




Alcohol consumption, drinker identity, and quality of life among students: why there cannot be one prevention strategy for all

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Accepted: 18 June 2018 / Published online: 22 June 2018
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Abstract

Introduction The objective for this study was to combine drinking characteristics and two subjective measures, drinker identity and alcohol-related quality of life, i.e., negative impact of alcohol on quality of life, to determine relevant profiles for indicated prevention programs. In particular, we hypothesized that different profiles of students with high level of alcohol consumption exist when exploring subjectivity.

Methods We performed an online survey among 16,930 students. We collected sociodemographics and environmental data, including alcohol-related quality of life, drinker identity, and drinking characteristics. We performed a hierarchical clustering on principal components. We described all variables in each cluster and explored between clusters differences by Kruskal–Wallis tests.

Results We identified five clusters as regarding drinker identity, drinking characteristics, and alcohol-related quality of life. Among these five clusters, three clusters presented high drinking characteristics. A very vulnerable cluster showed high level of alcohol consumption, impact on quality of life and on academic results, and strong drinker identity. An egodystonic cluster showed high level of consumption, mild impact on quality of life and on academic results, but low drinker identity. A cluster seemed short-term super-adapted in heavy drinking environment, showing high level of alcohol consumption and drinker identity, but low impact on quality of life and on academic results (all between clusters p values < 0.001 with Kruskal–Wallis tests).

Conclusion The subjective experience of students from these clusters was significantly different (p value < 0.001), and could explain some inadequacy of certain prevention strategies, considering binge drinker student as a homogeneous group. Prospective studies are needed to explore changes over time of these clusters.

Introduction

Students are exposed to high-risk alcohol consumption patterns, such as binge drinking [1–3]. Binge drinking is increasingly documented as being responsible for considerable acute, mid- and long-term burdens [4–6]. Prevention programs are either universal, selective, or indicated depending on the targeted population, respectively, general, at risk, or involved in a hazardous behavior. A common prevention strategy is to develop indicated programs for college alcohol use that focus on frequent binge drinkers, namely already involved in the high-risk behavior. These programs usually include providing education, referral, and normative education to this group of students [7]. Contemporary prevention programs rely on psychosocial theories, demonstrated to be more effective than information only that was the dominant component of earlier programs. The main psychosocial

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theories forming the bases of effective prevention programs are teaching drug refusal skills, correcting normative expectations regarding the prevalence of substance use, and enhancing competence skills. The competence-enhancement approach to prevention acknowledges that youths with poor personal and social skills are more susceptible to social influences promoting alcohol use and may be motivated to use alcohol as an alternative to more adaptive coping strategies [8]. However, considering all young hazardous drinkers who expose themselves to high-risk drinking patterns as people with preexisting vulnerability could be a huge misunderstanding. This assumption could somehow remind the “deficits model” that drove early prevention programs to be composed of information alone [9, 10]. Moreover, modeling drinking norms could also be tricky in terms of binge drinking. Binge drinking is a widespread behavior that could be

somehow a normative behavior, and at the same time, level of consumption on binge-drinking days is paradoxically not considered as a level of consumption of a typical drinking day among students practicing binge drinking [11]. Most frequent binge drinkers do not identify themselves as problem drinkers [7]; binge drinking may award short-term benefits, particularly in the social domain, and negative consequences are unequally distributed. Therefore, including students’ subjective views regarding alcohol use may increase efficacy of prevention programs, allowing students to find a personal fitted and relevant message. Two concepts could be useful for including subjective views regarding alcohol use in prevention programs: alcohol-related quality of life, and drinker identity. Figure 1 synthesizes our conceptual model.

Quality of life is by definition subjective and is dependent from the system of values of a thinking subject.

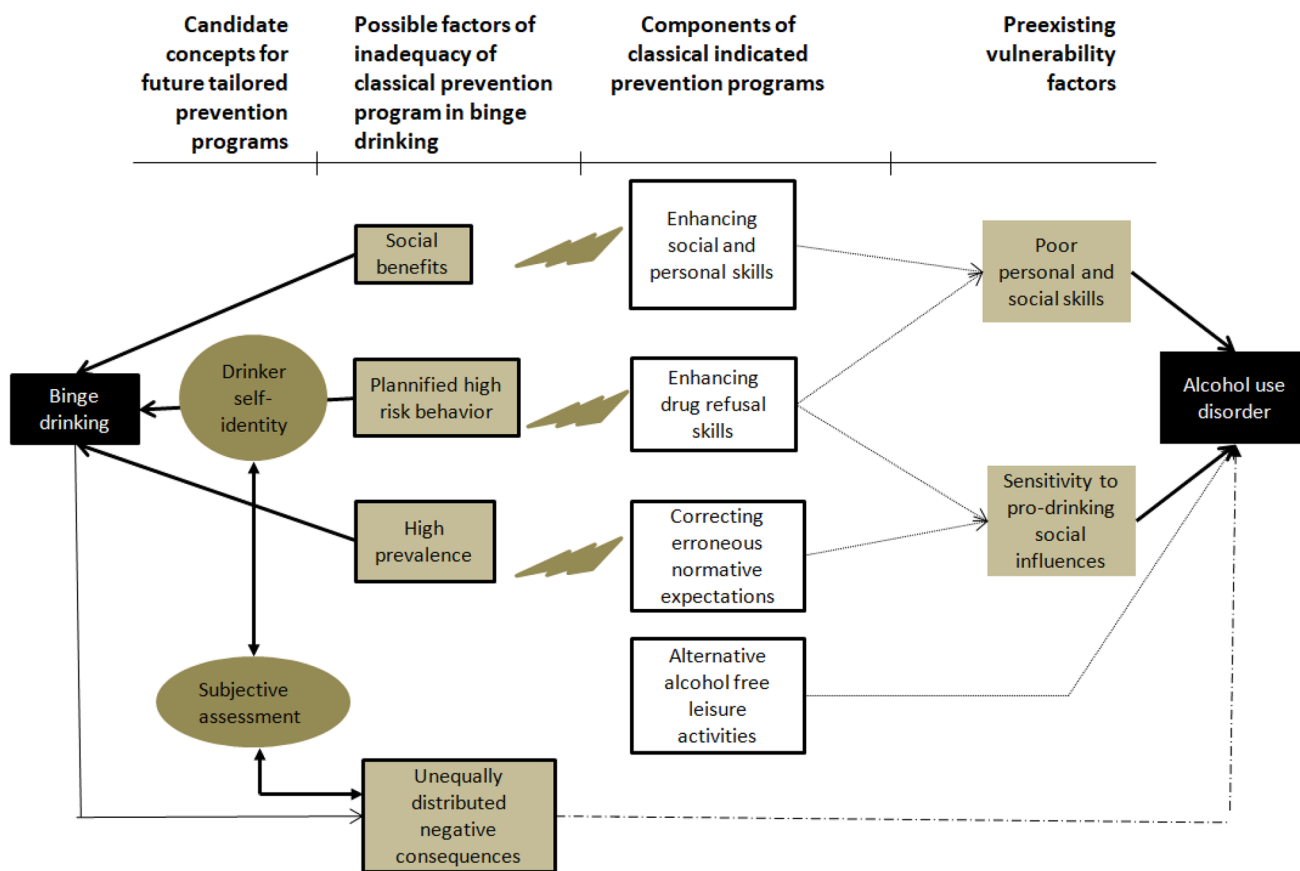


Fig. 1 Conceptual model. This model conceptualizes the possible inadequacy of classical prevention programs used in alcohol use disorder, when applied to binge drinking in students. It proposes candidate concepts for future tailored prevention programs to limit and reduce damages in binge drinking. From right to left: classical indicated prevention programs in alcohol use disorders rely on preexisting vulnerability factors: poor personal and social skills, and sensitivity to pro-drinking social influences (in light gray rectangles with uncolored outline). Corresponding to each factor, components of prevention programs are declined in white rectangles: enhancing social

and personal skills, drug refusal skills, correcting erroneous expectations. Inadequacy to binge-drinking context is symbolized with a thunderbolt. Next to each thunderbolt are proposed characteristics of binge drinking that could explain inadequacy of prevention components in binge drinking (in light gray rectangles with black outline): related social benefits, planned nature of binge drinking, a high prevalence, and the unequal distribution of negative consequences among binge drinkers. Two concepts are proposed as possible lever to rethink prevention in binge drinking: drinker self-identity and subjective assessment of negative consequences (in brown gray circles)

Alcohol-related quality of life, i.e., negative impact of alcohol on quality of life, reflects subjects' feelings and functioning and the impact of their relation to alcohol beyond simple symptom assessment, or objective listing of alcohol-related consequences. Subjective and nuanced identification of specific areas of life impacted by alcohol could help young people to draw a much more personal picture of their relation to alcohol. Negative impact of alcohol on quality of life has also been shown to be associated with alcohol consumption in students [12, 13]. Recently, higher negative impact of alcohol on quality of life in students has been shown to be associated to drinker identity [11].

Identity is the distinguishing character or personality of an individual, but it also refers to the condition of being the same with something described, which refers to feeling of belonging. Sociologists developed this concept questioning the conformity of one individual to the group and distinction of social groups one from another [14]. Identity development is a long process, still ongoing in subjects' late twenties [15]. Students under 30 therefore have a flexible, highly instable identity. The “drinker prototype” is the subjective and personal perception of how could be described heavy drinkers. The drinker identity could result from the comparison between self-identity perception and the drinker prototype perception [16]. Prototypes have been presented as the missing link between risk taking and a planned behavior [16]. Self-identity comparison to “prototype” could then partly explain risky behaviors such as binge drinking. Drinker identity has been shown to be associated with high level of alcohol consumption [17], alcohol-related problems, and, among alcohol-dependent students, severity of alcohol dependence [18]. It has been proposed to be a target of prevention programs [19], for instance by providing alternative alcohol-free leisure activities. In fact, drinker identity, impact of alcohol on quality of life, and alcohol consumption level seem to share mutual but non-linear influences. Relations between drinker identity, impact of alcohol on quality of life, and alcohol consumption level should be further studied simultaneously in order to determine more relevant high-risk subgroups, to be targeted by indicated prevention programs.

The purpose of this article is to explore the interplay between these three constructs: drinker identity, subjective perception of impact of alcohol on quality of life, and alcohol consumption level. The objective for this study was to combine (1) drinker identity, (2) alcohol-related quality of life, and (3) drinking characteristics to determine relevant profiles for indicated prevention programs. In particular, we hypothesized that different profiles of students with high level of alcohol consumption exist as explored by two subjective measures: quality of life and drinker identity.

Methods

Settings

All consenting French universities previously informed of the BDmiE project through university associations and networks could participate in the study. BDmiE stands for “Binge Drinking en milieu étudiant,” meaning student binge drinking in French. We presented the study protocol in the two main French conferences of presidents of universities. A total of 17 willing universities participated. Communication about the study differed in function of the personal investments of local contacts from the pedagogic team and students' associations. Minimal communication was through (1) posters placed to inform on the upcoming BDmiE study, and (2) posts announcing the upcoming study on the university/student association social media account.

Student recruitment

All students from the willing universities were contacted through emails containing information on the study purpose and a link to the survey platform hosted by SurveyMonkey®. Students were explained that we were interested in their relation to alcohol whether they drink or not. They were informed that the main topic of the study was quality of life. The invitation email was the following: “We would like to invite you to participate in a national survey on the impact of alcohol consumption on students' quality of life, especially binge drinking. This study concerns you even if you consider that you have no problem with alcohol. Indeed, it is important that we collect information from students with different types of alcohol consumption. In this survey, we will ask you questions about your lifestyle, including your alcohol consumption, and your quality of life as a student. It will help us better understand your concerns and promote initiatives to improve your quality of life in the future. The information you give us will be entirely anonymous. We will have no way to make the connection with your identity. They will not be analyzed individually, and will not be used outside the scope of this study. They will be analyzed independently of your establishment by our research team and none of your answers will be forwarded to your institution.” Students could complete the online anonymous survey between March 2 and April 2, 2015.

Students

We chose to focus on students aged 30 years or under, because this is the population that is the most involved in binge drinking [1], and this age range includes the

so-called 5 “peak years” of binge drinking (18–23) [3]. Inclusion criteria were (1) being a student from one of the willing universities, (2) being aged under 30 years old. Exclusion criteria were (1) students who only completed the first question of the whole questionnaire, (2) completers with obvious unserious responses (jokes in commentaries, insults, and obscene language).

Ethics

The study was notified and authorized by the “Comité National Informatique et Libertés” with the number 1692676 v 0. Responders completed the survey in complete anonymity.

Measures

Sociodemographics and environmental data were collected, including age, gender, nationality, academic details, living conditions, last use of other substances and of gambling activities.

Drinking behaviors were assessed using the Alcohol use disorders test (AUDIT-C) [20, 21], and last-month binge-drinking characteristics were detailed, following the definition “at least 4/5 drinks (female/male) consumed in 2 h or less,” including frequency and intensity. The level of the “drinker-self-concept” was assessed using the “Drinker-self-concept scale,” a 5-item measure adapted from the Smoker Self-Concept Scale [22, 23].

The negative impact of alcohol consumption on academic results was assessed from one question “Do you think your academic results have been negatively impacted by your alcohol consumption?”, with a 4-point scale ranging from 1 “not at all” to 4 “extremely.” This single item has not been validated. However, a correlation of 0.3 has been calculated with the AQoLS (unpublished results), and a significant correlation with the frequency of binge drinking and with past-month maximum number of drinks on one occasion had been previously reported ($r = 0.16$, 0.16 and 0.27 , respectively, p value $< 2.2e-16$) [11].

Health-related quality of life (HRQOL) was assessed using the Alcohol Quality of Life Scale (AQoLS) [12]. The AQoLS is a self-completed questionnaire composed of 34 items. Instructions are given to answer thinking about the negative impact of his/her relationship with alcohol. Each item is assessed on a 4-point Likert-type response scale [“not at all” (0), “a little” (1), “quite a lot” (2), and “very much” (3)] and the recall period is 4 weeks. It has been previously validated and has shown good psychometric properties in students [11].

Statistical analysis

All analyses were performed using R Software. The missing data increased naturally towards the end of the questionnaire, which took 8 min to complete; the only exception was the item from the AQoLS exploring shame, for which missing response rate was slightly superior to the adjacent items in the questionnaire (mean rate 12%). Missing data were completed with the K Nearest Neighbors method ($K = 100$).

Clustering

The Hopkins statistic was calculated, which indicates the clustering tendency of the dataset. A value of 0.5 would mean uncorrelated data and non-relevance of clustering methods to be applied. The value of Hopkins statistic allowed concluding that the dataset was clusterable. A principal component analysis (PCA) was used to reduce the dimensionality of the data into few continuous variables (i.e., principal components) containing the most important information. The analysis demonstrated that 10 components explained 55% of variance. A Hierarchical Clustering on Principal Components (HCPC) was performed, using squared Euclidean distance as the distance measure across respondents and Ward’s method for combining clusters [24]. The result of hierarchical clustering is a tree-based representation of the observations which is called a dendrogram. Observations can be subdivided into groups by cutting the dendrogram at a desired similarity level. The function built a hierarchical tree. Then the sum of the within-cluster inertia was calculated for each partition. The suggested partition is the one with the higher relative loss of inertia. The five-cluster option was determined to be the optimal solution. To confirm our analysis, all variables were described, converted into numerical variables, in each cluster and explored between clusters differences by Kruskal–Wallis tests. A Bonferroni correction of 0.00183023 has been calculated for a critical p value of 0.05.

Results

A total of 16,930 students were included. Detailed flow-chart is presented in Fig. 2. Description of the whole sample is available elsewhere [11]. The analyses distinguished five clusters. Clusters showed different profiles on variables of interest (Fig. 3): (1) cluster 1 showed very low level of alcohol consumption, AQoLS, consequence on academic results, and drinker identity, (2) cluster 2 showed low level of alcohol consumption, AQoLS, consequence on academic results, and drinker identity, (3) cluster 3 showed high level of alcohol consumption and drinker identity, but low level of AQoLS and consequence on academic results, (4) cluster 4

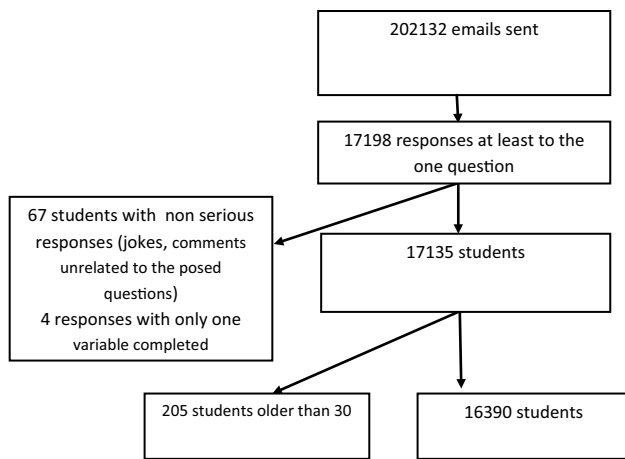


Fig. 2 Flowchart

showed high level of consumption, mild level of AQoLS and consequence on academic results, but low level of drinker identity, (5) cluster 5 showed high level of alcohol consumption, AQoLS, consequence on academic results, and drinker identity. Interestingly, cluster 5 showed an egodystonic profile with a similar pattern of alcohol consumption than cluster 3, but the highest scores of AQoLS, meaning the highest level of negative impact of alcohol on quality of life.

Differences in demographics were very small although significant as regarding age, years after being graduated, living at his/her parents (or another relative), living with a

partner, living with mates (Table 1). All clusters were composed of a range from half to two-third of males, except cluster 1 (males 31.7%). Slight differences could be identified between clusters 1 and 2. People from cluster 2 were composed of more males than cluster 1. People from cluster 2 lived less often in a familial setting or with a partner than people from cluster 1. People from cluster 3 seem to compose the cluster living less often in a familial setting or with a partner, and to live more often with mates. Students from cluster 5 were the oldest in mean (22 vs. 21 years old) and presented more often other addictive behaviors.

Discussion

This large cross-sectional online survey among 16,930 students allowed identifying five clusters with different patterns of alcohol consumption, alcohol-related impact on quality of life, and drinker identity, and in particular two clusters (1 and 2) with very low- and low-risk profiles, and three clusters characterized by high level of alcohol consumption in accordance with our hypothesis. Not surprisingly, we identified a small cluster with all three dimensions at ceiling, probably corresponding to the subgroup currently the most in difficulty with alcohol (cluster 5). Interestingly, we identified a cluster with very high drinker identity and alcohol consumption, but low perceived impact on quality of life (cluster 3), that seemed to currently be subjectively super-adapted to the heavy drinking environment. Finally,

Fig. 3 Profiles of clusters on Alcohol Quality of Life Scale (AQoLS), drinking pattern (Alcohol Use Disorder Test-C (AUDIT-C) and binge-drinking frequency), and drinker identity (mean scores, all scores normalized to 1 as a maximum). Clusters 1 and 2 are very low and low drinking profiles. Cluster 3 is the “currently super-adapted cluster.” Cluster 4 is the “egodystonic cluster.” Cluster 5 is the most vulnerable and high-risk cluster

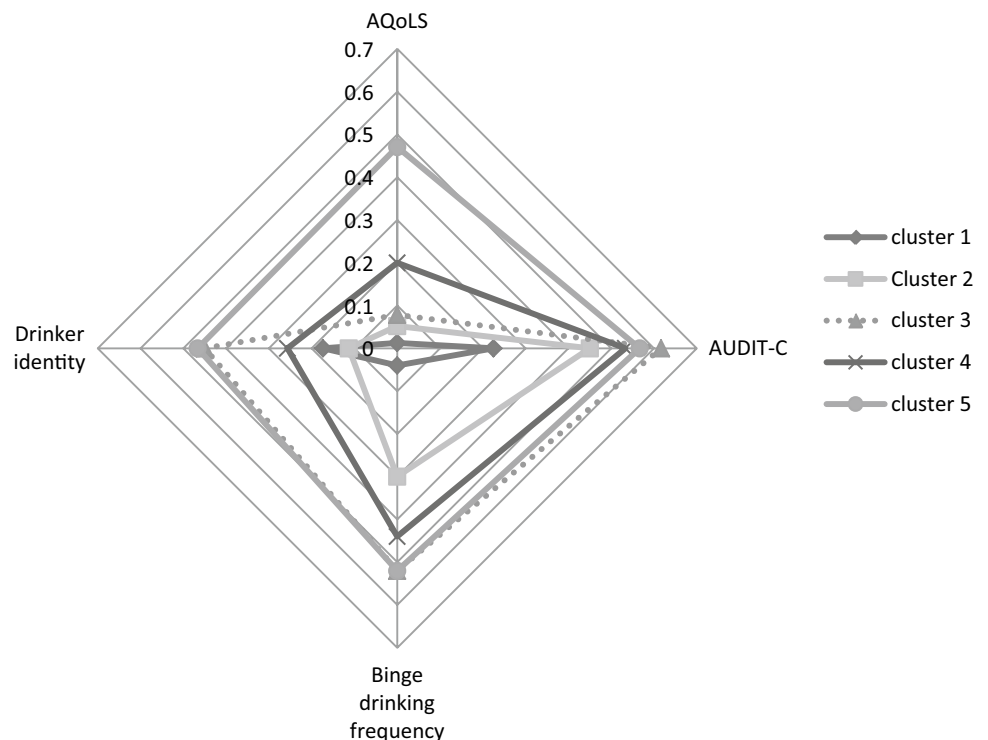


Table 1 Characteristics of the clusters and results of the Kruskal–Wallis test

	Cluster 1 (<i>n</i> = 7786)	Cluster 2 (<i>n</i> = 6247)	Cluster 3 (<i>n</i> = 1625)	Cluster 4 (<i>n</i> = 1127)	Cluster 5 (<i>n</i> = 145)	<i>p</i> value
Age (years) (mean, SD)	21.0 (2.3)	21.1 (2.2)	21.2 (2.1)	21.0 (2.2)	21.8 (2.4)	< 0.001 ^a
Gender (male) (%)	2466 (31.7)	3362 (53.8)	1116 (68.7)	589 (52.3)	88 (60.7)	< 0.001 ^a
Years after being graduated (mean, SD)	2.9 (1.6)	3.0 (1.5)	3.2 (1.5)	2.9 (1.4)	3.2 (1.5)	< 0.001 ^a
Lives at his/her parents (or another relative) (yes) (%)	1900 (24.4)	872 (14.0)	330 (20.3)	222 (19.7)	30 (20.7)	< 0.001 ^a
Lives with a partner (yes) (%)	1051 (13.5)	469 (7.5)	166 (10.2)	111 (9.8)	12 (8.3)	< 0.001 ^a
Lives with mates (yes) (%)	681 (8.7)	766 (12.3)	391 (24.1)	224 (19.9)	23 (15.9)	< 0.001 ^a
Other addictive behaviors (frequency of consumption, range 0–3) (mean, SD)						
Tobacco	0.8 (1.0)	1.6 (1.0)	2.1 (1.2)	2.0 (1.2)	2.1 (1.1)	< 0.001 ^a
Cannabis	0.4 (0.6)	1.0 (0.8)	1.6 (1.1)	1.4 (1.1)	1.5 (1.1)	< 0.001 ^a
Cocaine	0.0 (0.1)	0.1 (0.3)	0.2 (0.6)	0.2 (0.5)	0.5 (0.9)	< 0.001 ^a
Heroin	0.0 (0.1)	0.0 (0.2)	0.0 (0.3)	0.0 (0.3)	0.2 (0.7)	< 0.001 ^a
MDMA or psychostimulant (other than cocaine)	0.0 (0.1)	0.1 (0.4)	0.3 (0.6)	0.3 (0.6)	0.5 (0.9)	< 0.001 ^a
Poppers	0.1 (0.2)	0.3 (0.5)	0.5 (0.8)	0.4 (0.7)	0.6 (0.9)	< 0.001 ^a
Gambling	0.4 (0.6)	0.5 (0.7)	0.7 (0.9)	0.6 (0.9)	0.9 (1.0)	< 0.001 ^a
Drinker self-concept scale score (range 5–35) (mean, SD)	6.2 (2.0)	8.4 (2.4)	18.5 (5.3)	12.7 (6.1)	19.0 (9.6)	< 0.001 ^a
Drinking characteristics (mean, SD)						
Frequency alcohol consumption	1.3 (0.9)	2.2 (0.9)	3.0 (0.7)	2.6 (1.0)	2.5 (1.3)	< 0.001 ^a
Frequency of binge drinking in the past month	0.2 (0.5)	1.5 (1.3)	2.6 (1.4)	2.3 (1.5)	2.6 (1.9)	< 0.001 ^a
Maximum alcohol consumed on 1 occasion	3.9 (2.4)	7.9 (3.9)	11.8 (7.8)	9.8 (5.6)	11.7 (7.8)	< 0.001 ^a
Number of alcohol drinks on a typical occasion	0.7 (0.7)	1.4 (1.0)	2.0 (1.3)	1.8 (1.2)	2.0 (1.3)	< 0.001 ^a
Frequency of consumption of 6+ drinks on 1 occasion	0.7 (0.6)	1.7 (0.7)	2.4 (0.8)	2.1 (0.9)	2.3 (1.3)	< 0.001 ^a
AQoLS total score (range 0–102)	1.3 (1.9)	5.3 (3.1)	8.0 (4.6)	20.4 (5.7)	48.0 (16.7)	< 0.001 ^a
Impact of alcohol on academic results (range 1–4)	0.0 (0.1)	0.2 (0.3)	0.3 (0.5)	0.7 (0.7)	1.4 (1.0)	< 0.001 ^a

^aBonferroni correction: 0.00183023

we find an egodystonic cluster (cluster 4) with low drinker identity, but still presenting heavy drinking, and high discomfort as regarding quality of life. Interestingly, the cluster 4 had the highest rate of women as compared to the two other clusters with high level of consumption, but is also the most balanced in terms of gender, the closest to gender parity. These findings confirm the existence of different profiles of students with high level of alcohol consumption when exploring subjectivity.

From a sociological perspective, individual personality would only be a declension of a common social personality from a social group, with its own habitus [14]. In a sociological meaning, the habitus is the manner of being an individual, linked to a social group and manifested for instance in his physical appearance (clothes...). Bourdieu conceptualized that each member of a social group tends to conform to the habitus of his group, “playing the social game,” in a sociological meaning, i.e., behaving as it is commonly

waited so in this group. Bourdieu conceptualized this trend to conformity including pattern of consumption. This conformity would allow a feeling of belonging to the group, and distinction from others groups. In students, habitus definition could be extended to alcohol consumptions and risky patterns of alcohol consumption. In a group of heavy drinkers, playing the social game could then involve conforming to the drinker prototype. Scott and al. demonstrated by a qualitative study that “playing the drinking game” was one of the three main motivations of young people in consuming alcohol, and was considered as demonstrating cultural competencies [25]. Those cultural competencies included understanding and respecting “rules of play,” namely knowledge of drinking limits, that was reported in this study as drunkenness with limited embarrassment. High drinker identity could lead to perception as “normal” some alcohol consequences, because perceived as part of the drinker prototype, and conform to peers. A high level of drinker identity could then lead to little identified impact on quality of life, in students surrounded by heavy drinkers or by student with similar high level of drinker identity. “Social game-playing” theorized in a sociological meaning by Bourdieu and adapted to alcohol consumption in young people by Scott may suggest that the cluster 3 with high level of consumption, high drinking identity, and low AQoLS score could have better social competence in a high drinking level field and a comfortable conformity to the habitus, namely high level of alcohol consumption [25]. Quite the reverse, individuals in cluster 4 reported high level of discomfort in a high drinking level field and low drinking identity. This cluster seems to conform, in an egodystonic way, to the heavy drinking environment. This cluster is quite balanced as regarding gender. This could mean that either men or women could practice egodystonically heavy drinking. Cluster 5 was characterized by high-risk factors including high levels of consumption, drinker identity, and alcohol-related impact on quality of life. It could be a particularly vulnerable subgroup in which adaptation to the drinker prototype explains the behavior, but do not protect from impact anymore. It is the oldest cluster; even if it is a 1-year difference with the other clusters, leading to much caution in the interpretation of results, it could suggest a risky drinking behavior being consolidated as compared to the other younger clusters. In this subgroup, frequency of other addictive behavior seems higher than in cluster 3. Differences in subjective alcohol-related quality of life could reflect different levels of conformity to the social field. This is an important finding, because it highlights the role of drinker identity and suggests the role of habits of the social group in the maintenance of risky behaviors. While this cross-sectional study does not allow to state on evolution of clusters, Montes and co. recently reported that a switch from problem drinker identity to non-problem drinker identity was a good predictor for decrease in alcohol

consumption [26]. Our cluster 5, characterized both by high drinker identity and high impact on quality of life, could correspond to Montes’ study self-identified non-treatment-seeking problem drinkers. Here, the significant difference in age between clusters supports that cluster 5 could be a negative evolution modality of most vulnerable people from cluster 3. However, our study gives complementary information of complex patterns of identity, negative impact identification, and level of consumption, demonstrating that young people do not feel and behave homogeneously in terms of alcohol. This study suggests possible barriers to efficacy of prevention messages targeting all frequent binge drinkers, especially for preventing risks of binge drinking in a subgroup that feels particularly comfortable with their drinking behavior, but with possible negative course. Our study is cross-sectional, and allows no information on between clusters inequality in mid- and long-term alcohol-related consequences. The comfortable subgroup could be comfortable in a high level of drinking habitus, due to low alcohol response. This explanation, if confirmed, would be an additional warning for young people with high level of alcohol consumption and low immediate impact on quality of life, because low response is a well-documented predicting factor of future alcohol dependence [27]. This subgroup could also have better global adaptation abilities; these abilities would inversely allow decrease of level of alcohol consumption when maturing out from the binge-drinking period of studies. However, regular and prolonged exposure to high level of alcohol has been documented to be associated with specific risks, such as liver diseases and development of alcohol dependence. It then would be particularly interesting to complete this study with prospective data to document the follow-up of each identified cluster, and particularly individual from this cluster 3.

This study presents other limitations. Willing universities were probably the most dynamic ones in terms of prevention, which can limit the generalizability of the results. It is a self-selected sample of French students, and findings should be generalized with caution. The cluster 5 is pretty small, and its size could constitute a limit; however, the five clusters solution was the better fitted, and it was expected to find a minority of very vulnerable and impacted students. This study did not explore centrality of drinking identity [17]. It would be of interest to assess centrality of drinker identity in the clusters reported here, as a public health implication of this study is to promote alternatives to the drinker identity. However, societal barriers could challenge such strategies, as drinking patterns have been documented as one of the consumption habits leading to distinction between social groups in the general population [14]. Further studies could explore such societal barriers in student populations. Last, this study was cross-sectional, and we have no information on the stability of the clusters over time or on their evolution

towards other drinking patterns after the period of studies. As mentioned above, it would be interesting to complete these findings with prospective data.

Conclusion

This large cross-sectional online survey among 16,930 students allowed identifying five clusters as regarding drinking characteristics and two subjective measures, drinker identity and alcohol-related quality of life. Among these five clusters, three clusters presented high drinking characteristics: a very vulnerable cluster, an egodystonic cluster, and a subjectively super-adapted in heavy drinking environment cluster. The subjective experiences of students from these clusters were significantly different, and could explain some inadequacy of certain prevention strategies, considering binge drinker students as a homogeneous group. The challenge here is to take into account the subjectivity in prevention programs, to tailor messages according to these different profiles, particularly among the three clusters with high levels of exposure to alcohol, and dramatically different perceptions. Prospective studies are needed to explore changes over time of these clusters.

Acknowledgements The authors thank Charlotte Baey, Véronique Le Chevalier, Filipa Lopes and the Ecole Centrale Paris, Conférence des Grandes Ecoles, Mr G Majou, Conférence des Directeurs des Ecoles Françaises d'Ingénieurs, Mrs C Guiria, Conférence des Présidents d'Université, Mrs C Marseault, Association Des Services de Santé Universitaires, Dr A Perreve, and Dr Gerbault, Observatoire de la Vie Etudiante, Bureau National des Elèves Ingénieurs, Bureau Des Etudiants of Lorraine University, and all participating universities and students.

Compliance with ethical standards

Conflict of interest LA has received sponsorship to attend scientific meetings, speaker honoraria, and consultancy fees from Lundbeck and Indivior. BA has received sponsorship to attend scientific meetings, speaker honoraria, and consultancy fees from Lundbeck, Mylan, Gilead, Janssen Cilag and Indivior. AHJ has received sponsorship to attend scientific meetings, speaker honoraria, and consultancy fees from Bioprojet, D&A Pharma, Ethypharm, Lundbeck, Merck-Serono, Novartis, and Pfizer. AB, BSA, FSDVE, LMA, SH, and CT have no conflict of interest.

Ethical approval The study was notified and authorized by the “Comité National Informatique et Libertés” with the number 1692676 v 0. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Responders completed the survey in complete anonymity. Responders were willing students recruited from the community. They were informed in writing the purpose of the survey before its commencement and that they were free to leave any time before completing the survey.

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