

# Evaluation of alcohol, substance and antidepressant drug use of university students during the COVID-19 pandemic

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**Cite this article as:** Bulgan C, Demirel G. Evaluation of alcohol, substance and antidepressant drug use of university students during the COVID-19 pandemic. *Anatolian Curr Med J* 2023; 5(1); 1-6.

## ABSTRACT

**Aim:** This study aimed to investigate how the mental tension and environmental conditions caused by the COVID-19 pandemic affected the alcohol and substance use habits of university students and the changes in the rates of antidepressant drug use for mood disorders due to the pandemic.

**Material and Method:** This cross-sectional survey study was conducted using an electronic survey completed by university students in Turkey between the years 2021-2022. Our study consisted of a questionnaire prepared to collect the demographic information of the participants and the Bapirt-Alcohol/Substance scale used to determine alcohol/substance addiction level. The survey, which took 5 minutes to complete, was randomly distributed to university students.

**Results:** A total of 641 participants, approximately 66% female and 34% male, between the ages of 18 and 41 years were included in the study. The mean alcohol dependence scores before and during the COVID-19 pandemic were 0.91 and 1.35 and substance addiction scores were found to be 0.17 and 0.33. There was a significant difference in the average alcohol and substance addiction scores of the students during the pandemic compared to the pre-pandemic period (for alcohol addiction:  $p=0.000$ ; for substance addiction:  $p=0.007$ ). Students who perceived their income level as mostly low had significantly higher alcohol addiction scores during the pandemic period compared to pre-COVID-19 ( $p=0.014$ ). Compared to the pre-pandemic period, the average alcohol and substance addiction scores were found to be significantly higher in students residing in dormitories/student houses during the pandemic period ( $p=0.014$  for alcohol;  $p=0.001$  for substances). Antidepressant drug use rates of the participants were found to be higher during the pandemic period compared to the pre-pandemic period.

**Conclusion:** As a result of this study, when the addiction levels for alcohol and substance use in university students before the COVID-19 pandemic and during the pandemic were compared, addiction increased in general. The prevalence of depression increased due to changing lifestyles and disruptions as a result of the pandemic, and accordingly, serious increases were observed in the use of antidepressant drugs.

**Keywords:** COVID-19, alcohol, substance, addiction, antidepressant

## INTRODUCTION

Experimental studies showing that alcohol and substance use seriously affect the immune system and thus increase susceptibility of the host to infections reported that chronic consumption paves the way for bacterial and viral diseases (1). In addition, extensive evidence highlights the negative impact of alcohol and substance use on lung health and its causal relationship with many respiratory diseases. Alcohol consumption was associated with many lung diseases, including tuberculosis, respiratory syncytial virus, and acute respiratory stress syndromes (2). Other stimulants, opioids, depressants, hallucinogens and cannabis, apart from alcohol, on the other hand, were associated with many conditions such as coronary artery

occlusion, cerebrovascular diseases, severe hypertension, speech disorder, fatigue, drowsiness, respiratory disorder, depressed mood and hallucinations (3). Considering these effects of alcohol and substances, their chronic consumption is a risk factor for immune system diseases and increased likelihood of fatal COVID-19 complications (4).

The global COVID-19 pandemic, which started in the first quarter of 2020, caused many people to die due to lung and other target organ problems (5). Due to the pandemic, unexpected and major changes occurred in the lifestyle of the society, along with an extreme decline in socialization. As a result of this phenomenon, many

factors such as the transfer of education and work to online systems, the long-term isolation of people with the disease, the reduction of social activities to reduce the contagiousness of the disease, etc. had a traumatic effect on young people. In this period, the use of inappropriate substances by individuals whose coping skills were insufficient increased their risk of addiction (6). Additionally, the impaired substance-related immune systems of individuals receiving addiction treatment, injected drug use and efforts to access substances in unhygienic environments increased the risk of contracting COVID-19 (7).

Our study aimed to evaluate the evidence of changes in alcohol and substance usage behavior among Turkish university students during the COVID-19 pandemic, to understand the rate of antidepressant drug levels used due to mood disorders and how demographic factors affect these behaviors.

## MATERIAL AND METHOD

The study was carried out with the permission of Çukurova University Faculty of Medicine Non-Invasive Clinical Research Ethics Committee (Date: 03.12.2021, Decision No: 50). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

### Survey Instrument and Dissemination

A web-based, cross-sectional study was conducted using a questionnaire tool after obtaining written informed consent from university students in Turkey between the years 2021-2022. This cross-sectional survey was conducted from 13 December 2021 to 2 March 2022 by means of an electronic survey. The study was carried out with a questionnaire prepared from the Bapirt-Alcohol/Substance Scale and questions to determine the demographic information of the participants and the level of alcohol/substance addiction. The questionnaire was randomly distributed to university students. A total of 641 participants, between the ages of 18 and 41 were included in the study. By using the Bapirt-Alcohol, Bapirt-Item Scales and demographic data, a 26-item questionnaire tool was developed, including details about COVID-19. Demographic data, alcohol and substance addictions, addiction levels before and during COVID-19 were questioned. The developed draft survey tool was made accessible via a link and distributed to 10 randomly-selected faculty members from different regions for a comprehensive assessment of the content areas of the survey. The final version of the questionnaire was revised based on the responses. The final version of the questionnaire was applied to participants using the e-mail databases of universities in Turkey.

## Statistical Analysis

Evaluation of research data was done using SPSS 20.0. Frequency, percentage, mean and standard deviation values were used for descriptive analysis. In the research, after checking the normality assumption for the data, Pearson Correlation Analysis, cross tables and chi-square statistics were used to evaluate the correlations among variables. In comparisons of two groups, the t-test was used for independent groups and One-Way ANOVA was used for comparisons for more than two groups. A p value of 0.05 or less was considered significant in all tests.

## RESULTS

### Descriptive statistics

The sample for the study consisted of 641 university students. The study data for students from universities in different provinces in Turkey were gathered online. The socio-demographic characteristics of the participant students are shown in **Table 1**.

	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	213	33.2
Female	428	66.8
<b>Living place</b>		
With parent	358	55.9
Dormitory/student house	283	44.1
<b>Mother education status</b>		
No formal education	42	6.6
Primary school	208	32.4
Middle school	109	17.0
High school	162	25.3
University	108	16.8
Master's	8	1.2
PhD	4	0.6
<b>Father education status</b>		
No formal education	9	1.4
Primary school	165	25.7
Middle school	115	17.9
High school	167	26.1
University	158	24.6
Master's	21	3.3
PhD	6	0.9
<b>Economical situation</b>		
Mostly insufficient	198	30.9
Mostly sufficient	396	61.8
Always sufficient	47	7.3

**Table 2** contains the descriptive statistics of university students. Before the COVID-19 pandemic, the mean scores for alcohol and substance abuse were 0.91 and 0.17, respectively. The mean scores for alcohol and substance abuse during the COVID-19 pandemic were determined as 1.35 and 0.33, respectively.

**Table 2: Addiction score averages before and during the COVID-19 pandemic**

	Average	Standard Deviation
Alcohol addiction score before the COVID-19 outbreak	0.91	1.740
Alcohol addiction score during the COVID-19 pandemic	1.35	2.391
Substance abuse score before the COVID-19 outbreak	0.17	0.886
Substance abuse score during the COVID-19 pandemic	0.33	1.246

There was a significant difference in the average alcohol and substance addiction scores of the students during the pandemic compared to the pre-pandemic period (for alcohol:  $p=0.000$ ; for substance:  $p=0.007$ ).

Students who thought their income level was mostly insufficient had significantly higher alcohol addiction

scores during the pandemic period compared to pre-COVID-19 ( $p=0.014$ ). Compared to the pre-pandemic period, the average alcohol and substance addiction scores were significantly higher for students residing in dormitories/student houses during the pandemic period ( $p=0.014$  for alcohol;  $p=0.001$  for substance) (Table 3).

Table 4 shows the change in antidepressant drug use before and during the COVID-19 pandemic. According to the table, the antidepressant drug use rates of the participants varied significantly from the pre-COVID-19 and COVID-19 period ( $p<0.05$ ). According to the data obtained, the use of antidepressant drugs increased during the pandemic compared to the pre-pandemic period. Some of the participants also stated that they considered using antidepressant medication during the pandemic (Table 4).

**Table 3: Comparison of alcohol and substance addiction scores before and during the pandemic**

	Alcohol		Substance	
	Pre COVID-19	During COVID-19	Pre COVID-19	During COVID-19
<b>Gender</b>				
Male	1.5070±2.23	2.6009±3.15	0.3709±1.35	0.8263±1.92
Female	0.6192±1.34	0.7220±1.57	0.0631±0.49	0.0818±0.56
Test Statistics	t=6.264	t=10.081	t=4.196	t=7.421
p	0.000	0.000	0.000	0.000
<b>Living Place</b>				
With Parent	0.7207±1.44	0.9078±1.79	0.0950±0.56	0.1844±0.89
Dormitory/Student H.	1.1590±2.04	1.9011±2.89	0.2544±1.17	0.5124±1.57
Test Statistics	t=-3.189	t=-5.333	t=-3.189	t=-5.333
p	0.001	0.000	0.024	0.001
<b>Economical Situation</b>				
Mostly insufficient	0.9899±1.62	1.6717±2.60	0.1465±0.64	0.4141±1.31
Mostly sufficient	0.9167±1.85	1.2702±2.36	0.1894±1.03	0.3157±1.28
Always sufficient	0.5745±1.16	0.6170±1.24	0.0426±0.29	0.0851±0.41
Test Statistics	F=1.084	F=4.263	F=0.641	F=1.387
p	0.339	0.014	0.527	0.251
<b>Mother Education Status</b>				
No formal education	0.7381±1.56	0.9762±1.91	0.2143±0.87	0.5476±1.78
Primary School	0.6442±1.49	0.8125±1.91	0.1058±0.89	0.1971±1.02
Middle School	1.2018±1.96	1.5321±2.50	0.1193±0.50	0.2018±0.79
High School	0.9074±1.66	1.4074±2.30	0.1543±0.92	0.3951±1.38
University	1.0370±1.78	2.1481±2.98	0.2963±1.10	0.5278±1.54
Master's	1.2500±1.58	0.7500±1.16	0.2500±0.71	0.2500±0.71
PhD	5.2500±4.57	5.0000±4.76	0.7500±1.50	0.5000±1.00
Test Statistics	F=5.943	F=5.950	F=0.926	F=1.350
p	0.000	0.000	0.475	0.233
<b>Father Education Status</b>				
No formal education	1.4444±2.30	1.0000±1.58	0.0000±0.00	0.0000±0.00
Primary School	0.8303±1.81	1.0121±2.17	0.1091±0.98	0.2667±1.32
Middle School	0.8435±1.42	1.0957±2.01	0.1217±0.64	0.1478±0.67
High School	0.8443±1.69	1.3054±2.28	0.1617±0.79	0.4251±1.47
University	0.9810±1.72	1.7532±2.69	0.2025±0.90	0.3797±1.14
Master's	1.0952±1.45	2.1905±3.25	0.2381±0.77	0.5238±1.60
PhD	3.3333±4.46	3.3333±4.46	1.6667±2.86	1.3333±2.42
Test Statistics	F=2.317	F=2.720	F=3.216	F=1.531
p	0.032	0.013	0.004	0.165

**Table 4.** Antidepressant drug use rates before and during the COVID-19 outbreak

	Pre-COVID-19		During COVID-19	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Never used	571	89.1	518	80.8
I use it when I need it	34	5.3	28	4.4
I use it regularly with a prescription	25	3.9	48	7.5
I use it regularly without a prescription	3	0.5	20	3.1
I intend to use	8	1.2	27	4.2

## DISCUSSION

Addiction is among the most important diseases that societies struggle with. This disease, which is especially common in adolescents and young adult groups, threatens the future of societies (8). Studies show that substance use mostly begins during adolescence (9-11) and that young people who are introduced to substances in this period develop addiction in later years (12). A person who starts to use alcohol and drugs, especially in their 20s, has a very high risk of developing addiction in later years. The average age of the students participating in our study was determined as 20.9 years. The alcohol addiction mean score of participants was 0.91 before the COVID-19 pandemic and 1.35 during the COVID-19 period. The mean substance addiction scores were found to be 0.17 before the COVID-19 pandemic and 0.33 during the COVID-19 period. Looking at the mean scores in both cases, both alcohol and substance addiction scores increased during the pandemic.

Psychological mood swings caused by the COVID-19 pandemic can affect alcohol and substance use habits of young adults. Studies conducted during the pandemic period showed that restrictions cause an increase in stress in a person and accordingly trigger the desire to take drugs or alcohol more frequently and then lead to relapse (13,15). In a study by Wu P et al. (16) in June 2020 including 1074 Chinese people, they found results showing an increased risk of severe psychiatric disorders with higher anxiety, depression, dangerous and harmful alcohol consumption, and lower mental well-being due to the COVID-19 pandemic and mass isolation. In another study conducted in China, alcohol consumption during the COVID-19 pandemic was examined using the Alcohol Use Disorder Identification Test (AUDIT), and there was a 29.1% increase in risky consumption, 9.5% in harmful use and 1.6% increase in alcohol dependence (17). As a result of our study, the mean addiction scores of female and male students before the COVID-19 pandemic ( $p < 0.005$ ) and during the COVID-19 pandemic ( $p < 0.005$ ) increased in line with the studies in the literature. In addition, it was observed that male students had higher alcohol and substance addiction scores than female students before and during the pandemic.

Differences in physiological stress and poor decision-making abilities increase the risk of stress-induced alcohol consumption. In a meta-analysis study evaluating gender differences in risk taking, risk-taking behavior in adolescence was found to be more common in boys compared to girls, although it is valid for both genders (18). In the study by Ahmed MZ et al. (17), in which they investigated the psychological problems associated with the COVID-19 pandemic, the rate of harmful users and dependent users was found to be six times higher in men than in women for alcohol and substance use by gender. In accordance with these results, in our study, male students had higher alcohol and substance addiction scores than female students before and during the pandemic.

Stressful events are powerful negative environmental factors which can predispose individuals to psychiatric disorders, especially depression (19,20). Research has indicated that people experience negative emotional reactions such as anxiety and depression symptoms during epidemics (21). During the current COVID-19 pandemic, too, the practice of social distancing reduced or changed people's daily activities to reduce interactions between people and thus reduce the possibility of new infections. These factors can lead to different levels of psychological pressure, which can trigger feelings of loneliness and helplessness or a variety of dysphoric emotional states such as stress, irritability, hopelessness, physical and mental fatigue. The rate of antidepressant drug use may increase in individuals who experience such an affective period. As a matter of fact, it was observed that antidepressant consumption increased worldwide with a significant increase in the prevalence of depression associated with COVID-19. A recent study in the United States showed a 21% increase in the number of antidepressant, anti-anxiety, and anti-insomnia prescriptions during the first period of the pandemic between February and March 2020 (22,23). Rabeea et al. (22) studied antidepressant prescription trends during the pandemic (January-August 2020) compared to a similar period in the last three years before the pandemic to assess the impact of the COVID-19 pandemic and associated quarantines on antidepressant use. Overall consumption of antidepressants was observed to be higher throughout the pandemic compared to consumption in 2019. According to the data from our survey study, the

use of antidepressant drugs increased more during the pandemic period than before the pandemic, and some of the participants stated that they considered using antidepressant drugs during the pandemic period.

However, despite the relevant findings and strengths (such as a large population and diversity of variables), our study has some limitations. The use of self-reported questionnaires leads to well-known biases, such as self-representation biases, introspective limits, or social desirability. Other assessment methods, such as qualitative methods, should also be considered. It is clear that people suffering from alcohol use disorder, characterized by a range of mental, physical and behavioral symptoms, belong to a marginalized community and are always more susceptible to infection during the COVID-19 pandemic. This population should be included in future research. Also, as the sample is over-represented by women, subsequent studies should aim to reach more male participants.

## CONCLUSION

In our study it was observed that alcohol and substance use among university students increased before and during the COVID-19 pandemic. In parallel to this, it was observed that the prevalence of depression increased due to the changing life style and disruptions as a result of the pandemic, and accordingly, there was a serious increase in the use of antidepressant drugs. According to these results, the young population needs comprehensive management for the use of alcohol and addictive substances, which pose a great risk for the COVID-19 epidemic, and for the consumption of antidepressant drugs. For this reason, necessary plans should be made by the relevant health institutions in order to end alcohol and substance use habits by taking advantage of the pandemic and about the conscious use of antidepressant drugs.

## ETHICAL DECLARATIONS

**Ethics Committee Approval:** The study was carried out with the permission of Çukurova University Faculty of Medicine Non-Invasive Clinical Research Ethics Committee (Date: 03.12.2021, Decision No: 50).

**Informed Consent:** All patients signed the free and informed consent form.

**Referee Evaluation Process:** Externally peer-reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**Author Contributions:** All of the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version.

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