)
18 to 24	2846 (11.2)	1410 (10.9)	1435 (11.6)
25 to 34	4337 (17.1)	2216 (17.1)	2122 (17.2)
35 to 44	4671 (18.5)	2367 (18.2)	2304 (18.7)
45 to 54	4925 (19.5)	2502 (19.3)	2423 (19.7)
55 to 64	4613 (18.2)	2400 (18.5)	2213 (17.9)
65 to 75	3927 (15.5)	2091 (16.1)	1836 (14.9)
Nationality			
French by birth	22,426 (88.6)	11,519 (88.7)	10,907 (88.4)
Non-French	2893 (11.4)	1467 (11.3)	1426 (11.6)
Living with a partner			
No	9186 (36.3)	4833 (37.2)	4353 (35.3)
Yes	16,133 (62.7)	8153 (62.8)	7980 (64.7)
Education level *			
< High school diploma (< Bac)	12,306 (48.7)	6186 (47.8)	6120 (49.7)
At least high school diploma ($\geq$ Bac)	12,952 (51.3)	6768 (52.2)	6185 (50.3)
Work status **			
Employed	14,106 (55.7)	6801 (52.4)	7305 (59.2)
Student	1809 (7.2)	928.7 (7.2)	881 (7.1)
Unemployed & other inactivity	4162 (16.4)	2533 (19.5)	1628 (13.2)
Retired	5242 (20.7)	2723 (21.0)	2519 (20.4)
Monthly income $\geq$ 1500 € **			
No	5608 (22.7)	3188 (25.2)	2420 (20.1)
Yes	19,056 (77.3)	9458 (74.8)	9598 (79.9)
Depressive episode **			
None	22,781 (90.2)	11,263 (87.0)	11,517 (93.7)
Light	115 (0.5)	78 (0.6)	38 (0.3)
Moderate	1357 (5.4)	911 (7.0)	446 (3.6)
Severe	992 (3.9)	694 (5.4)	298 (2.4)
Traumatic childhood event **			
No	14,096 (55.7)	6867 (52.9)	7229 (58.6)
Yes	11,223 (44.3)	6119 (47.1)	5104 (41.4)

Note. AUDIT-C: Alcohol Use Disorders Identification Test Consumption. CAST: Cannabis Abuse Screening Test. P-values of the average and frequency comparison tests between men and women: ** p-value<0.0001 * p-value<0.001.

4. Discussion

This analysis, carried out on a representative sample of the French population, shows that people who have experienced sexual violence in their lifetime have an increased risk of using psychoactive substances such as tobacco, alcohol and cannabis. Our results align with previous research on the subject.

Several studies have investigated the association between sexual violence and substance use (Fletcher, 2021). This link may be, at least partly, explained by the intense stress and onset of negative emotions caused by sexual violence. In response to a traumatic sexual violence, victims/survivors often seek to self-medicate to avoid and reduce difficult, negative emotions (Ullman et al., 2005). These often-unsuccessful attempts to disassociate further promote substance use (Holahan et al.,

Table 2

: Distribution of lifetime sexual violence experiences and substance use outcomes among French adults aged 18 to 75, Health Barometer survey, Mainland France, 2017.

	Unweighted number (% weighted)		
	Overall sample N = 25,319	Women 12,986 (51.3)	Men 12,333 (48.7)
Sexual violence **			
No	23,743 (94.2)	11,688 (90.5)	12,055 (98.0)
Yes	1468 (5.8)	1227 (9.5)	241 (2.0)
Age at (first time) sexual violence **			
Weighted average (Standard deviation)	13.4 (7.8)	13.8 (8.1)	11.5 (5.5)
Repeated sexual violence			
Yes	938 (64.0)	793 (64.7)	145 (60.2)
No	502 (34.2)	408 (33.3)	94 (38.0)
Doesn't know or refuses to answer	27 (1.8)	24 (2.0)	2 (0.9)
Daily tobacco use **			
No	18,472 (73.1)	9831 (75.8)	8642 (70.2)
Yes	6811 (26.9)	3139 (24.2)	3672 (29.8)
Number of cigarettes consumed daily **			
Weighted average (Standard deviation)	3.6 (7.7)	3.0 (6.5)	4.3 (8.9)
Heavy drinking and/or active alcohol abuse or dependence (AUDIT-C ≥ 3 for women and ≥ 4 for men) **			
No	21,504 (84.9)	11,704 (90.1)	9801 (79.5)
Yes	3815 (15.1)	1283 (9.9)	2532 (20.5)
Six or more drinks on one occasion once a week (Binge Drinking Weekly) **			
No	24,148 (95.5)	12,768 (98.4)	11,380 (92.4)
Yes	1152 (4.5)	212 (1.6)	940 (7.6)
Cannabis use in the past 30 days **			
No	20,007 (93.6)	10,503 (96.4)	9504 (90.6)
Yes	1374 (6.4)	388 (3.6)	986 (9.4)
Cannabis dependence risk (CAST) *			
No risk or low risk	1756 (74.7)	622 (81.1)	1133 (71.6)
High risk (CAST ≥ 7)	594 (25.3)	145 (18.9)	449 (28.4)

Note. P-values of the average and frequency comparison tests between men and women: ** $p < 0.0001$ * $p < 0.001$.

2015; Smith et al., 2014), which in turn negatively affect health, and quality of life (Degenhardt et al., 2018; Rooke et al., 2013).

To better understand the association between sexual violence and substance use, we must consider the impact of other factors as well. While it's important to consider individual characteristics such as mental health pre-assault, biological factors, personality, etc., circumstances of sexual violence also play important role. Research shows that the effects of sexual violence are cumulative, meaning that people who have experienced sexual violence more than once in their life are more likely to use substances (Cisler et al., 2011; Hedtke et al., 2008; Walsh et al., 2014). Our findings offer partial support for this hypothesis: both single and repeated sexual violence were associated with increased substance use risk, though the pattern was inconsistent across outcomes and by sex, and no clear dose-response relationship was demonstrated. The

heterogeneity of sexual violence types captured in this study (ranging from unwanted touching to rape) may have contributed to the inconsistent pattern observed across outcomes. Future studies should examine whether the nature and severity of sexual violence, in addition to its repetition, modulates the risk of substance use. Similarly, research shows that the long-term consequences of sexual violence are more numerous when sexual violence took place during childhood, like 65% of the people in our sample (WHO, 2007). The type of sexual violence and the degree of violence also play important roles in the incidence of substance dependence (Campbell et al., 2009; Kendler et al., 2000).

Finally, the impact of sexual violence on the victims/survivor's health can depend on a much wider range of factors, as demonstrated by Rebecca Campbell's ecological model (Campbell et al., 2009). Social reactions, for example, play a determining role in a person's mental health, self-esteem and tendency to self-blame. This may partially explain the differences in substance use outcomes between men and women who had sexual violence experiences in our results.

We acknowledge that this study has several limitations. First, the questionnaire does not allow for the confirmation that respondents began using substances *after* experiencing sexual violence, thus limiting the interpretation of our results. However, our findings on age at sexual violence exposure (mean 13.4 years) indicate that sexual violence occurred at a very young age for respondents in our sample.

Furthermore, the proportions of men and women reporting their sexual violence experiences are most likely underestimated. It is undoubtedly very difficult to talk about such events and it may even lead to dissociative amnesia (Staniloiu and Markowitsch, 2014). However, it should be noted that according to the 2005 Health Barometer, 4.1% of women and 0.6% of men reported experiencing sexual violence in their lifetime (Léon and Lamboy, 2006). Apart from the fact that the survey question was different (the Health Barometer 2005 asked: "In your life, have you been subjected to forced sexual intercourse?"), we can assume that this difference is an outcome of a greater willingness to report sexual violence in a scientific survey, rather than a major increase in the incidence of sexual violence (Bajos et al., 2008). This is a notable development that will perhaps be amplified by the social movements which destigmatized sexual violence subsequent to the collection of our data, but it does not diminish the under-reporting of sexual violence experiences present in our analysis. Moreover, due to the high prevalence of poly-victimization within our sample, disentangling the independent effects of a single incident of sexual violence was not feasible. Furthermore, it should be noted that alcohol and cannabis variables were likely also under-reported in our sample (Le et al., 2022; Stockwell et al., 2016).

The analysis of behavioral differences between men and women in our sample may be underpowered, as suggested by the presented confidence intervals. Only 223 men declared having experienced sexual violence. Finally, this is a cross-sectional study, which does not allow for causality to be determined, and the data is relatively dated since it dates from 2017. To date, it is the last Health Barometer survey that included data on sexual violence in France.

However, this analysis has the advantage of being based on data from a large sample, representative of the general population, making it easier to generalize our results to the entire French adult population. Additionally, this study investigated three distinct psychoactive substances, including different degrees of alcohol and cannabis use. Finally, the multi-thematic nature of the Health Barometer data gives our results a certain robustness. It allowed us to adjust for the impact of a wide range of factors on the association between sexual violence and substance use, and to better take into account the social, demographic and economic diversity of the population.

5. Conclusions

The current study presents a significant association between sexual violence experiences and substance use in the general population. It

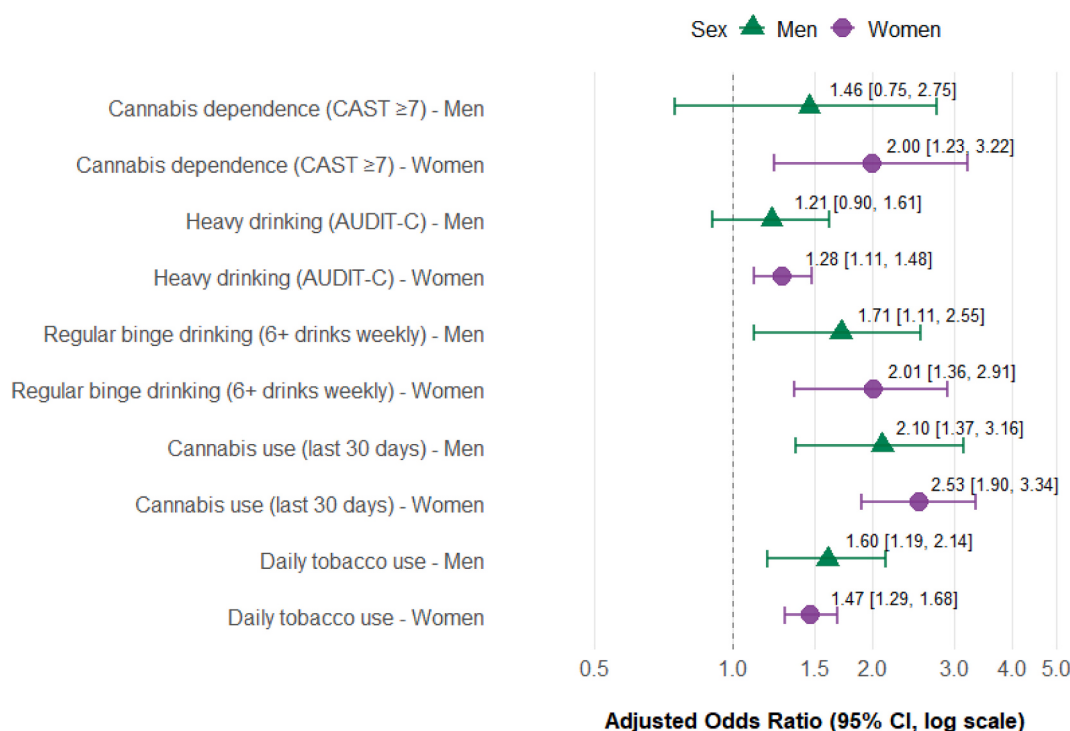


Fig. 1. Adjusted association between the experience of lifetime sexual violence and substance use outcomes. Data from the French Health Barometer survey 2017 (French adults aged 18 to 75, Mainland France, 2017). Notes: All models adjusted for age, country of birth, marital status, education level, employment status, and childhood trauma. Reference category: no lifetime sexual violence. Cannabis outcomes restricted to adults aged 18 to 64 years.

supports the need for adapted and integrated care for victims/survivors, including adequate support and extensive psychological care. Furthermore, based on our results, it may be essential to assess substance abuse patients for a history of sexual violence to guarantee them comprehensive care (medical, psychological, social) that takes into account the multidimensional causes of their dependence.

Data statement

The Barometre Santé data is the property of Santé Publique France. This data is accessible to public institutions upon formal request. Interested institutions must submit a detailed application outlining the purpose and scope of their intended use. Approval will be granted in accordance with Santé Publique France's data sharing policies and regulations.

Declaration of generative AI use

DeepL was used to translate portions of the manuscript and improve language. All translated/edited text was reviewed and verified by the authors. Claude (Anthropic) was used to assist in the development of R analysis code. All AI-assisted content was reviewed and verified by the authors.

CRedit authorship contribution statement

Noëlla Delmas: Writing – original draft, Formal analysis, Data curation. **Anne Pasquereau:** Writing – review & editing, Methodology, Data curation, Conceptualization. **Jean-Baptiste Richard:** Writing – review & editing, Validation, Methodology, Data curation. **Viêt Nguyen-Thanh:** Writing – review & editing, Resources, Methodology, Investigation. **Fabienne El-Khoury Lesueur:** Writing – review & editing, Supervision, Methodology, Investigation, Data curation.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pmedr.2026.103547>.

Data availability

Data will be made available on request.

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