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BMJ Open Changes in alcohol consumption according to the duration of unemployment: prospective findings from the French CONSTANCES cohort

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ABSTRACT

Objectives To prospectively examine the association between the duration of unemployment among job seekers and changes in alcohol use in a year.

Design A prospective study.

Setting French population-based CONSTANCES cohort.

Participants We selected 84 943 participants from the CONSTANCES cohort included between 2012 and 2019 who, at baseline and 1-year follow-up, were either employed or job-seeking.

Outcome measures Multinomial logistic regression models computed the odds of reporting continuous no alcohol use, at-risk alcohol use, increased or decreased alcohol use compared with being continuously at low risk and according to employment status. The duration of unemployment was self-reported at baseline; thus, the employment status at 1-year follow-up was categorised as follows: (1) employed, (2) return to employment since less than a year, (3) unemployed for less than 1 year, (4) unemployed for 1 to 3 years and (5) unemployed for 3 years or more. Analyses were adjusted for age, gender, education, household monthly income, marital status, self-rated health, smoking status and depressive state.

Results Compared with being continuously at low risk (ie, ≤ 10 drinks per week), the unemployment categories were associated in a dose-dependent manner with an increased likelihood of reporting continuous no alcohol use (OR: 1.74–2.50), being continuously at-risk (OR: 1.21–1.83), experiencing an increase in alcohol use (OR: 1.21–1.51) and a decrease in alcohol use (OR: 1.17–1.84).

Conclusion Although our results suggested an association between the duration of unemployment and a decrease in alcohol use, they also revealed associations between at-risk and increased alcohol use. Thus, screening for alcohol use among unemployed job seekers must be reinforced, especially among those with long-term unemployment.

INTRODUCTION

Alcohol use is a leading risk factor for poor population health and is linked to over 200 health conditions, including cardiovascular diseases, types of cancer, liver and gastrointestinal diseases, neuropsychiatric disorders, addictive behaviours, suicide and violence.^{1 2}

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ It is a prospective national population-based cohort study with a large sample.
- ⇒ The models were controlled for various sociodemographic and health-related factors.
- ⇒ The sample is not representative of the French general population.
- ⇒ Although prospective, this is an observational study, which prevents any causal conclusions.
- ⇒ The duration of unemployment was self-reported at baseline and may have been subject to a recall bias.

The WHO estimated the number of deaths attributed to alcohol in 2016 to be approximately 3 million worldwide (5.3% of the total deaths).¹ Moreover, alcohol, one of the most consumed psychoactive substances, not only has adverse consequences on physical and mental health but also on professional careers, achievements and productivity.^{1 2} Age, gender, family circumstances and socioeconomic status affect the levels and patterns of alcohol consumption.¹ In previous studies, alcohol consumption has been reported to be associated with job loss^{3 4} and a decreased likelihood of returning to employment among job seekers.^{4–6} Several studies have also highlighted the changes in alcohol use after job loss.^{7–13} However, it remains unclear whether such changes in alcohol use occur immediately after a job loss or later.^{8 9 11} This knowledge would be useful to reinforce information and prevention with the most at-risk job seekers.

Indeed, job seekers have higher rates of alcohol use than employed individuals.⁶ This is often cited as one of the reasons why unemployment is associated with increased morbidity and mortality.¹⁴ However, evidence on the association between unemployment and alcohol use has been mixed,

with some studies showing an increase in alcohol use in response to job loss,^{7-9 14-18} while others report a decrease,^{12 13} or mixed effects.^{10 11} Most studies did not distinguish between abstainers and low-risk alcohol users. Abstinence may include a wide range of people (eg, former heavy drinkers, people with mental health issues and/or chronic diseases such as gastrointestinal diseases, patients with medications incompatible with alcohol, pregnant women or simply people who prefer to stay sober) with health and sociodemographic factors substantially different from those of low-risk alcohol users.^{7 8 10-12 19} In some studies, alcohol use disorder¹⁵ or alcohol-related morbidity or mortality^{14 17} were used as outcomes rather than alcohol use. Other studies have examined the association between alcohol use at the individual level and unemployment at the community level, using the unemployment rate at the population level.^{16 18} Although all of these studies were prospective, only a few considered the duration of unemployment while examining the role of unemployment on changes in alcohol use,^{8-11 13 15} and the findings were conflicting. Specifically, the majority agreed that long-term unemployment was associated with increased alcohol use.^{8 9 11 15} However, for short-term unemployment, two studies found no association with alcohol use,^{8 9} while another observed a decrease in alcohol use.¹¹ Psychological distress in response to job loss may be aggravated by prolonged unemployment (eg, financial difficulties and social isolation).^{20 21} In addition, long-term unemployment can lead to chronic stress, which has been reported to have a strong negative impact on health behaviours.²²

Therefore, in this study, we aimed to prospectively examine the association between the duration of unemployment among job seekers and changes in alcohol use within a year while considering sociodemographic and health-related confounders. We also searched for potential moderators to identify particularly vulnerable subgroups. To study these issues, we used the French longitudinal population-based CONSTANCES cohort, which included a large sample of adults from various sociodemographic backgrounds with annual follow-ups. We hypothesised that the role of unemployment in changes in alcohol use would become rapidly apparent after job loss and persist with larger effect sizes in those with longer durations of unemployment (ie, 1-3 years or more).

METHODS

Participants

Since 2012, the CONSTANCES cohort has randomly recruited a sample of French adults aged 18-69 years at baseline (n=205 162). The participants completed self-administered questionnaires that assessed health-related behaviours, occupational conditions and sociodemographic factors at baseline and annually.²³ In the present study, we selected only participants enrolled between 2012 and 2019 and provided a 1-year follow-up (n=1 50 093). Among them, we focused on participants who were

employed or job seekers at baseline and follow-up (n=91 694). Participants who were still students (n=3777), had already retired (n=35 793), did not work for health reasons (n=1624), did not report their employment status (n=6432) or had no previous work experience (n=726) were excluded from the analyses. Those who reported being both employed and unemployed (n=1162), unemployed for more than 10 years (n=87) or who had never used alcohol during their lifetime (n=2252) were also excluded. Thus, a total of 84 943 participants were included in the analysis (figure 1).

Employment status at follow-up

Employment status (employed vs job-seeking) was self-reported at baseline and annual follow-up. In addition, the duration of unemployment was assessed at baseline among job seekers (ie, the difference between the year of inclusion and that of interruption of the last reported employment). From these variables, we were able to define our outcome, which consisted of the following categorical variables—categories of unemployment at annual follow-up—(1) employed; (2) return to employment since less than a year (job-seeking at baseline and employed at follow-up, that is, a participant who was a job seeker at baseline, regardless of the duration of their unemployment period until baseline, and who declared being employed at annual follow-up); (3) unemployed for less than 1 year (employed at baseline and job-seeking at follow-up, that is, a participant who was employed at baseline but who did not declare being employed but job-seeking at follow-up); (4) unemployed from 1 to 3 years and (5) unemployed for 3 years or more.

Changes in alcohol use

Alcohol use at baseline and annual follow-up was self-reported using the average number of alcoholic drinks consumed per week, computed from a weekly consumption diary. In France, standard alcoholic drinks contain approximately 10 g of pure alcohol.²⁴ The number of drinks per week was categorised as follows: (1) no use (0 drinks per week), (2) low risk (≤ 10 drinks per week) and (3) at-risk (> 10 drinks per week), according to the new guidelines for alcohol consumption not to be exceeded by the French population.²⁵ Changes in alcohol use between baseline and follow-up were defined as follows: (1) low-risk use at baseline and follow-up, (2) no use at baseline and follow-up, (3) at-risk use at baseline and follow-up, (4) increased use between baseline and follow-up (ie, with three different options: from no use to low-risk use, from no use to at-risk use or from low risk to at-risk use) and (5) decrease in use between baseline and follow-up (ie, with three different options: from at-risk use to no use, from at-risk use to low-risk use or from low-risk use to no use).

Ethics statement

CONSTANCES was authorised by the French Data Protection Authority (Commission Nationale de l'Informatique

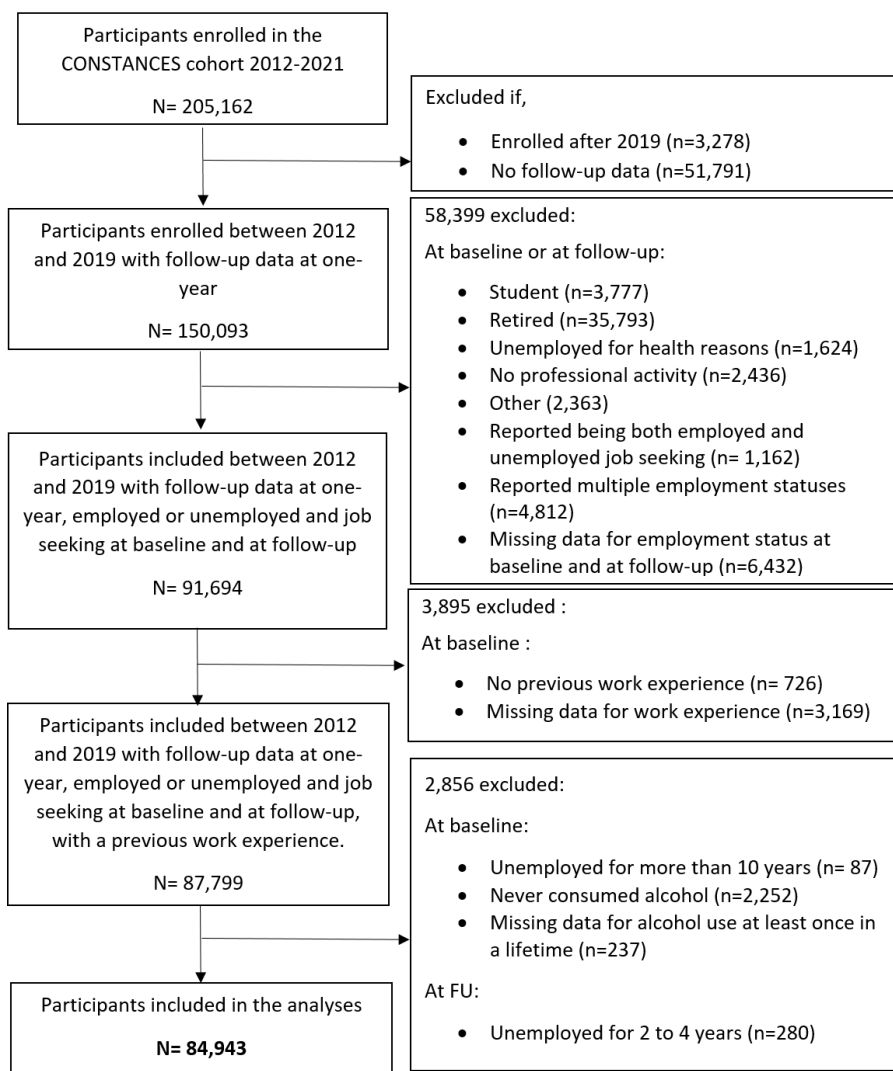


Figure 1 Flow chart of population selection.

et des Libertés) and approved by the Institutional Review Board of the National Institute for Medical Research-INSERM (no. 01-011). All the participants provided informed consent.

Patient and public involvement

Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research.

Covariables at baseline

We considered the following sociodemographic variables: age, gender, education, household monthly income, marital status, self-rated health, smoking status, depressive state and occupational grade. Age (in years) was used as a continuous variable. Education, in eight levels and grouped into five categories based on the International Standard Classification of Education (2011), was used as a continuous variable.^{26 27} Household monthly income was reported in the following categories: (1) <2100 euros, (2)

2100–2800, (3) 2800–4200 and (4) \geq 4200 euros. Marital status was used as a binary variable: (1) not partnered (unmarried, divorced, separated or widowed) and (2) has a partner (married, civil partnership or cohabitation).

Smoking status was categorised as follows: non-smoker, former smoker or current smoker. Depressive symptoms were assessed using the Centre for Epidemiological Studies Depression (CESD) scale. The total CESD score was dichotomised and it was considered that a depressive state is defined by a score \geq 19 (sensitivity/specificity for the diagnosis of major depression: 0.85/0.86).²⁸ Participants self-rated their health from 1 = ‘Very good’ to 8 = ‘Very Poor’ by answering the following question: ‘How would you describe your general health compared with someone you know of the same age?’²⁹

Statistical analyses

First, descriptive statistics were performed according to the changes in alcohol use between baseline and annual

follow-up. Standardised mean differences were calculated because they are more informative in a large sample.³⁰

Second, multinomial logistic regression models were implemented to examine the association between employment status (independent variable of interest: choosing being employed as the reference category) and changes in alcohol use within a year (dependent variable: choosing low-risk use at both baseline and follow-up as the reference category). Three sets of adjustments were considered: Model 1 represents the univariate analysis; Model 2 was adjusted for age, gender and education (ie, unmodifiable factors) and Model 3 was further adjusted for household income, marital status, self-rated health, smoking status and depressive state (ie, modifiable factors). Third, as an exploratory analysis, Model 3 was used to identify significant multiplicative interactions between the independent variable of interest and each covariable. In the case of a significant interaction, stratified analyses were performed. Moreover, a higher threshold was used to define at-risk alcohol use (≥ 14 drinks and ≥ 21 drinks per week for women and men, respectively).³¹ Finally, we repeated the analyses with a binary outcome (low-risk alcohol use at baseline and follow-up vs reporting continuous no alcohol use, continuous at-risk and increased or decreased consumption) to facilitate the interpretation of the results.

Among the included participants, the prevalence of missing data regarding independent variables ranged from 0.9% for education to 6.9% for the year of interruption of the last reported employment, with a mean percentage of missing data at 3.2%. The prevalence of missing data for the dependent variable was 6.9%. All missing data were handled by multiple imputations in 10 different datasets, and the results were based on a combined dataset.³² A two-sided value of $p < 0.05$ was considered statistically significant. Analyses were conducted using IBM SPSS Statistics for Windows v.21.

RESULTS

Characteristics of the included participants

Among the 84 943 participants (45.8% of men, mean (SD) age of 42.9 (9.8) years), 79 809 (94.0%) were employed, 1729 (2.0%) returned to employment since less than a year, 1908 (2.2%) were unemployed for less than a year, 1074 (1.3%) were unemployed for 1–3 years and 423 (0.5%) were unemployed for 3 years or more (table 1). The duration of unemployment at baseline for participants who were re-employed at follow-up was 1.04 (1.41) years on average. Participants were mainly at low risk for alcohol use at both baseline and annual follow-up (34 912 (41.1%)), while 20 999 (24.7%) increased their consumption, 12 116 (14.3%) were always at-risk alcohol users, 11 922 (14.0%) decreased their consumption and 4 997 (5.9%) did not consume alcohol during this period.

Among participants who were at low risk of alcohol use at both baseline and annual follow-up, 33 217 (95.1%) were employed, compared with 19 699 (93.8%) among

those who increased their consumption, 11 198 (92.4%) among those who were always at-risk alcohol users, 11 110 (93.2%) among those who decreased their consumption and 4 584 (91.7%) among those who did not consume alcohol during this period.

Associations between employment status and changes in alcohol use

In univariable analyses and compared with being employed, being re-employed and all the categories of unemployment (except for the return to employment and increased consumption) were significantly associated with all the other categories of changes in alcohol use than being continuously at low risk (ie, reporting continuous no alcohol use, being continuously at-risk and increased and decreased consumption), with OR ranging from 1.32 (95% CI 1.16 to 1.49) to 3.46 (95% CI 2.38 to 5.04) (tables 2–3). After adjusting for age, gender and education, all associations persisted. After additional adjustments for household income, marital status, smoking status, self-rated health and depressive state, 12 OR (from a total of 15) remained significant as follows.

Compared with being employed, being unemployed for 1–3 (1.74, 95% CI 1.36 to 2.22) and 3 years or more (2.50, 95% CI 1.70 to 3.67) were significantly associated with reporting continuous no alcohol use rather than being continuously at low risk. A dose-dependent relationship existed between the duration of unemployment and reporting continuous no alcohol use ($p < 0.001$).

Compared with being employed, returning to employment (1.21, 95% CI 1.02 to 1.42), being unemployed for less than a year (1.34, 95% CI 1.15 to 1.55), 1–3 (1.63, 95% CI 1.34 to 1.99) and 3 years or more (1.83, 95% CI 1.33 to 2.53) were significantly associated with continuously being an at-risk alcohol user instead of being at low-risk. A dose-dependent relationship existed between the duration of unemployment and continuous at-risk alcohol use ($p < 0.001$).

Compared with being employed, being unemployed for less than a year (1.21, 95% CI 1.07 to 1.37), 1–3 years (1.20, 95% CI 1.00 to 1.45) and 3 years or more (1.51, 95% CI 1.11 to 2.05) were significantly associated with an increase in alcohol use rather than being continuously at low risk. A dose-dependent relationship existed between the duration of unemployment and an increase in alcohol use ($p < 0.001$).

Compared with being employed, being unemployed for less than a year (1.17, 95% CI 1.01 to 1.38), 1–3 years (1.34, 95% CI: 1.08 to 1.66) and for 3 years or more (1.84, 95% CI 1.31 to 2.59) were significantly associated with a decrease in alcohol use rather than being continuously at low risk. A dose-dependent relationship existed between the duration of unemployment and a decrease in alcohol use ($p < 0.001$).

The estimated parameters for all covariables are presented in online supplemental table 1.

In the exploratory analyses, significant interactions were found between the categories of unemployment

Table 1 Characteristics of the participants according to the changes in alcohol consumption (n=84943)

	Changes in alcohol consumption				SMD
	At low-risk use at baseline and FU	No use at baseline and FU	At-risk use at baseline and FU	Total	
	n=34912 (41.1%)	n=4997 (5.9%)	n=12113 (14.3%)	n=20999 (24.7%)	n=84943
Duration of unemployment					0.073
Employed	33217 (95.1%)	4585 (91.7%)	11198 (92.4%)	19699 (93.8%)	79809 (94.0%)
Return to employment	612 (1.8%)	132 (2.6%)	276 (2.3%)	424 (2.0%)	1729 (2.0%)
Unemployed for less than a year	648 (1.9%)	126 (2.5%)	334 (2.8%)	509 (2.4%)	1908 (2.2%)
Unemployed for 1–3 years	329 (0.9%)	104 (2.1%)	215 (1.8%)	260 (1.3%)	1074 (1.3%)
Unemployed for 3 years or more	106 (0.3%)	50 (1.1%)	90 (0.7%)	107 (0.5%)	423 (0.5%)
Age	43.5 (9.5)	42.5 (9.9)	43.1 (10.4)	42.8 (9.8)	42.9 (9.8)
Gender					0.080
Men	14146 (40.5%)	1439 (28.8%)	8648 (71.4%)	9356 (44.5%)	38864 (45.8%)
Women	20766 (59.5%)	3558 (71.2%)	3465 (28.6%)	11643 (55.4%)	46079 (54.2%)
Education*					0.105
Level 0 and Level 1	336 (1.0%)	86 (1.7%)	149 (1.2%)	247 (1.2%)	957 (1.1%)
Level 2	711 (2.0%)	160 (3.3%)	299 (2.5%)	484 (2.3%)	1886 (2.2%)
Level 3 and Level 4	7976 (22.8%)	1466 (29.3%)	2996 (24.7%)	5027 (23.9%)	20208 (23.8%)
Level 5 and Level 6	14486 (41.5%)	2080 (41.6%)	4246 (35.1%)	8497 (40.5%)	34091 (40.2%)
Level 7 and Level 8	11403 (32.7%)	1205 (24.1%)	4423 (36.5%)	6744 (32.1%)	27801 (32.7%)
Household income					0.156
<2100	4346 (12.4%)	1096 (21.9%)	1863 (15.4%)	3283 (15.6%)	12525 (14.7%)
2100–2800	4774 (13.7%)	953 (19.1%)	1657 (13.7%)	3081 (14.7%)	12270 (14.5%)
2800–4200	12378 (35.5%)	1714 (34.3%)	3841 (31.7%)	7337 (34.9%)	29332 (34.5%)
≥4200	13414 (38.4%)	1234 (24.7%)	4752 (39.2%)	7298 (34.8%)	30816 (36.3%)
Marital status					0.088
Not partnered	11932 (34.2%)	2102 (42.1%)	5269 (43.5%)	8219 (39.1%)	32359 (38.1%)
In couple	22980 (65.8%)	2895 (57.9%)	6844 (56.5%)	12780 (60.9%)	52584 (61.9%)
Smoking status					0.325
Non-smoker	18635 (53.4%)	3213 (64.3%)	3504 (28.9%)	10655 (50.7%)	41899 (49.3%)

Continued

Table 1 Continued

Changes in alcohol consumption								
At low-risk use at baseline and FU	No use at baseline and FU		At-risk use at baseline and FU		Increase	Decrease	Total	SMD
	n=34912 (41.1%)	n=4997 (5.9%)	n=12113 (14.3%)	n=20999 (24.7%)				
Former smoker	11293 (32.3%)	1200 (24.0%)	4759 (39.3%)	6943 (33.1%)	3766 (31.6%)	27961 (32.9%)		
Smoker	4984 (14.3%)	584 (11.7%)	3850 (31.8%)	3401 (16.2%)	2265 (19.0%)	15083 (17.8%)		
Depressive state†								0.074
No	30700 (87.9%)	4090 (81.8%)	10458 (86.3%)	18082 (86.1%)	10209 (85.6%)	73538 (86.6%)		
Yes	4212 (12.1%)	907 (18.2%)	1655 (13.7%)	2917 (13.9%)	1713 (14.4%)	11405 (13.4%)		
Self-rated health	2.6 (1.2)	2.8 (1.4)	2.7 (1.2)	2.7 (1.3)	2.7 (1.3)	2.6 (1.3)		0.081

*Based on the International Standard Classification of Education.
†Measured using the Centre of Epidemiologic Studies Depression scale and a score ≥ 19 .
FU, follow-up; SMD, standardised mean differences.

Table 2 The associations between the duration of unemployment and changes in alcohol consumption from baseline to follow-up (no use at baseline and follow-up or at-risk at baseline and follow-up versus at low-risk use at baseline and follow-up) (n=84943)

	No use at baseline and follow-up*			At-risk at baseline and follow-up*		
	Model 1†	Model 2‡	Model 3§	Model 1†	Model 2‡	Model 3§
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Duration of unemployment	Ref	Ref	Ref	Ref	Ref	Ref
Employed	Ref	Ref	Ref	Ref	Ref	Ref
Return to employment since less than a year	1.56 (1.26 to 1.93)	1.37 (1.10 to 1.70)	1.18 (0.94 to 1.46)	1.33 (1.14 to 1.56)	1.41 (1.20 to 1.66)	1.21 (1.02 to 1.42)
Unemployed for less than a year	1.40 (1.13 to 1.74)	1.24 (1.01 to 1.54)	1.13 (0.91 to 1.40)	1.52 (1.32 to 1.75)	1.62 (1.41 to 1.88)	1.34 (1.15 to 1.55)
Unemployed for 1–3 years	2.28 (1.79 to 2.91)	2.03 (1.59 to 2.59)	1.74 (1.36 to 2.22)	1.93 (1.60 to 2.33)	2.07 (1.71 to 2.51)	1.63 (1.34 to 1.99)
Unemployed for 3 years or more	3.46 (2.38 to 5.04)	3.32 (2.27 to 4.85)	2.50 (1.70 to 3.67)	2.53 (1.87 to 3.43)	2.46 (1.80 to 3.37)	1.83 (1.33 to 2.53)

Bold values: p-value <0.05
*With at low-risk use at baseline and follow-up as reference.
†Univariable analysis.
‡Adjusted for age, gender and education.
§Adjusted for age, gender, education, household income, marital status, smoking status, self-rated health and depressive state.

Table 3 The associations between the duration of unemployment and changes in alcohol consumption from baseline to follow-up (increase or decrease vs at low-risk use at baseline and follow-up) (n=84 943)

	Increase*			Decrease*		
	Model 1†	Model 2‡	Model 3§	Model 1†	Model 2‡	Model 3§
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Duration of unemployment	Ref	Ref	Ref	Ref	Ref	Ref
Employed	1.16 (0.99 to 1.36)	1.12 (0.96 to 1.31)	1.04 (0.89 to 1.21)	1.39 (1.19 to 1.62)	1.26 (1.08 to 1.48)	1.16 (0.99 to 1.35)
Return to employment since less than a year	1.32 (1.16 to 1.49)	1.29 (1.14 to 1.46)	1.21 (1.07 to 1.37)	1.34 (1.14 to 1.57)	1.28 (1.09 to 1.50)	1.17 (1.01 to 1.38)
Unemployed for less than a year	1.33 (1.10 to 1.60)	1.32 (1.10 to 1.59)	1.20 (1.00 to 1.45)	1.50 (1.21 to 1.86)	1.50 (1.21 to 1.86)	1.34 (1.08 to 1.66)
Unemployed for 1–3 years	1.71 (1.26 to 2.31)	1.73 (1.27 to 2.36)	1.51 (1.11 to 2.05)	1.97 (1.41 to 2.75)	2.17 (1.55 to 3.03)	1.84 (1.31 to 2.59)
Unemployed for 3 years or more						

Bold values: p-value <0.05
 *With at low-risk use at baseline and follow-up as reference.
 †Univariable analysis.
 ‡Adjusted for age, gender and education.
 §Adjusted for age, gender, education, household income, marital status, smoking status, self-rated health and depressive state.

and gender (p=0.037), education (p=0.022) and depressive states (p=0.007). Regarding gender, unemployment for less than a year was associated with increased alcohol use among men and unemployment for 3 years or more was associated with increased alcohol use among women. Regarding education, the categories of unemployment were associated with changes in alcohol consumption (increase or decrease) among participants with less than a Master's degree. Regarding depressive state, participants with no depressive symptoms were more likely to report continuous no alcohol use, at-risk alcohol use and increases and decreases in alcohol consumption, whereas participants with depressive symptoms were more likely to report continuous no alcohol use and at-risk alcohol use. The results of the supplemental analyses are presented in online supplemental tables 2–4.

Associations in the main analysis remained significant when using a threshold of 14 and 21 alcoholic drinks per week for women and men, respectively, to define at-risk alcohol use with smaller effect sizes (online supplemental table 5).

All categories of unemployment, except return to employment since less than a year, were positively associated with reporting continuous no alcohol use, being continuously at-risk, with increased or decreased consumption, compared with continuous low-risk alcohol use (online supplemental table 6).

DISCUSSION

We aimed to prospectively examine the changes in alcohol use in a large national population-based cohort within a year according to the duration of unemployment compared with employed men and women while adjusting for a broad range of sociodemographics and health-related factors. Compared with being continuously at low risk, the duration of unemployment was associated with an increased likelihood of reporting continuous no alcohol use, being continuously at risk and experiencing increased or decreased alcohol use. All these associations were dose-dependent, according to the unemployment categories.

The present study observed that unemployment was associated with an increased risk of at-risk alcohol use compared with low-risk alcohol use. This finding is consistent with the extensive literature on the detrimental role of job loss in unhealthy behaviours, including alcohol use.^{8–10 15 33 34} This association has even been proposed as one of the mechanisms to explain the increased mortality among job seekers compared with those who are employed.^{14 17} However, the present study extends this prior finding by showing a dose-dependent relationship between the duration of unemployment and the odds of at-risk alcohol use. This is in line with the literature on the progressive deterioration of the health status of the unemployed^{10 35} and the phenomenon of tolerance to substances at risk of addiction, leading to a progressive increase in the level of consumption.^{6 10} Furthermore,

the present study also reports increased odds of at-risk alcohol use among job seekers who have recently been re-employed. This may be because it takes time for being re-employed to cause changes in behaviour, which could be considered the scars of unemployment.^{36 37} Beyond continuous low-risk or at-risk alcohol use, unemployment was also associated with increased alcohol use among job seekers, with higher odds for those who had been unemployed for longer. This finding highlights the fact that some job seekers who are not already at-risk alcohol users are more likely to become at-risk alcohol users, especially if they have been unemployed for a long time. One could hypothesise that as the duration of unemployment increases, negative life events accumulate, mental health can deteriorate and the hope of finding work becomes more remote, which can lead to a higher risk of increased alcohol use.^{20 35} In the present study, unemployment was also associated with increased odds of reporting no alcohol use. This finding is in accordance with those of several previous studies.^{9 36} However, we add to this prior literature by demonstrating the persistence of such an association, even after excluding lifetime abstainers. In addition, we observed dose-dependent relationships according to the duration of unemployment. No use or decreased use could be associated with worse health after job loss (ie, the 'sick quitter effect'), which, in turn, could push some individuals to quit or drastically reduce drinking. Furthermore, the decrease in alcohol use after job loss highlights the differences in coping with unemployment. This may primarily concern job seekers whose alcohol use was promoted in their last job (eg, with colleagues after work or during business meals).^{38 39} For some unemployed people, a lower standard of living after job loss could also explain their tendency to reduce alcohol purchases.

Our findings suggest that an increase in alcohol consumption occurs early in unemployed men and later in unemployed women. Women with long-term unemployment are more likely to have decreased alcohol consumption. Men and women may cope differently with unemployment. A previous study observed an association between riskier health behaviours and unemployment duration among men.^{10 40} Moreover, the unemployment categories were associated with changes in alcohol consumption (increase or decrease) only among participants with less than a Master's degree. This could be explained by the harsher life consequences of unemployment among people with lower education levels, whether due to the deterioration of mental health, difficulties in finding work or a decreased standard of living.⁴¹ Regarding depression, participants with no depressive symptoms were more likely to report continuous no alcohol use, at-risk alcohol use and increase or decrease in alcohol consumption, whereas participants with depressive symptoms were more likely to report continuous no alcohol use and at-risk alcohol use. Depression is also associated with at-risk alcohol use.⁴² This finding could be explained by the lack of statistical power following the stratification for

depressive state, or participants with depressive state were already at-risk alcohol users at baseline and remained so at follow-up, even if they increased their consumption.

This study had some limitations. First, CONSTANCES cohort participants are not representative of the general French population. Although randomly selected, compared with the general population, volunteers in a cohort tend to be healthier, have higher education levels and better socioeconomic status, and consume fewer substances, including alcohol.⁴³ Thus, people at risk for alcohol use may have been underrepresented in our population. Second, although prospective, this was an observational study that prevented any causal conclusions, and other common vulnerability factors to alcohol use, such as personality traits, impulsivity or time-varying non-observed confounders, were not considered. Third, we focused on job seekers and excluded people who were unemployed for health reasons or had no professional activity, which limited our interpretation of this selected group of people. Moreover, unfortunately, the data did not allow us to differentiate between types of unemployment (eg, voluntary or involuntary). Involuntary unemployment is also associated with an increased risk of depression and anxiety symptoms.²⁰ Thus, the association between changes in alcohol use and involuntary unemployment may be stronger compared with voluntary unemployment. Nonetheless, this was a prospective national population-based cohort study with a large sample size and the predictor and outcome were measured at both baseline and annual follow-up. In addition, our models controlled for various sociodemographic and health-related variables.

The observed changes in alcohol use according to the duration of unemployment could be in either direction, that is, an increase or decrease in alcohol consumption. Future studies should examine the role of socioeconomic status in reactions to unemployment in terms of alcohol consumption. A recent study observed that the incidence of behavioural risk factors, including heavy alcohol use, depends much more on social position than on working conditions.⁴⁴ Until then, screening for alcohol use should be reinforced among all job seekers. The findings of the present study underline the importance of further reinforcing this screening among the long-term unemployed population. Finally, these findings were observed for both the WHO and French guidelines of alcohol consumption not to be exceeded by the general population; thus, information and prevention campaigns on the dose-dependent relationships between the duration of unemployment and changes in alcohol use should be disseminated to the general population.

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