



Problematic alcohol use in Austrian apprentices during the COVID-19 pandemic

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ABSTRACT

This study assessed problematic alcohol use in Austrian apprentices during the COVID-19 pandemic. An online survey was performed via REDCap with a sample of 1442 apprentices (53.3% female, 45.4% male, 1.1% non-binary, 28.4% migration background) from 29th March to 18th May 2021. The CAGE questionnaire was used to measure problematic alcohol use. Chi-square tests revealed that problematic alcohol use was more likely in apprentices with depressive symptoms (OR: 2.1), anxiety (OR: 2.1) or insomnia (OR: 1.4) and those over 18 (OR: 1.6). There were no differences in problematic alcohol use according to gender, migration background, or lockdown status.

1. Introduction

Some studies have reported an increase in alcohol consumption during the COVID-19 pandemic in adults and particularly younger adults (Irizar et al., 2021; Laghi et al., 2021). Furthermore, a recent study linked an increase of alcohol consumption during lockdowns to mental health symptoms (Schmits & Glowacz, 2021). As there has been a high prevalence for clinically relevant mental health symptoms in apprentices during the pandemic (Dale et al., 2021), we were interested in assessing problematic alcohol use in regard to sociodemographic factors and mental health symptoms in Austrian apprentices during the COVID-19 pandemic. In Austria, apprenticeship is started after the completion of compulsory school, usually around the age of 15. It constitutes a form of dual vocational education, including both vocational school and practical job training. Typical fields of occupation include, but are not limited to, tourism, gastronomy, trade, or banking and insurance.

2. Methods

An online cross-sectional study was conducted from March 29th, 2021, to May 18th, 2021, using Research Electronic Data Capture (REDCap). On April 1st, 2021, the eastern states of Austria (Vienna, Lower Austria, and Burgenland) established a regional lockdown, which

ended on April 19th in Burgenland and on May 3rd in Vienna and Lower Austria. All participants gave electronic informed consent before participating in the study. The study procedure was approved by the ethics committee of the Danube-University Krems (protocol code EK GZ 41/2018–2021).

The reliable and validated screening interview CAGE (Dhalla & Kopec, 2007; Ewing, 1984) was used to assess problematic alcohol use. It consists of four yes/no questions targeting signs of alcoholism and indicates problematic alcohol use when a cut-off of two or more questions are answered with “yes” (Williams, 2014). Cronbach's alpha was $\alpha = 0.50$ in the current sample. Depressive symptoms were assessed with the PHQ-9 (Spitzer, Kroenke, & Williams, 1999). The cut-off scores for clinically relevant depressive symptoms were 10 for adults (≥ 18) and 11 for adolescents (< 18 ; Richardson et al., 2010). Anxiety symptoms were assessed with the GAD-7 (Löwe, Decker, & Müller, 2008), and cut-off scores of 10 for adults and 11 for adolescents. Insomnia was assessed with the ISI (Morin, Belleville, Bélanger, & Ivers, 2011) and a cut-off of 15 regardless of age. Data were analyzed using IBM SPSS statistics software version 26. Chi-square tests were computed to analyze differences in problematic alcohol use according to age, gender, migration background, lockdown, and mental health symptoms. The significance level was set at 0.05 (two-tailed).

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3. Results

The sample consisted of 1442 Austrian apprentices (53.5% female, 45.4% male, 1.1% non-binary, 28.4% migration background) aged 15–43 years ($M = 18.19$, $SD = 2.30$). Of these, 58.2% ($N = 839$) lived in regions that were in lockdown during the study period.

A total of 185 (12.8%) apprentices answered two or more CAGE items with yes, indicating problematic alcohol use.

Participants over 18 were more likely to be over the cut-off for problematic alcohol use than those under the age of 18 ($\chi^2(1) = 7.36$, $p = 0.007$). The odds ratio (OR) between apprentices 18 years or older and apprentices under 18 was 1.6 [CI: 1.3, 2.1] for problematic alcohol use. There was no difference in likelihood to be over the cut-off according to gender ($\chi^2(1) = 0.15$, $p = 0.702$), migration background ($\chi^2(1) = 0.37$, $p = 0.847$) or living in a lockdown region ($\chi^2(1) = 0.34$, $p = 0.561$) (Table 1).

Participants with clinically relevant depressive symptoms were more likely to be over the cut-off for problematic alcohol use than those without ($\chi^2(1) = 21.92$, $p < 0.001$). The same held true for those with clinically relevant anxiety symptoms ($\chi^2(1) = 23.72$, $p < 0.001$) and insomnia ($\chi^2(1) = 3.87$, $p = 0.049$). The odds ratios (OR) between apprentices with problematic alcohol use and apprentices with no problematic alcohol use were 2.1 [CI: 1.5, 2.9] for depression (PHQ-9), 2.1 [CI: 1.6, 2.9] for anxiety (GAD-7), and 1.4 [CI: 1.0, 1.9] for insomnia (ISI) (Table 2).

4. Discussion

The findings of this cross-sectional study suggest a relatively high prevalence of problematic drinking in apprentices during the COVID-19 pandemic. Compared to a pre-pandemic prevalence of problematic drinking, measured by quantity of pure alcohol consumed, of 9% in Austrian 15–19-year-olds (Strizek & Uhl, 2016), the prevalence of almost 13% in our study was considerably higher. Similarly, in a German study from 2015 (Blinkert, 2015), which also used CAGE to assess problematic drinking, 8% of apprentices were over the cut-off for problematic alcohol use. Moreover, the percentage of individuals under the age of 18 that showed signs of problematic alcohol use was twice as high in our study, which indicates that problematic drinking has increased particularly in this age group. Other pre-pandemic studies report prevalences of problematic drinking in young people from 4.5%

Table 1
Number and percentage of apprentices above and below the cut-off for problematic alcohol use according to sociodemographic factors.

	No problematic alcohol use	Problematic alcohol use	Total
<18	582 (89.8%)	66 (10.2%)	648 (100%)
18+	657 (85%)	119 (15%)	794 (100%)
Female	675 (87.5%)	96 (12.5%)	771 (100%)
Male	569 (86.9%)	86 (13.1%)	655 (100%)
Non-binary	13 (81.3%)	3 (18.8%)	16 (100%)
Migration background			
Yes	365 (86.9%)	55 (13.1%)	420 (100%)
No	892 (87.3%)	130 (12.7%)	1022 (100%)
Lockdown			
Yes	735 (58.5%)	104 (56.2%)	839 (100%)
No	552 (41.5%)	81 (43.8%)	603 (100%)
Total	1257 (87.2%)	185 (12.8%)	1442 (100%)

Table 2
Number and percentage of apprentices above and below the cut-off for problematic alcohol use according to mental health symptoms.

	No problematic alcohol use	Problematic alcohol use	Total
PHQ-9			
Under cut-off	680 (54.1%)	66 (35.7%)	746 (100%)
Over cut-off	577 (45.9%)	119 (64.3%)	696 (100%)
GAD-7			
Under cut-off	842 (67.0%)	90 (48.6%)	932 (100%)
Over cut-off	415 (33.0%)	95 (51.4%)	510 (100%)
ISI			
Under cut-off	929 (73.9%)	124 (67.0%)	1053 (100%)
Over cut-off	328 (26.1%)	61 (33.0%)	389 (100%)
Total	1257 (87.2%)	185 (12.8%)	1442 (100%)

in a sample of Turkish apprentices (Ilhan, Demirbas, & Dogan, 2005) to 10.3% in a sample of 15–19-year-old Swiss adolescents (Marmet et al., 2015).

While our data suggest a higher prevalence of young people over the CAGE cut-off in comparison to similar pre-pandemic studies, interestingly it does not appear that a lockdown *per se* results in more problematic drinking as those in lockdown regions did not have higher odds of being over the cut-off than those in a non-lockdown area. Future research should aim to investigate whether and to what extent other pandemic variables may be affecting youth drinking behavior.

The results demonstrate a strong link between problematic drinking and mental health. Those over the cut-off for clinically relevant symptoms of depression and anxiety were twice as likely to show concerning alcohol use. This is in line with other studies which suggest problematic alcohol use in adolescence increases the risk for developing mental health issues (Pedrelli, Shapero, Archibald, & Dale, 2016; Weitzman, 2004). It is also plausible that poor mental health leads to problematic alcohol use through self-medication (Robinson, Sareen, Cox, & Bolton, 2009). Given this link and the fact that heavy alcohol use in adolescence can result in disruption to brain function (Lisdahl, Gilbert, Wright, & Shollenbarger, 2013), the relatively high amount of problematic alcohol use in this sample should be closely monitored and addressed in public health campaigns.

This study has some limitations. Firstly, the cross-sectional design and lack of pre-pandemic data do not allow for any causal conclusions. Secondly, only self-report measures were used, and the online setting of the study could account for some self-selection bias. Lastly, caution should be taken when interpreting CAGE results from non-clinical samples (Dhalla & Kopec, 2007).

Overall, the levels of problematic drinking during early 2021 in Austrian apprentices is concerning and could lead to poorer mental and physical health. More research should aim to elucidate to what extent problematic drinking is linked to the pandemic. In the meantime, public health efforts to reduce problematic alcohol consumption in young people should integrate mental health services.

CRediT authorship contribution statement

Teresa O'Rourke: Writing – original draft, Investigation, Formal analysis, Writing – review & editing. **Rachel Dale:** Writing – original draft, Writing – review & editing, Investigation. **Elke Humer:** Conceptualization, Methodology, Writing – review & editing. **Paul Plener:** Conceptualization. **Christoph Pieh:** Conceptualization, Project administration, Methodology, Writing – review & editing.

Declaration of Competing Interest

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

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