A screening focusing on aftereffects of alcohol consumption in a student population. A National cross-sectional survey

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Alcohol drinking • College students • Prevention • Alcohol misuse • Screening tool

Introduction. Students overestimate alcohol consumption of those around them and underestimate their own, so that quantitative approach may not be the most relevant to assess students’ drinking. The main objective was to provide an appropriate tool for screening for students with potential drinking problems.

Methods. A multicentre cross-sectional survey was conducted by internet between February and June, 2013 in France. Thirteen questions explored alcohol consumption, including 8 concerning after-effects of drinking episodes (4 items of the AUDIT) and alcohol behaviour (CAGE test). A multiple correspondence analysis (MCA) was conducted to identify profiles of student’s alcohol consumption. Partitioning methods were used to group students by mode of alcohol use. The most relevant items included in the MCA were identified. Three questions were identified as most pertinent among the students with potential drinking problems and ranked by a decision tree with the Chi-square Automatic Interaction Detector method. Finally, we assessed the generalisation of the model.

Results. A total of 36,427 students participated in the survey: 25,679 were women (70.5% of respondents), sex ratio 0.42 and mean aged 21.2 (sd 3.7 years). Among those who had experimented with alcohol (N = 33,113), three consumption profiles were identified: “simple/non-use” (66.9%), “intermediate consumption” (25.9%) and “problem drinking” (7.2%). For the latter group, the three most relevant items were (Q20) “not able to stop drinking after starting”, (Q21) “failed to do what was normally expected”, and (Q23) “unable to remember what happened the night before”.

Conclusions. These results provide healthcare professionals with a 3-item screening tool for students “problem drinking”.

Introduction. Addictive behaviour in students, especially alcohol misuse, is a subject of major concern that has been widely investigated in the literature [1-3]. The negative physical, psychological and sexual consequences associated with alcohol misuse are well known [1-3]. In their study of US college students, Hingson et al. estimated that in a student population of 8,530,318, 10.5% (599,000) were injured in 2001 due to drinking, 12.0% (696,000) were assaulted or hit, and 2.0% (97,000) experienced sexual assault or date rape by another drinking college student [1]. This team later reported that in 1998, 1440 students and in 2005 1825 students from different student populations died from alcohol-related unintentional injuries, for a 3% increase in the rate per 100,000 students per year [2]. Saewyc et al. showed that 16% of both female and male university students had been victims of emotional or physical violence closely related to alcohol misuse [3]. In France, the university student health services (USHS) are responsible for health promotion, surveillance and prevention for students, including screening for addiction problems. It is difficult for individuals to quantify alcohol consumption, above a certain quantity that varies from person to person [4, 5]. The general population and most particularly young men misperceive their alcohol intake [5-7], as do students, who tend to overestimate that of those around them and underestimate their own [8-10]. In this context, it may be more relevant to identify misuse by measuring the negative consequences of drinking through specific questionnaire items. The Alcohol Use Disorders Identification Test (AUDIT) is a self-administered questionnaire of 10 items used to screen for problem drinkers, that is, those whose alco-
hol use during the past year has been harmful or placed them at risk; it has shown good metrological properties in student populations [11, 12]. Its shorter versions, AUDIT-C, AUDIT*2, and AUDIT*3, have also been evaluated among students; like it, include a quantitative assessment of alcohol consumption and seek to identify which version is most appropriate for screening for excessive drinking in this population [12-15]. They have shown sensitivity ranging from 80% to more than 90% and specificity from 82% to 95% or more and perform at least as effectively as AUDIT [12-14]. To our knowledge, the AUDIT questions that measure excessive consumption of alcohol by its negative effects on memory and behaviour (items 4, 5, 7 and 8) have not been compared with the complete AUDIT questionnaire to measure their screening performance.

Consequently, in order to improve screening of students with drinking problems, the association of directors of French university health centres (Association des Directeurs des Services de Santé Universitaire-ADSSU), the Interministerial mission for combatting drugs and addictive behaviour (Mission Interministérielle de Lutte contre les Drogues et les Conduites Addictives-MILDECA) and the conference of university presidents (Conférence des Présidents d’Université-CPU) set up a project supported by the French Ministry of Higher Education and Scientific Research.

The principal objective of this study was to provide an appropriate tool for screening for potential student drinking problem.

Methods

A multicentre cross-sectional survey was conducted by internet between February 2 and June 30, 2013 in France. An email was sent by participating USHS to students’ digital workspaces.

Questionnaire

The questionnaire was devised by a working group from the USHS of Bordeaux, Clermont-Ferrand, and Grenoble, associated with the ADSSU, relevant items were selected from a review of the literature, with special reference to four French and European surveys (http://www.ove-national.education.fr; http://www.ofdt.fr/) [16-18]. The questionnaire comprised 76 items that explored sociodemographic and educational characteristics, substance use, physical, psychological, and sexual violence, physical and mental health, social deprivation, and unmet health care needs (Supplemental Table A).

Thirteen questions explored alcohol consumption (Q15-Q23 and Q28-Q31). Four assessed alcohol consumption (as a regular habit), the quantity of alcohol drunk over the past year in the past 30 days, on a single occasion, and one question measured the number of times the individual had been drunk, according to the OFDT definitions (Q15-Q19) [19]. Eight questions analysed excess alcohol consumption. Four questions came from AUDIT, two that asked about symptoms of dependence (Q20-Q21) and two about harmful use of alcohol (Q22-Q23). These questions were (Q20) “How often during the past year have you found that you were not able to stop drinking once you had started?”, (Q21) “How often during the past year have you failed to do what was normally expected from you because of drinking?”, (Q22) “How often during the last year have you had a feeling of guilt or remorse after drinking?”, and (Q23) “How often during the last year have you been unable to remember what happened the night before because you had been drinking?” The following responses were available: never; less than once a month; once a month; more than once a month; once a week or more. Four questions came from the Cut-Annoyed-Guilty-Eye-opener (CAGE) test (Q28-Q31), which measures problems associated with alcohol consumption at any point in life. The responses to these questions were yes or no: (Q28) “Have you ever felt you needed to cut down on your drinking?”, (Q29) “Have people annoyed you by criticising your drinking?”, (Q30) “Have you ever felt guilty about drinking?”, and (Q31) “Have you ever felt you needed a drink first thing in the morning (eye-opener) to steady your nerves or to get rid of a hangover?” [20].

The online version of the study questionnaire was developed by the Bordeaux School of Public Health (ISPED). Only complete questionnaires were considered. The database was anonymous, created by ISPED, and approved by the French data protection authority (CNIL).

Population

All French USHS (N = 54) were invited to participate in the study. In all, 33, at universities located across France and enrolling 537,092 French students, distributed the questionnaire. Paris-area universities are underrepresented in this group. Among the USHS that did not participate, 10 conducted a different survey (I-share), and the others did not have access to student lists. All students in participating universities were asked to participate through their university e-mail address. Response was fully voluntary.

Statistical analysis

To make the sample representative of the study population, the data were weighted for gender and university discipline with the raking ratio technique. The adjustment was based on data furnished by the French ministry of higher education and research (http://www.enseignement-supp-research.gouv.fr/cid77397/les-effectifs-d-etudiants-dans-le-superieur-en-2012-2013.html). Except for the two variables used for the weighting, all results presented have been weighted.

Descriptive analysis was performed to assess overall and quantitative variables, by calculating percentages and their 95% confidence intervals (95% CI) and means with their standard deviations (sd), respectively. Bivariate analysis was performed with the Chi-square test for qualitative variables and Student’s t-test for quantitative variables.

Among the 13 questions exploring alcohol use, the 10 most informative alcohol-related items were kept: the
number of glasses consumed on a single occasion and the number of episodes of drunkenness during the past year, as well as Q20–Q23 and Q28–Q31. A multiple correspondence analysis (MCA) was conducted to identify profiles of consumption by detecting its underlying patterns. We next identified the three items most relevant to characterising each homogeneous pattern cluster by calculating the Cramer’s V. Then, we ranked these three questions identified as most pertinent among the students with potential drinking problems by a decision tree with the Chi-square Automatic Interaction Detection (CHAID) method (a decision tree technique, based on adjusted significance testing) [21-23].

The last step of the statistical analysis assessed the generalizability of our model. The database (33,113 students who had experimented with alcohol) was divided in two parts, a learning group (75% of the sample, 24,689 students) and a validation group (25%, 8,424 students) through the measurement of a global error rate, an underestimated error rate and an overestimated error rate. Significance was defined by a threshold of 5% for all statistical tests. Statistical analysis was performed with SAS software (V9.2. SAS Institute Inc., Cary, NC, 2002-2003) and R-3.1.1.

Results

In all, 36,427 students responded to the survey: 25,679 young women (70.5%) and 10,748 young men (29.5%), for a sex ratio of 0.42. Their mean age was 21.2 (sd 3.7) years. The academic divisions enrolling the most respondents were science and technology, agronomics, industry, and teaching (29.0%), arts, letters, languages, and human and social science (24.6%), and health (19.2%) (Tab. I).

Overall, 91.3% of students had experimented with alcohol and 79.0% had used alcohol in the last 30 days; 59.0% reported they had been drunk at least once in the past year (Tab. II). Of those who had experimented with alcohol, 6.9% reported being unable to stop drinking once they had started, 4.9% that they had failed to do what was normally expected from them, 6.0% that they felt guilt or remorse after drinking, and 6.0% that they could not remember what happened the night before at least once in the past month. All harmful alcohol use symptoms were reported more frequently by men (Tab. III).

Among those who had experimented with alcohol (N = 33,113), three consumption profiles were identified: “simple/non-use” (22,164 students, 66.9%), “intermediate consumption” (8,553 students, 25.9%) and “problem drinking” (2,396 students, 7.2%) (Fig. 1). For the “problem drinking” group, the three most relevant items were Q20 “not able to stop drinking after starting”, Q21 “failed to do what was normally expected”, and Q23 “unable to remember what happened the night before” (Supplemental Table B). In the decision tree, those three relevant items were ranked as follows: (Q23) (Q20), and (Q21).

From the learning portion of the sample (N = 24,689), the three most relevant questions for identifying students with drinking problems were ranked as follows: (Q23) “unable to remember what happened the night before”, (Q20) “not able to stop drinking after starting”, and (Q21) “failed to do what was normally expected”. Among the students who reported that they could not remember who happened the night before (Q23) “at least once a month”, 40.3% belonged to the group with drinking problems (Supplemental Material 2), while among those who reported that they were unable to stop drinking (Q20) more than once a month, 15.0% did, as did 6.7% of those who reported that they were unable to do what was normally expected (Q21) more than once a month. Overall, 84.5% of the students in the “problem drinking” group were correctly identified by using a simple decision tree. Inversely, the response “never” to those three questions correctly identified 70.0% of the students belonging to the “simple/non-use” group (Fig. 2).

This model, with three simple questions (unable to remember after drinking, not able to stop drinking, failed to do what was expected due to alcohol intake), has good sensibility and enough specificity for identifying students at risk. This indicates that it might be a good tool for screening.

Discussion

The students with drinking problems can be identified during rapid screening in daily practice, by asking three probing questions, all from AUDIT. Our results are consistent with those of the 2010 French Health Barometer concerning the annual prevalence of at least one episode of drunkenness (59.0% vs 50.9%,

| Table I. Socio-demographic and higher education characteristics of overall students included in the survey. |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Gender (women)* | N* | %* (n*) | m* (sd*) |
| Gender (women)* | 36427 | 70.5 (2,5679) |
| Age | 36578 | 21.2 (3.7) |
| Academic division* | 36427 |
| Science and Technology, Agronomics, Industry, Teaching | 29.0 (10,558) |
| Art, Letters and Languages, Human and Social sciences | 24.6 (8,967) |
| Health | 19.2 (6,978) |
| University institute of Technology | 11.1 (4,029) |
| Law, Political sciences | 8.2 (2,991) |
| Commerce, Economic sciences, Management | 5.8 (2,097) |
| Sport | 2.2 (807) |

| a = number of individuals with information about the variable; b = percentage; c = number of individuals with that response category; d = means; e = standard deviation; † = non-weighted data. |
respectively) and those of the Eurobarometer concerning binge drinking (responding yes to “I usually consume five servings of alcohol or more on the days I drink” (27.4% vs 22%) [24]. Similar results were also observed concerning the amount drunk at one time despite a different threshold and time period (30.7% vs 27.4%) [25].
The 30-day prevalence of alcohol consumption among the US university students whose alcohol use was assessed by the ACHA-NCHAII (66.8%) and the Monitoring the Future (MTF) surveys (63.1%) was lower than in our study (79.0%) [26, 27]. Nonetheless, results for the percentage of students who had been drunk at least once were quite similar: The MTF survey reported that 57.9% of American university students had been drunk at least one time in the last 12 months, compared with 59.0% in our survey. Moreover, 32.3% of the American students in the ACHA-NCHAII survey admitted to having forgotten where they were or what they had done under the influence of alcohol, a percentage moderately higher than among French students (24.5%).

One of the issues underlying this study was students’ misperceptions of their own alcohol consumption. Our study appears to show a recall bias associated with excessive alcohol consumption. The approaches based on the quantity of alcohol drunk appeared to be much more less discriminant for identifying groups of students at high risk than the questions about the consequences of their drinking. For students with drinking problems, the questions on negative effects on memory and behaviour are informative and contribute to identifying students at high risk. Students thus appear to underestimate the real quantity of alcohol they drank and overlook guilt feelings, but have better perception and report more accurately the consequences of drinking in terms of amnesia, loss of control, and inability to do what was expected of them [4, 5].

To our knowledge, this is the first nationwide study in France intended to analyse students’ practices related to addiction. The Health Barometer analyses the health of the French but not specifically that of students and the OVE conducts studies of students without specifically focusing on their health status. This multicentre cross-sectional study was conducted among a very large sample of students. It is nonetheless impossible to estimate the students’ participation rates, because the Ministry of Education could not provide student enrolment data by university for the year the study took place. Participation varied according to university. Some students could not be asked to participate because we did not obtain the agreement of their university’s communication department. The results are nonetheless homogeneous between the participating universities.

Healthcare professionals but also public authorities now have available three questionnaire items that can be used to assess alcohol consumption and are relevant both for early, routine identification and for initiating prevention campaigns among students with problem drinking. These questions meet the needs of healthcare professionals who have wanted to be able to conduct rapid screening in their everyday practice [28, 29]. Once this screening and identification has been performed, several methods of management are possible: intervention by a healthcare professional, peers, or even self-management on the internet [30-32]. A strategy of correction of misperceptions has also proved effective [33].

**Fig. 1.** Projection of variables modalities integrating in the multiple correspondence analysis.

Centre of gravity. **Item 17:** “How many alcoholic drinks do you drink on a single occasion?”. **Item 19a:** “Have you been drunk in the last year?”. **Item 21:** “How often during the last year have you found that you were not able to stop drinking once you had started?”. **Item 22:** “How often during the last year have you had a feeling of guilt or remorse after drinking?”. **Item 23:** “How often during the last year, have you been unable to remember what happened the night before because you had been drinking?” and **items 28-31:** DETA-CAGE.
The continuation of this work also leads us to approach this research field from another angle. Do the three questions we identified only allow us to identify students who are problem drinkers through the negative consequences that excessive drinking can have? Or do they further allow us to identify difficulties in controlling alcohol consumption that thus reveal vulnerability to future dependence on it? If the latter is the case, these three questions must be considered factors of vulnerability, similar to those previously identified: age at the beginning of drinking, alcohol consumption and drunkenness in middle school and high school, and the frequency of negative effects of alcohol consumption [34].

Conclusions

Questions about the inability to remember what happened the night before, inability to stop drinking, and inability to do what one is normally expected to do provide information that can be used to screen students with drinking problems, using a threshold frequency of at least once a month. These three key points may also be factors of vulnerability to alcohol. The development of management strategies incorporating them is essential.

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The author declares that there is no conflict of interest.

Authors’ contributions

JH, AP, VM, SM and LG developed the protocol of the study. JH and SL performed the statistical analysis. All authors interpreted the results. MB, ADL, GB and LG wrote the article, the other authors read it and made revisions for significant content. All authors had full control of the content of the article.
References


[34] Scaglione NM, Mallett KA, Turrisi R, Reavy R, Cleveland MJ, Ackerman S. Who will experience the most alcohol problems in college? The roles of middle and high school drinking tendencies. Alcohol Clin Exp Res 2015;39:2039-46.
Supplemental Table A: survey questionnaire

**SURVEY: Students’ health**

We would like you to fill in a questionnaire for a survey on health concerns among students living in France.

The present questionnaire is anonymous and takes around 20 minutes to complete.

Please reply to ALL items

1. Age _______ years old
2. Sex
   - [ ] Male  [ ] Female
3. Nationality
   - [ ] French  [ ] Other (state which) __________________________
4. Residence
   - [ ] Family or relatives  [ ] Residence hall  [ ] Apartment rental with roommates
   - [ ] Apartment rental alone  [ ] Other
5. a) Town of higher education
   - [ ] Location of University (answered “other” if you are in school) ______________
6. a) Type of higher education establishment:
   - [ ] University  [ ] Grandes écoles  [ ] Preparatory courses for Grandes Ecoles
   - [ ] Advanced Technician Certificate  [ ] University Institute of Technology
   - [ ] Specialised school  [ ] Engineering school  [ ] Other ____________
   b) Year of study ______________
   c) Academic discipline
   - [ ] Agronomics  [ ] Art  [ ] Commerce, Economic sciences  [ ] Law  [ ] Teaching
   - [ ] Industry  [ ] Letters and Languages  [ ] Management  [ ] Health  [ ] Human and social sciences
   - [ ] Science and Technology  [ ] Political Sciences  [ ] Sport  [ ] Other
7. Year of the 1st registration in higher education ___________
8. a) Year of high school diploma ___________
   b) Where high school diploma was awarded ___________
9. a) How much do you weigh? ____kg
   b) How tall are you? ___ m
10. How many average hours do you sleep on average a night? ________ hours
11. Do you have difficulty falling asleep, staying asleep or achieving restorative sleep?
   - [ ] Never  [ ] Rarely  [ ] Sometimes  [ ] Often  [ ] Most of the time  [ ] All the time

   **IF YOU ANSWERED NEVER OR RARELY, GO TO ITEM 13**

12. a) When did those difficulties begin?
   - [ ] Before the start of the academic year  [ ] After the start of the academic year
   b) Did these difficulties and tiredness prevent you from performing your daily activities (school work, job, leisure)?
   - [ ] Never  [ ] Rarely  [ ] Sometimes  [ ] Often  [ ] Most of the time  [ ] All the time

The following items are about your feelings during the past 4 weeks. For each question, give the one answer that comes closest to the way you have been feeling.

13. During the past 4 weeks, how much of the time

   **(For each item you will be asked to fill in a bubble in each line)**

<table>
<thead>
<tr>
<th>Item</th>
<th>All the time</th>
<th>Most of the time</th>
<th>A good bit of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Have you been very nervous?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
b) Have you felt so down in the dumps that nothing could cheer you up? 

- 1
- 2
- 3
- 4
- 5
- 6

c) Have you felt calm and peaceful? 

- 1
- 2
- 3
- 4
- 5
- 6

d) Have you felt downhearted and depressed 

- 1
- 2
- 3
- 4
- 5
- 6

e) Have you been happy 

- 1
- 2
- 3
- 4
- 5
- 6

The following items are about alcohol consumption. Choose the most appropriate answer.

14. Have you ever drunk alcohol (wine, beer, cider, liquor, cocktails)?
- Yes
- No

IF NO, GO TO ITEM 32

IF YES:

15. How often have you drunk alcohol in the last year?
- Never
- ≤ 1 time a month
- 2 to 3 times a month
- 1 to 2 times a week
- ≥ 3 times a week
- Every days

16. How often have you drunk alcohol in the last 30 days?
- Never
- 1 to 2 times
- 3 to 5 times (about 1 time a week)
- 6 to 9 times (1 to 2 times a week)
- 10 to 19 times (3 to 5 time a week)
- 20 to 29 times (almost every day)
- ≥ 30 times (≥ 1 time per day)

17. How many alcoholic drinks do you drink on a single occasion?
- 1 or 2
- 3 or 4
- 5 or 6
- 7 to 9
- ≥ 10

7 cl of aperitif 10 cl of champagne 2.5 cl of whiskey 2.5 cl of pastis 25 cl of beer 10 cl of wine

At 18° at 12° at 45° at 45° at 5° at 12°

Be careful, the quantity of alcohol depends on volume drunk: 1 glass of whisky of 10 cl is equivalent to 4 units of alcohol, 1 glass of 15 cl of liqueur is equivalent to 2 units of alcohol. 1 glass of cocktail with fruit liqueur or spirits and fruit juice is equivalent to 2 units of alcohol.

18. Overall, you drink:
- < 10 drinks of alcohol a year
- 1 to 4 drinks a month
- 5 to 10 drinks a month
- > 10 drinks a year

19. a) Have you been drunk in the last year?
- Never
- 1 to 2 times
- 3 to 5 times
- 6 to 9 times
- 10 to 29 times
- ≥ 30 times

b) On a 1 to 10 points scale, at what point were you drunk the last time?

1: Felt happy

10: So drunk that I couldn’t walk

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

20. How often during the last year have you found that you were not able to stop drinking once you had started?
- Never
- < 1 time a month
- 1 time a month
- > 1 time a month
- ≥ 1 time a week
21. How often during the last year have you failed to do what was normally expected from you because of drinking?
   □ Never  □ < 1 time a month  □ 1 time a month  □ > 1 time a month  □ ≥ 1 time a week
22. How often during the last year have you had a feeling of guilt or remorse after drinking?
   □ Never  □ < 1 time a month  □ 1 time a month  □ > 1 time a month  □ ≥ 1 time a week
23. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   □ Never  □ < 1 time a month  □ 1 time a month  □ > 1 time a month  □ ≥ 1 time a week
24. Have you been injured as a result of your drinking?
   □ Never  □ Rarely  □ Sometimes  □ Often  □ Very often
25. Has someone else been injured as a result of your drinking?
   □ Never  □ Rarely  □ Sometimes  □ Often  □ Very often
26. Have you been raped or experienced sexual assault as a result of your drinking?
   □ Never  □ Rarely  □ Sometimes  □ Often  □ Very often
27. Have you witnessed any violent incidents (fight, sexual assaults…) as a result of your drinking?
   □ Never  □ Rarely  □ Sometimes  □ Often  □ Very often

Concerning your alcohol consumption:
28. Have you ever felt you should cut down on your drinking?
   □ Yes  □ No
29. Have people annoyed you by criticising your drinking?
   □ Yes  □ No
30. Have you ever felt bad or guilty about your drinking?
   □ Yes  □ No
31. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (eye opener)?
   □ Yes  □ No

The following items are about marijuana consumption. Choose the most appropriate answer.
32. Have you ever used marijuana?
   □ Yes  □ No

**IF NO, GO TO ITEM 42**

**IF YES:**
33. How old were you the first time? _______ years old
34. Have you used marijuana in the last year?
   □ No  □ ≤ 1 time a month  □ 2 to 4 times a month  □ 2 to 3 times a week  □ ≥ 4 times a week
35. How often have you used marijuana during the last 30 days?
   □ 0  □ 1 to 2 times  □ 3 to 9 times  □ ≥10 times  □ Every day

Concerning your marijuana consumption:
36. Have you ever felt you should cut down on your use of marijuana?
   □ Yes  □ No
37. Have people annoyed you by criticising your use of marijuana?
   □ Yes  □ No
38. Have you ever felt bad or guilty about your use of marijuana?
   □ Yes  □ No
39. Have you ever used marijuana first thing in the morning to steady your nerves or to get rid of a hangover (eye opener)?
   □ Yes  □ No
40. Have you smoked cannabis when you were alone?
☐ Never  ☐ Rarely  ☐ Sometimes  ☐ Often  ☐ Very often  ☐ Permanently

41. Have you smoked cannabis before midday?
☐ Never  ☐ Rarely  ☐ Sometimes  ☐ Often  ☐ Very often  ☐ Permanently

The following items are about tobacco use. Choose the most appropriate answer.

42. Do you smoke currently?
☐ I don’t smoke and I have never tried
☐ I have tried but did not become a smoker
☐ I was a smoker but I stopped
☐ I smoke occasionally (< 1 cigarette a day)
☐ I smoke everyday (at least 1 cigarette a day)

IF YOU DON’T SMOKE CURRENTLY, GO TO ITEM 52

If you smoke, occasionally or daily:

43. How old were you the first time? _______ years old

44. How many cigarettes have you smoked during the last 30 days?
☐ <1  ☐ 1 to 5  ☐ 6 to 10  ☐ 11 to 20  ☐ 21 to 30  ☐ ≥ 31

45. How many times did you stop smoking for at least 7 days? _______ times

46. How soon after waking do you smoke your first cigarette?
☐ Within 5 minutes  ☐ 6 - 30 minutes  ☐ 31 - 60 minutes  ☐ > 60 minutes
☐ I don’t smoke in the morning

47. Do you find it difficult to refrain from smoking in places where it is forbidden?
☐ Yes  ☐ No

48. Which cigarette would you hate to give up?
☐ The first in the morning  ☐ Those after lunch  ☐ The last of the day  ☐ An other

49. Do you smoke more frequently in the morning?
☐ Yes  ☐ No

50. Do you smoke even when you are sick in bed?
☐ Yes  ☐ No

51. Do you use a water pipe?
☐ No, never
☐ Yes, < 1 time a week
☐ Yes, 1 to 3 times a week
☐ Yes, > 3 times a week

Have you used the followings substances at least one time in your life and in the last 30 days?

<table>
<thead>
<tr>
<th>Substance</th>
<th>a) I have used it at least 1 time in my life</th>
<th>b) I have used it in the last 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>52. Medication for nerves or sleep disturbance</td>
<td>☐ Yes  ☐ No</td>
<td>☐ Yes  ☐ No</td>
</tr>
<tr>
<td>53. Amphetamines</td>
<td>☐ Yes  ☐ No</td>
<td>☐ Yes  ☐ No</td>
</tr>
<tr>
<td>54. Cocaine</td>
<td>☐ Yes  ☐ No</td>
<td>☐ Yes  ☐ No</td>
</tr>
<tr>
<td>55. Ecstasy / MDMA</td>
<td>☐ Yes  ☐ No</td>
<td>☐ Yes  ☐ No</td>
</tr>
<tr>
<td>56. Poppers/glue/solvents</td>
<td>☐ Yes  ☐ No</td>
<td>☐ Yes  ☐ No</td>
</tr>
</tbody>
</table>
57. Mushrooms / LSD

58. Are you currently in paid employment?
   □ No □ Paid job in summer only □ Occasional paid job
   □ Paid job < 15 hours a week □ Paid job ≥ 15 hours a week

IF YOU HAVE NO JOB, GO TO ITEM 61

IF YOU HAVE A JOB:
59. Does this job have a relation with your studies? □ Yes □ No
60. Did you ask for your study schedule to be altered so as to continue with your job?
   □ Yes □ No
61. Do you do sports?
   □ No sport □ Not regularly or < 1 hour a week □ Regularly from 1 to 2 hours a week
   □ Regularly from 3 to 4 hours a week □ Regularly ≥ 5 hours a week
62. What medical insurance do you have?
   a) Main insurance
      □ Student insurance □ Parents’ insurance □ Insurance as a salaried worker
      □ Other □ Don’t know
   b) Private health insurance
      □ Student private health insurance □ Parents’ private health insurance
      □ Complementary universal health insurance □ Other □ None □ Don’t know

Have you seen a doctor in the last 12 months?

63. Attending physician
   a) □ Yes □ No
   b) If yes: □ Campus health centre □ Office □ Other

64. Gynecologist
   a) □ Yes □ No
   c) Do you use regular means of contraception?
      □ Yes □ No
   d) Have you ever taken emergency oral contraception? □ Yes □ No

65. Psychologist / Psychiatrist
   a) □ Yes □ No
   b) If yes: □ Campus health centre □ Office □ Other

66. Dentist
   a) □ Yes □ No
   b) If yes: □ Campus health centre □ Office □ Other

67. Other medical specialist
   a) □ Yes □ No
   b) If yes: □ Campus health centre □ Office □ Other

68. Did you choose an attending physician to be your family physician?
   □ Yes □ No □ Don’t know

Did you forgo seeing healthcare professionals in the last 12 months? (Several answers possible)
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>69. Attending physician</td>
<td>a) □ Yes □ No</td>
</tr>
<tr>
<td>b) If yes: □ Cost problem</td>
<td>□ I didn’t have any time</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment when I needed one</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment where I lived</td>
</tr>
<tr>
<td></td>
<td>□ Other</td>
</tr>
<tr>
<td>70. Dentist</td>
<td>a) □ Yes □ No</td>
</tr>
<tr>
<td>b) If yes: □ Cost problem</td>
<td>□ I didn’t have any time</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment when I needed one</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment where I lived</td>
</tr>
<tr>
<td></td>
<td>□ Other</td>
</tr>
<tr>
<td>71. Ophthalmologist</td>
<td>a) □ Yes □ No</td>
</tr>
<tr>
<td>b) If yes: □ Cost problem</td>
<td>□ I didn’t have any time</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment when I needed one</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment where I lived</td>
</tr>
<tr>
<td></td>
<td>□ Other</td>
</tr>
<tr>
<td>72. Optician</td>
<td>a) □ Yes □ No</td>
</tr>
<tr>
<td>b) If yes: □ Cost problem</td>
<td>□ I didn’t have any time</td>
</tr>
<tr>
<td></td>
<td>□ I couldn’t get an appointment where I lived</td>
</tr>
<tr>
<td></td>
<td>□ Other</td>
</tr>
<tr>
<td>73. To buy medication</td>
<td>a) □ Yes □ No</td>
</tr>
<tr>
<td>b) If yes: □ Cost problem</td>
<td>□ I didn’t have any time</td>
</tr>
<tr>
<td></td>
<td>□ Other</td>
</tr>
<tr>
<td>74. Have you ever been a victim of violence?</td>
<td>a) Psychological?</td>
</tr>
<tr>
<td></td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td></td>
<td>Add comments below.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Physical?</td>
</tr>
</tbody>
</table>

_________________________________________________________________________
75. Have you ever behaved violently?
   a) Against someone?
      □ Never □ Rarely □ Sometimes □ Often □ Very often
   b) Against yourself?
      □ Never □ Rarely □ Sometimes □ Often □ Very often
   c) Committing acts of vandalism?
      □ Never □ Rarely □ Sometimes □ Often □ Very often
   Add comments below.

76. Answer all the following items:
   a) Do you sometimes meet with a social worker (welfare worker, educator)?
      □ Yes □ No
   b) Do you have complementary health insurance (mutual insurance)?
      □ Yes □ No
   c) Do you live with a partner?
      □ Yes □ No
   d) Are you a homeowner or will you be one in the near future?
      □ Yes □ No
   e) Are there periods in the month when you have real financial difficulties in facing your needs (food, rent, electricity)?
      □ Yes □ No
   f) Have you participated in any sports activities in the last 12 months?
      □ Yes □ No
   g) Have you gone to any shows (cinema, theatre) in the last 12 months?
      □ Yes □ No
   h) Have you gone on vacation during the past 12 months?
      □ Yes □ No
   i) Have you seen any family members in the past six months (other than your parents or children)?
      □ Yes □ No
   j) If you had financial, family or health difficulties, is there anyone you could stay with for a few days?
      □ Yes □ No
   k) If you had financial, family or health difficulties, is there anyone you could give you material aid such as lending you money?
      □ Yes □ No
   Thank you for taking the time to answer this questionnaire.
Write any comments you may have in the space below.

Consult the results of the statistical analysis on our website: [http://www.addictprev.fr/](http://www.addictprev.fr/)

<table>
<thead>
<tr>
<th>Comments:</th>
</tr>
</thead>
</table>

Supplemental Table B: results of the three most discriminant items for the three groups, simple use/non-use, intermediate consumption and problem drinking, identified by the multiple correspondence analysis

<table>
<thead>
<tr>
<th>Items</th>
<th>Group 1 Simple use/non-use</th>
<th>Group 2 Intermediate consumption</th>
<th>Group 3 Problem drinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of drink on a single occasion</td>
<td>0.542</td>
<td>0.401</td>
<td>0.413</td>
</tr>
<tr>
<td>Annual frequency of drunkenness</td>
<td><strong>0.689</strong></td>
<td>0.548</td>
<td>0.556</td>
</tr>
<tr>
<td>Not able to stop drinking after starting</td>
<td>0.541</td>
<td>0.430</td>
<td><strong>0.679</strong></td>
</tr>
<tr>
<td>Failed to do what was normally expected</td>
<td>0.572</td>
<td>0.465</td>
<td><strong>0.627</strong></td>
</tr>
<tr>
<td>Guilt feelings</td>
<td><strong>0.613</strong></td>
<td>0.526</td>
<td>0.553</td>
</tr>
<tr>
<td>Unable to remember what happened the night before</td>
<td><strong>0.652</strong></td>
<td>0.551</td>
<td><strong>0.645</strong></td>
</tr>
<tr>
<td>Have you ever felt you should cut down on your drinking?</td>
<td>0.400</td>
<td>0.239</td>
<td>0.321</td>
</tr>
<tr>
<td>Have people annoyed you by criticising your drinking?</td>
<td>0.332</td>
<td>0.156</td>
<td>0.338</td>
</tr>
<tr>
<td>Have you ever felt bad or guilty about your drinking?</td>
<td>0.465</td>
<td>0.291</td>
<td>0.354</td>
</tr>
<tr>
<td>Have you ever had a drink first thing in the morning to steady your</td>
<td>0.087</td>
<td>0.008</td>
<td>0.144</td>
</tr>
<tr>
<td>nerves or to get rid of a hangover (eye opener)?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>