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Highlights

- Prevalence of hazardous alcohol consumption among French physicians is 12.6%.
- Drugs use and fixed term contract are associated with hazardous alcohol consumption.
- Risky alcohol consumption seems similar between physicians and general population.

ABSTRACT

Background: Data regarding French physicians' alcohol behaviours are scarce and most studies address this issue within the population of either medical students or residents. We aim to describe and assess the prevalence of hazardous alcohol consumption among French physicians.

Methods: A regional, cross-sectional, survey was conducted in 2018 using an online questionnaire among Parisian general practitioners and hospital doctors. Hazardous alcohol consumption was defined by an Alcohol Use Disorders Identification Test (AUDIT) score ≥ 8. Data were analysed in 2020.

Results: Five hundred fifteen physicians completed the survey: 108 general practitioners and 407 hospital physicians. The median age was 40 years [32-55] and 59% were women. They considered their physical and mental health as average or bad in 10% and 8% of cases, respectively. The prevalence of hazardous alcohol consumption was 12.6 %. Among the 65 physicians with hazardous alcohol consumption, 27 (41.5%) did not considered it as risky and four (6.2%) mentioned a potentially negative impact on patients' care. Factors independently associated with hazardous alcohol consumption were illegal drugs consumption (OR 4.62 [2.05 – 10.37]) and fixed term contract for hospital doctors (OR 2.69 [1.14 – 6.36]).

Conclusions: The prevalence of hazardous alcohol consumption among French physicians was 12.6%. Illegal substance users and fix-termed contract hospital doctors were more likely to have risky alcohol consumption. A large-scale national study would confirm the factors associated with hazardous alcohol consumption and could explore the efficacy of preventive measures to insure the safety and health of physicians and their patients.

Keywords: Alcohol; Alcohol-Related Disorders; AUDIT score; Physicians; Doctors; Occupational Health

1. Introduction

Alcohol consumption has a major health impact worldwide with 58 million hazardous alcohol users and about 195,000 deaths each year in the European Union (Anderson and Baumberg, 2006). The rate of hazardous consumers was 7% of the French general population in 2016 according the World Health Organization (WHO) and 41,000 deaths were attributable to alcohol in 2015 (Bonaldi and Hill, 2019; WHO, 2018). Physicians play an important role in the prevention, screening and management of patients with alcohol disorders (Aubin et al, 2015). However, recent international studies found a prevalence of hazardous alcohol consumption among physicians varying between 2.5% and 30% (Joos et al, 2013; Kenna and Wood, 2004; Oreskovich et al, 2012; Romero-Rodríguez et al, 2019; Rosta, 2008, 2002; Sebo et al, 2007; Sørensen et al, 2015; Voigt et al, 2009; Wurst et al, 2013). The different measurement tools and different cut-offs could explain this wide range.

Data regarding French physicians' alcohol behaviours are scarce. Most studies address this issue within the population of either medical students or residents, who have been shown to drink more alcohol than licensed physicians. In Germany, it has been shown that the average amount of alcohol consumed among the medical students was significantly higher than among physicians. In Norway, the prevalence of hazardous drinking was reduced by half from medical school to 10 years after graduation (Mahmood et al, 2015).

In France, 21% to 31.9% of medical students and more than a third of residents report hazardous alcohol consumption (Chiriaco, 2005; Fond et al, 2018; Gignon et al, 2015; Herault et al, 2013; Houdoux, 2018; Vaysse et al, 2014). Residents report drinking more alcohol and more frequent binge drinking episodes than people from the same age group (Herault et al, 2013). A third of young doctors declare a daily or almost daily alcohol consumption (Conseil National de l'Ordre des Médecins, 2016). A survey among general practitioners showed that whitin the seven days

preceding their interview: 51.1% had consumed alcohol for one to two days, 30.3% more than three days and 17% daily (Gautier, 2005). Another study among general practitioners identified punctual risk consumption in 21% to 31% and chronic risk in 6% to 11% (Després et al, 2010). Data regarding hospital doctor's alcohol behaviours are scarce. Beaujouan et al (2005) reports that 6.5% of anaesthesiologists were abusers or dependent on alcohol. To our knowledge, there is no data on the prevalence of hazardous alcohol consumption among French licensed physicians, regardless of their specialty.

We aimed to describe the alcohol consumption of general practitioners and hospital doctors, to assess the prevalence of hazardous alcohol consumption and to identify the associated risk factors.

2. Methods

2.1 Participants

This study was a regional, cross-sectional, survey. The recruitment of the survey population followed two modalities: 1/Parisian general practitioners were drawn from the Yellow Pages professional directory (one in four in alphabetical order) and contacted by phone to obtain their email address. Physicians who did not practice general medicine, were retired or refused to participate were excluded. 2/ Physicians working in the Est Parisien university hospital group (Assistance Publique – Hôpitaux de Paris) received solicitation to participate from the institutional mailing list.

2.2 Data collection

The survey was conducted from March 19 to April 22, 2018 using an online questionnaire (Google Form®). All participants received an email explaining the study with a link to the

questionnaire. Three reminders were sent out, during a five weeks period. The questionnaire took 5 minutes to complete. Participation was voluntary and the data anonymized. Data were extracted from the online questionnaire and processed using Microsoft Excel®. This study has been registered with the French Data Protection Authority (CNIL).

2.3 Questionnaire

The questionnaire consisted of 28 items divided into 3 sections. The first section included items on sociodemographic characteristics (age, sex, marital status, children), occupational information (medical specialty, professional status and hospital contractual status, weekly working time, on-call service) and health behaviour (smoking, illegal substances use). Specialties were categorised into six groups according to their similarities: general practice, intensive care (emergency, anaesthesia, intensive care), medicine (internal medicine, hepato-gastro-enterology or cardiology for example), surgery (orthopaedic or otorhinolaryngology for example), paediatrics and others (radiology and biology for example).

The second section assessed alcohol consumption by the Alcohol Use Disorders Identification Test (AUDIT), a WHO 10-item screening test, translated and validated in many languages including French (Babor et al, 2001; Gache et al, 2005; Saunders et al, 1993). Response options for each item range from 0 to 4 points, resulting in a total score of 0 to 40. A score < 8 indicates non-harmful alcohol consumption. A score ≥ 8 indicates hazardous alcohol consumption and a score ≥ 16 illustrates a problematic alcohol consumption and/or dependence. The first three items of AUDIT constitute the AUDIT-C, developed as a brief and easy-to-use screening measure (Bush et al, 1998). Cut-offs used to define risky alcohol consumption vary between 3 points and 6 points. A score ≥ 5 for men and ≥ 4 for women seems to be the most consistent according to the literature and has been used in similar studies (Oreskovich et al, 2012; Reinert et al, 2007; Sebo

et al, 2007). Two other similar studies used a score of 5 points for both sex (Rostal, 2008; Wurst et al, 2013). We decided to use both AUDIT and AUDIT-C for two reasons. First, some studies showed very different results depending on the score used. Secondly, to make our results comparable with past or future studies using only AUDIT-C, therefore enhancing the external validity of our results to other researchers.

The third section of our survey included questions on the reasons for alcohol consumption, a self-assessment of physical and mental health, an auto-evaluation of the risk associated with their consumption ("Do you think you have a risky alcohol consumption?") and of the potential impact on patients' care ("Do you think your alcohol consumption has an impact on your patients' care?").

2.4 Statistical analysis

Continuous variables are presented as median and interquartile range; categorical variables are presented as count and percent. Statistical analysis was conducted in 2020 using SAS/STAT 2002–2003 (SAS Institute Inc., Cary, NC, USA). Chi-square test (or exact Fischer test, as appropriate) was used to compare characteristics between: 1/ general practitioners and hospital doctors, 2/ hazardous (AUDIT ≥8) and non-harmful (AUDIT <8) alcohol consumers. To analyse factors associated with AUDIT ≥ 8, adjusted odds ratios (aORs) and their 95% confidence intervals (95% CIs) were estimated from a logistic regression model. Variables which were statistically significant on univariate analysis at $p < 0.20$ were included in the model, excepted two items: « consumption considered at risk » because it was too strongly correlated to hazardous alcohol consumption and "potential impact on patients' care" because the number of yes respondents was too low.

3. Results

One thousand and eight emails were sent. Five hundred fifteen (51.1%) physicians completed the survey and were included in the study: 108 were general practitioners and 407 hospital physicians. Table 1 summarizes participants' sociodemographic and occupational characteristics. The median age was 40 years [32-55] and 59% were women. Twenty-five percent were smokers, 6% and 4% cannabis and other illegal drugs users respectively. A majority worked more than 50 hours a week and half did on-call shifts. The main reasons for alcohol consumption were celebrations or festive situations (76%), taste (65%), to relax after work (36%) and to fit in socially (17%). Ten percent thought they had risky alcohol use and 1.6% that it could have an impact on their patients' care. They considered their physical and mental health as average or bad in 10% and 8% of cases, respectively. Compared to hospital doctors, general practitioners were more often men (52.8% vs 37.6%, p=0.004), reported having shorter weekly working hours (less than 50h for 58.3% vs 33%, p<0.001), participated less frequently to on-call service (17.6% vs 54.3%, p<0.001) and were older, even though the difference was not statistically significant (56.6% vs 47.2%, p=0.08).

The median AUDIT score was 3 [2-5], the extreme ranged from 0 to 26 points. The prevalence of hazardous alcohol consumption (score ≥ 8) among physicians was 12.6 % and problematic consumption or dependence (score ≥ 16) affected 1.2% of them. Five percent were abstinent. The median AUDIT-C score was 3 [2-4]. When using the AUDIT-C instead of the AUDIT, the rate of hazardous alcohol rose to 35.7% (score ≥ 4 for women and ≥ 5 for men) or 23.3% (score ≥ 5 for both sex). Table 2 shows the results for the 10 questions. Daily alcohol consumption was found for 15% of physicians, more frequent in those over 40 than in those under 40 years old (19% vs

12%, p=0.03). The majority (75%) consumed one or two drinks on a typical day. During the past year, 45% reported at least one event involving the consumption of six or more drinks; this was more frequent in those under 40 than those over 40 years old (63% vs 27%, p<0.001). At least once in the past year, 13% declared they were not able to stop drinking once they started, 10% failed to do what was normally expected of them because drinking, 22% had had remorse or feeling of guilt after drinking and 9% were unable to remember what happened because they drank alcohol. There was no difference between general practitioners and hospital doctors concerning the AUDIT, AUDIT-C results and each individual question.

The univariate analysis identified an association between hazardous alcohol consumption (AUDIT ≥8) and age, marital status, childless, fixed-term hospital contract, smoking or illegal substance consumption, average or bad physical or mental health self-assessment, self-recognition of risky alcohol consumption and thinking it may influence patients' care (Table 3). There was no significant difference according to gender, medical specialty, working time or participation to on-call shifts. Regarding specialties, classification from the largest to the lowest rate of hazardous alcohol consumption was surgery (16.2%), intensive care (16.0%), general practice (13.9%), medicine (13.2%), paediatrics (10.4%) and others (6.3%). Among the 65 physicians with hazardous alcohol consumption, 27 (41.5%) did not considered it to be "at risk" and four (6.2%) mentioned a potentially negative impact on their patients' care. Reasons for alcohol consumption among hazardous consumers compared to safe drinkers were more frequently to relax after work (70% vs 33%, p<0.001), recreational (42% vs 9%, p<0.001), to fit in socially (28% vs 16%, p=0.02) and to fight again anxiety, stress, depression (17% vs 3%, p<0.001). In the multivariate analysis, the factors independently and significantly associated with

hazardous alcohol consumption were cannabis and other illegal drugs use (OR 4.62 [2.05 – 10.37]) and fixed term contract for hospital doctors (OR 2.69 [1.14 – 6.36]).

4. Discussion

To our knowledge, this is the first study to explore the issue of alcohol consumption among multi specialty French physicians. We found with the AUDIT score that 12.6% of them showed hazardous alcohol consumption, among which 41.5% did not consider it as such. However, they more often considered their physical and mental health as average or bad. Illegal substance users and fix-termed contract hospital doctors were more likely to have risky alcohol consumption. We did not show any difference between the different medical specialties or other occupational factors.

Our results are consistent with similar studies among physicians in Western Europe: according to the AUDIT, hazardous alcohol consumption was found to vary from 13.4% to 18.9% (Joos et al, 2013; Sørensen et al, 2015; Wurst et al, 2013). Using the AUDIT-C, it ranged from 19.8% to 27.4% (cut-off ≥ 5 for both sex) and from 30% to 32% (cut-off ≥ 5 for men and ≥ 4 for women) (Romero-Rodríguez et al, 2019; Rosta, 2008; Sebo et al, 2007; Wurst et al, 2013). In our study, we found a twofold prevalence of hazardous alcohol consumption with the AUDIT-C when compared to the AUDIT. This result is consistent with a previous study using the same methodology (Wurst et al, 2013). Indeed, the prevalence of risky alcohol consumption seems to be overestimated by AUDIT-C compared to the original AUDIT, the latter is the only assessment tool validated by the WHO. Regarding the third question of AUDIT examining binge drinking (consumption of 6 drinks or more in one occasion), it was reported at least once a month for 13.5% to 19.5% of European physicians (Joos et al, 2013; Romero-Rodríguez et al, 2019; Rosta,

2008). Factors associated with hazardous alcohol consumption in these studies were male, single status, childless and older age. Risky alcohol consumption appeared more frequent among anaesthesiologists and surgeons and less frequent among paediatricians, as our data suggest. Lastly, the reasons for alcohol consumption reported in only one Danish study were to enjoy the taste (74%), to get in a good mood (55%) and to relax after work (55%) (Sørensen et al, 2015).

Comparison between physicians and the general population is difficult because the data are not measured with the same method or at the same time. The most recent data in the general population are issued from the Public Health France survey on alcohol consumption in adults in 2017 (Richard et al, 2019). The prevalence of hazardous alcohol consumption was not reported but some trends can been drawn in drinking habits. Physicians seemed to drink more frequently compared to the general population with fewer abstainers (5.1% vs 13.5%) and occasional users (15.5% vs 27.2% "less than once a month"), the rate of regular users was similar (15.5% vs 15.1% "more than 4 days a week"). Regularly binge drinking was similar (16.5% vs 16.2% "monthly" and 4.3% vs 4.6% "weekly") but physicians were more likely to have occasional binge drinking (44.5% vs 35.2% "at least once a year"). In both studies, a risky consumption was mainly found in men, the frequency of alcohol consumption increased with age while the quantity consumed on one occasion was more common among young people. The largest cohort from the French general population is the "CONSTANCES" cohort examining 33.992 currently working participants between 2012 and 2016. Among them, 14% showed hazardous alcohol consumption according to the AUDIT score ≥ 8 and 49.1% had binge drinking episodes at least once a year (Airagnes et al, 2018). In this study, men with daily occupational exposure to the public had a higher risk of chronic, hazardous alcohol consumption, and binge drinking episodes. Stressful exposure was associated with an increased risk of binge drinking episodes in men and of chronic

and hazardous alcohol consumption in women. Physicians have a regular daily stressful occupational exposure to the public (patients) and therefore belong to these risk groups. This was also shown for the specific population of anaesthesiologists (Beaujouan et al, 2005). Our results highlight that physicians practicing in front line specialties (surgery, emergency medicine, general practice) seem to be at a greater risk for alcohol misuse. This has also been shown in studies exploring physicians 'wellbeing and burnout (Shanafelt et al, 2012). Among a large sample of surgeons, a study identified that burnout and depression were predisposing factors for high alcohol consumption (Oreskovich et al, 2012). These results suggest the potential benefit of multimodal prevention programs on specific high-risk population of physicians. Our study was not designed to compare physicians to the general population but the prevalence of hazardous consumption in our survey seemed to be similar to the general population.

There is a growing body of evidence suggesting that health care professionals' individual health behaviours may influence the general population's behaviours (Frank et al, 2015). Frank et al (2000) reported that physicians with a healthy lifestyle would be more likely to counsel their patients: those who had a healthy diet were better at screening their patients for cholesterol, non-smokers more often advised smoking cessation and those who drank less were more likely to address the issue of alcohol use. Therefore, physicians' alcohol consumption could have an impact on the care of their patients. One study showed that surgeons reporting a major medical error in the previous 3 months were more likely to have alcohol abuse or dependence (Oreskovich et al, 2012). In our survey, four physicians with hazardous alcohol consumption reported that it could have an impact on the management of their patients.

Some authors suggest that medical schools and hospitals lack the proper health educational programs, which could prevent hazardous alcohol consumptions among physicians (Aach et al,

1992). Training physicians on the dangers of alcohol use could prevent risky consumption and improve screening and treatment for their patients. Indeed, a study reported that the cut-off to define hazardous alcohol consumption for patients is overestimated by doctors who consume more alcohol (Geirsson et al, 2005). Additional studies are needed to investigate the impact of specific interventions on health behaviour of health care professionals and explore the consequences on their patient's management.

For instance, an individual brief intervention protocol implementation for physicians could generate positive benefits and also increase awareness towards patients' screening. Brief interventions (BI) consist of the assessment of alcohol consumption, providing information on the related risks, and suggesting moderation goals. They have been shown to be effective to reduce alcohol dependence in numerous studies and meta-analyzes (Kaner et al, 2018; Moyer et al, 2002). For hazardous alcohol consumptions, BI have been associated with a significant reduction in average alcohol consumption, a decrease in the proportion and frequency of binge drinking episodes, and a decrease of somatics issues related to alcohol (Wutzke et al, 2002). These improvements have been observed in different clinical environments, however this has never been assessed for the specific population of physicians. BI are based on the concept of motivational interviewing, involving empathy and listening for the caregiver. The caregiver's degree of empathy and his practice of motivational interviewing are efficacy criteria highlighted by randomized studies (Hettema et al, 2005; Miller et al, 1980). For all these reasons, offering the possibility of a specific, anonymous, BI program for physicians with hazardous alcohol consumption could also improve the quality of care and awareness towards these specific issues. This hypothesis could inspire a future interventional research project.

4.1 Limitations

This study has several limitations. First, the response rate of 51.1% could lead to selection bias, even if it compares favourably to similar studies involving healthcare professionals, which ranged from 6.1 to 68.7% (Beaujouan et al, 2005; Joos et al, 2013; Kenna and Wood, 2004; Oreskovich et al, 2012; Romero-Rodríguez et al, 2019; Rosta, 2008, 2002; Sebo et al, 2007; Sørensen et al, 2015; Voigt et al, 2009; Wurst et al, 2013). Some physicians may not have responded due to the sensitive nature of the topic, especially those with hazardous alcohol consumption. An international review estimated underreporting between 40 and 60% in studies on alcohol consumption (Midanik, 1982). In France, survey data compared to alcohol sales data suggests an underestimation of alcohol consumption of 63% (Arwidson et al, 2006). This indicates that our study may underestimate the prevalence of hazardous alcohol consumption among physicians. Second, we cannot determine cause and effect between risky alcohol use and associated factors in this cross-sectional study. Third, there are potential confounders due to the non-exhaustive nature of variables influencing alcohol consumption, including psychological distress and medication use. Fourth, a lack of statistical power may prevent the demonstration of an association between hazardous alcohol consumption and other factors, such as age, sex or occupational factors including medical specialties. A large-scale national study is necessary to better identify these associated factors. Lastly, the sample may not be representative of French physicians as alcohol consumption differs by region (Desprès et al, 2010). The region studied (Ile-de-France) is the one where the daily consumption of alcohol in the general population is the lowest (7.1% for a national average of 10%) (Santé Publique France, 2020).

5. Conclusions

The prevalence of hazardous alcohol consumption among French physicians was 12.6%, consistent with results from studies on the general French population and European physicians. There was no difference regarding alcohol behaviour between general practitioners and hospital doctors. Illegal substance users and fix-termed contract hospital doctors were more likely to have risky alcohol consumption. Hazardous consumers more often assessed their physical and mental health as average or bad, but 41.5% of them did not consider their consumption as risky. A large-scale national study would confirm the factors associated with hazardous alcohol consumption among physicians and could explore the efficacy of preventive measures to insure the safety and wellbeing of physicians and their patients.

Table 1 – Socio-demographic and occupational characteristics of respondents

	All n=515	Hospital physicians n=407	General practitioners n=108	p-value
Age, n (%)[a]				
≤ 40 years-old	261 (50.9)	215 (52.8)	46 (43.4)	0.08
> 40 years-old	252 (49.1)	192 (47.2)	60 (56.6)	
Sex, n (%) (%)				
Female	305 (59.2)	254 (62.4)	51 (47.2)	**0.004**
Male	210 (40.8)	153 (37.6)	57 (52.8)	
Marital status, n (%)[b]				
In relationship	422 (81.9)	335 (82.7)	87 (80.6)	0.73
Single	90 (17.5)	70 (17.3)	20 (19.4)	
Children, n (%)[a]				
No	174 (33.8)	142 (35.1)	32 (29.6)	0.29
Yes	339 (65.8)	263 (64.9)	76 (70.4)	
Other consumption, n (%)				
None	379 (73.6)	307 (75.4)	72 (66.7)	
Smoking	126 (24.5)	91 (22.4)	35 (32.4)	0.16
Cannabis and other illegal drugs	42 (8.2)	32 (7.9)	10 (9.3)	
Professional status, n (%)				
Employed	381 (74)	373 (91.6)	8 (7.4)	
Mixed	46 (8.9)	31 (7.6)	15 (13.9)	---
Liberal	88 (17.1)	3 (0.7)	85 (78.7)	
Hospital contractual status, n (%)[c]				
Permanent	229	229 (58.4)	-	---
Fixed term	163	163 (41.6)	-	
Specialties, n (%)				
General practice	108 (21)	-	108 (100)	
Intensive care	75 (14.6)	75 (18.4)	-	
Paediatrics	48 (9.3)	48 (11.8)	-	---
Medical specialties	167 (32.4)	167 (41.0)	-	
Surgical specialties	37 (7.2)	37 (9.1)	-	
Others	80 (15.5)	80 (19.7)	-	
Weekly working time, n (%)[d]				
< 50 hours	197 (38.3)	134 (33.0)	63 (58.3)	**<0.001**
≥ 50 hours	317 (61.6)	272 (67.0)	45 (41.7)	
On-call service, n (%)				
No	275 (53.4)	186 (45.7)	89 (82.4)	**<0.001**
Yes	240 (46.6)	221 (54.3)	19 (17.6)	
Consumption considered at risk, n (%)				
No	461 (89.5)	364 (89.4)	97 (89.8)	0.91
Yes	54 (10.5)	43 (10.6)	11 (10.2)	
Potential impact on patients' care, n (%)				
No	507 (98.4)	403 (99.0)	104 (96.3)	0.06
Yes	8 (1.6)	4 (1.0)	4 (3.7)	
Self-assessment of physical health, n (%)				

Good or excellent	465 (90.3)	369 (90.7)	96 (88.9)	0.58
Average or bad	50 (9.7)	38 (9.3)	12 (11.1)	
Self-assessment of mental health, n (%)				
Good or excellent	472 (91.7)	370 (90.9)	102 (94.4)	0.24
Average or bad	43 (8.4)	37 (9.1)	6 (5.6)	
AUDIT score				
Median [IQR]	3 [2-5]	3 [2-5]	3 [2-6]	
Audit total < 8, n (%)	450 (87.4)	357 (87.7)	93 (86.1)	0.66
Audit total ≥ 8, n (%)	65 (12.6)	50 (12.3)	15 (13.9)	

[a]2 missing data [b]3 missing data [c]n=407, 15 missing data [d]1 missing data; IQR: Interquartile range

Table 2 – AUDIT score, results for each question

	n (%)
Q1 – How often do you have a drink containing alcohol?	
Never = 0 point	26 (5.1)
Monthly or less = 1 point	80 (15.5)
2-4 times a month = 2 points	195 (37.9)
2-3 times a week = 3 points	134 (26)
4 or more times a week = 4 points	80 (15.5)
Q2 – How many drinks containing alcohol do you have on a typical day when you are drinking?	
0, 1 or 2 = 0 point	384 (74.6)
3 or 4 = 1 point	117 (22.7)
5 or 6 = 2 points	13 (2.5)
7, 8 or 9 = 3 points	1 (0.2)
10 or more = 4 points	0 (0)
Q3 – How often do you have six or more drinks on one occasion?	
Never = 0 point	286 (55.5)
Less than monthly = 1 point	144 (28)
Monthly = 2 points	63 (12.2)
Weekly = 3 points	22 (4.3)
Daily or almost daily = 4 points	0 (0)
Q4 – During the past year, how often have you found that you were not able to stop drinking once you had started?	
Never = 0 point	446 (86.6)
Less than monthly = 1 point	49 (9.5)
Monthly = 2 points	16 (3.1)
Weekly = 3 points	4 (0.8)
Daily or almost daily = 4 points	0 (0)
Q5 – During the past year, how often have you failed to do what was normally expected of you because of drinking?	
Never = 0 point	461 (89.5)
Less than monthly = 1 point	48 (9.3)
Monthly = 2 points	6 (1.2)
Weekly = 3 points	0 (0)
Daily or almost daily = 4 points	0 (0)
Q6 – During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?	
Never = 0 point	510 (99)
Less than monthly = 1 point	3 (0.6)
Monthly = 2 points	1 (0.2)
Weekly = 3 points	1 (0.2)
Daily or almost daily = 4 points	0 (0)
Q7 – During the past year, how often have you had a feeling of guilt or remorse after drinking?	
Never = 0 point	401 (77.9)
Less than monthly = 1 point	97 (18.8)
Monthly = 2 points	11 (2.1)
Weekly = 3 points	6 (1.2)
Daily or almost daily = 4 points	0 (0)
Q8 – During the past year, how often have you been unable to remember	

what happened the night before because you had been drinking?	
Never = 0 point	469 (91.1)
Less than monthly = 1 point	42 (8.2)
Monthly = 2 points	4 (0.8)
Weekly = 3 points	0 (0)
Daily or almost daily = 4 points	0 (0)
Q9 – Have you or someone else been injured as a result of your drinking?	
No = 0 point	499 (96.9)
Yes, but not in the past year = 2 points	15 (2.9)
Yes, during the past year = 4 points	1 (0.2)
Q10 – Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?	
No = 0 point	480 (93.2)
Yes, but not in the past year = 2 points	15 (2.9)
Yes, during the past year = 4 points	20 (3.9)

Table 3 – Factors associated with hazardous alcohol consumption

	Univariate analysis			Multivariate analysis
	AUDIT <8 n=450	**AUDIT ≥8 n=65**	**p-value**	**aORs [95% CI]**
Age, n (%)[a]				
≤ 40 years-old	218 (48.7)	43 (66.2)	**0.008**	1
> 40 years-old	230 (51.3)	22 (33.8)		0.91 [0.41 – 2.04]
Sex, n (%) (%)				
Female	272 (60.4)	33 (50.8)	0.138	1
Male	178 (39.6)	32 (49.2)		1.58 [0.88 – 2.85]
Marital status, n (%)[b]				
In relationship	376 (83.6)	46 (73)	**0.036**	1
Single	73 (16.2)	17 (27)		1.45 [0.69 – 3.04]
Children, n (%)[a]				
No	143 (31.8)	31 (49.2)	**0.006**	1
Yes	307 (68.2)	32 (50.8)		0.86 [0.43 – 1.72]
Other consumption, n (%)				
None	344 (76.4)	35 (53.8)		1
Smoking	100 (22.2)	26 (40)	**0.002**	1.23 [0.62 – 2.42]
Cannabis and other illegal drugs	25 (5.6)	17 (26.2)	**< 0.001**	**4.62 [2.05 – 10.37]**
Professional status, n (%)				
Employed	335 (74.4)	46 (70.8)	0.579	---
Mixed	41 (9.1)	5 (7.7)		
Liberal	74 (16.4)	14 (21.5)		
Hospital contractual status, n (%)[c]				
Permanent	213 (62.1)	16 (32.7)	**< 0.001**	1
Fixed term	130 (37.9)	33 (67.3)		**2.69 [1.14 – 6.36]**
Specialties, n (%)				
General practice	93 (20.7)	15 (23.1)	0.471	---
Intensive care	63 (14)	12 (18.5)		
Paediatrics	43 (9.6)	5 (7.7)		
Medical specialties	145 (32.2)	22 (33.8)		
Surgical specialties	31 (6.9)	6 (9.2)		
Others	75 (16.7)	5 (7.7)		
Weekly working time, n (%)[d]				
< 50 hours	170 (37.8)	27 (41.5)	0.497	---
≥ 50 hours	280 (62.2)	37 (58.5)		
On-call service, n (%)				
Yes	244 (54.2)	31 (47.7)	0.324	---
No	206 (45.8)	34 (52.3)		
Consumption considered at risk, n (%)				
No	434 (96.4)	27 (41.5)	**<0.001**	---
Yes	16 (3.6)	38 (58.5)		
Potential impact on patients' care, n (%)				

No	446 (99.1)	61 (93.8)	**0.001**	---
Yes	4 (0.9)	4 (6.2)		
Self-assessment of physical health, n (%)				
Good or excellent	411 (91.3)	54 (83.1)	**0.036**	1
Average or bad	39 (8.7)	11 (16.9)		1.72 [0.72 – 4.12]
Self-assessment of mental health, n (%)				
Good or excellent	417 (92.7)	55 (84.6)	**0.028**	1
Average or bad	33 (7.3)	10 (15.4)		2.02 [0.83 – 4.95]

[a]2 missing data [b]3 missing data [c]n=407, 15 missing data [d]1 missing data; aORs: adjusted odds ratios; CI: confidence intervals

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