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<https://doi.org/10.1057/s41599-024-03931-4>

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# The impact of alcohol consumption on the quality of life of college students: a study from three Slovak universities

Alcohol consumption can influence an individual's quality of life, with the impact varying based on several factors such as the amount of alcohol consumed, frequency of consumption, individual tolerance, and overall health. Slovakia is among the countries with the highest incidence of liver cirrhosis in the world, with alcohol representing a significant risk factor. Therefore, it is important to identify at-risk groups and the potential impact of various factors. The primary objective of this study is to examine the relationship between alcohol consumption and quality of life among college students in the Slovak Universities. A cross-sectional study was conducted in December 2021 and January 2022. The study included college students with an average age of 22.3 years. Participants were surveyed about their alcohol consumption and quality of life using the standardized Alcohol Use Disorders Identification Test (AUDIT) and EuroQol-5D (EQ-5D) questionnaires. These questionnaires were distributed through online school systems. In the study, 88.7% of the students reported drinking alcohol. A low AUDIT score was recorded for 67.1% of the total participants (2573 students). A medium score was found in 23.3% of the participants (893 students). High scores were identified in 2.4% of the participants (92 students), and very high scores were found in 2.2% of the total participants (86 students). Mild pain was reported in 33.8% of cases, while moderate pain was reported in 5.2% of cases. Mild depression and anxiety were reported in 31.1% of the cases, and moderate depression and anxiety were reported in 13.5% of the cases. There is a statistically significant relationship between AUDIT and EuroQOL variables ( $p < 0.001$ ). This suggests that the association between alcohol use (measured by AUDIT) and health-related quality of life (measured by EuroQOL) is unlikely to be due to chance. Higher alcohol consumption was associated with a poorer quality of life in Slovak college students. Our results suggest a meaningful connection between alcohol consumption behaviors and overall quality of life, highlighting the potential impact of alcohol use on health outcomes. Further research is warranted to explore the nature and causality of this relationship, which could inform interventions aimed at improving health-related quality of life through alcohol use reduction strategies. The association between higher alcohol consumption and poorer quality of life in Slovak college students raises important questions about causality and the complex interplay between alcohol consumption and one's overall well-being. The significant relationship between higher alcohol consumption and poorer quality of life suggests the need for targeted public health interventions aimed at reducing alcohol consumption among college students. Programs focusing on awareness and education about the negative impacts of excessive drinking could be implemented to promote healthier lifestyles.

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## Introduction

Alcohol consumption, including high-risk drinking, is associated with stressful life events, as it often exacerbates emotional distress and can lead to a vicious cycle of increased stress and greater alcohol use (Dich and Doan 2019; Hoyland and Latendresse 2018; Keyes et al. 2012; Rehm et al. 2009; Stautz et al. 2016). This pattern can negatively impact various aspects of an individual's life, including mental health, relationships, and academic or work performance. Stressful life events may trigger increased alcohol consumption as a coping mechanism, but this, in turn, can heighten stress and anxiety levels, creating a detrimental feedback loop (Becker 2017; Dawson et al. 2005; Keyes et al. 2012). Alcohol consumption is an important public health problem that transcends geographical boundaries, affecting individuals and communities throughout the world, with far-reaching consequences on physical health, mental well-being, social dynamics, and economic stability (GBD 2016 Alcohol Collaborators 2018). Alcohol consumption is one of the major risk factors for disability and premature mortality, contributing significantly to a wide range of health problems, including, but not limited to, cardiovascular diseases, liver cirrhosis, certain cancers, mental health disorders, and accidents, which pose a substantial burden on health systems and society as a whole (Rehm and Shield 2014; Sohi et al. 2021; Xi et al. 2017). Alcohol consumption is an important risk factor for several chronic diseases. It plays a pivotal role in exacerbating these health issues, highlighting the need for comprehensive public health strategies to address the detrimental impact of alcohol on long-term well-being (Barbería-Latasa et al. 2022, 2022; McKay and Hiller-Sturmhöfel 2011; Shield et al. 2013; Zhou et al. 2016). Alcohol is the most widespread drug addiction in all geographical regions and in all sections of the population, spanning age, sex, socioeconomic status, and cultural background. Its ubiquity highlights the need for a multifaceted approach to addiction prevention and treatment that addresses the complex factors that contribute to alcohol dependence and abuse in diverse communities and settings (Matošić et al. 2016; Volpicelli 2001; Wackernah et al. 2014; Wang et al. 2020).

Slovakia is one of the countries with the highest incidence of liver cirrhosis in the world (Sepanlou et al. 2020). High prevalence not only poses a major public health concern but also places a significant burden on the healthcare system. Understanding the underlying reasons for this trend is crucial, as liver cirrhosis can lead to severe health complications and increased mortality rates. This is a troubling health statistic that underscores the urgent need for public health initiatives aimed at preventing alcohol abuse, improving access to healthcare, and raising awareness of the risks associated with excessive alcohol consumption within the population. Among young people, college students have higher alcohol consumption than nonstudents (Quinn and Fromme 2011; Slutske, 2005). Alcohol consumption is a significant issue among college students, with excessive drinking prevalent in many educational institutions (Casper et al. 2006; Chow et al. 2021; Freire et al. 2020). This practice has significant implications for the quality of life of students. The prevalence of alcohol consumption in educational settings has been widely documented, with various studies indicating high levels of binge drinking and alcohol-related problems among students. The transition to college often coincides with a period of increased autonomy and exposure to social environments where alcohol consumption is prevalent (Hayatbakhsh et al. 2011; Lee et al. 2008; Ranker and Lipson 2022). This phase of life, marked by significant psychological and social changes, can make students particularly vulnerable to developing unhealthy drinking patterns. The interplay between stress,

peer pressure, and the desire for social acceptance frequently contributes to the initiation and escalation of alcohol use among students. Alcohol use disorder (AUD) among students is characterized by the inability to control drinking despite adverse consequences (Benjet et al. 2022).

These consequences can be academic, such as declining grades and increased dropout rates; social, including impaired relationships and antisocial behavior; and health-related, encompassing both acute and chronic medical issues. The interplay between alcohol consumption and quality of life encompasses various dimensions, including physical health, mental well-being, academic performance, and social relationships. This issue poses immediate risks to student health and safety but can also have long-term consequences, affecting academic performance, mental well-being, and future career prospects.

Therefore, the objective of this study is to determine the level of alcohol consumption and its association with the quality of life among college students.

## Materials and methodology

During the third wave of the COVID-19 pandemic and the concurrent lockdown, a cross-sectional study was conducted from December 2021 to January 2022. Three universities participated in the study. The main outcomes were the AUDIT score and quality of life according to EQ-5D. After obtaining informed consent, students completed the structured questionnaires AUDIT and EQ-5D. The questionnaires were distributed through online school systems, leveraging the convenience and accessibility of digital platforms to reach a wider and more diverse range of respondents, ensuring a representative sample for our research. This approach allowed efficient data collection and minimized the need for physical contact during the ongoing pandemic. The study included participants who were college students at a three Slovak university and were 18 years of age or older. The exclusion criteria were as follows: students with visual impairments, students who were not enrolled in a Slovak university, students under the age of 18, students with cognitive impairments that would interfere with their ability to complete the study tasks, and students who were not proficient in the Slovak language.

**AUDIT.** The Alcohol Use Disorders Identification Test (AUDIT) questionnaire was employed as a robust and validated tool to assess alcohol consumption patterns among the study participants. This questionnaire consists of a series of questions designed to evaluate various aspects of alcohol use, including frequency and quantity of consumption, as well as potential alcohol-related problems or dependence symptoms (Kuitunen-Paul and Roerecke 2018; Lundin et al. 2015; Verhoog et al. 2020). AUDIT can also be used in the younger population (Liskola et al. 2018). The Slovak standardized version was used. AUDIT is used as one of the tools to detect alcohol consumption and related risk behaviors in primary care settings (Ballester et al. 2021). The AUDIT score is divided into low (scores between 0 and 7), medium (scores between 8 and 15), high (scores between 16 and 19), and very high (scores between 20 and above). The questionnaire contained information on the risk level of drinking (items: frequency of drinking, amount and frequency of excessive drinking), symptoms of addiction (items: impaired control of drinking, increased importance of drinking and early drinking), and harmful alcohol use (items: guilt after drinking, alcohol-related injuries and other drinking related

items). A pilot test was conducted before the start of the study to determine the feasibility of submitting a questionnaire.

**EuroQol-5D (EQ-5D).** The EuroQol-5D questionnaire is used to measure quality of life. EQ-5D is a valid form of quality of life measurement (Ragusa et al. 2018). It includes five aspects: mobility, self-care, daily activities, pain, discomfort, anxiety, and depression, and a visual analog scale that assesses perceived subjective health on a scale from 0 to 100. In other questions, it is possible to choose the answer on a scale from 1 - no problems to 5 - maximum problems. Each health condition defines one "utility" score which can be transformed using a score. A pilot test was conducted before the start of the study to determine the feasibility of submitting a questionnaire.

**Statistical analysis.** The results were collected in an Excel spreadsheet and subsequently subjected to statistical analysis using software IBM SPSS Statistics 19. Unpaired t-test was used to assess the difference between group of men and group of women. Analysis of contingency tables were used to calculate the percentage of students to compare outputs from AUDIT and EuroQol questionnaires. In order to test the potential dependence between AUDIT scores and EuroQol scores, new ordinal variables were first created. Using data

from this table, chi-squared test was calculated. The significance level was established at  $\alpha = 0.05$ .

**Participants.** The study involved 4044 students from three Slovak universities. Matej Bel University, Banská Bystrica (n-1066, 26.4%), Technical University of Košice (n-2769, 68.5%) and the Slovak Medical Universities, Faculty of HealthCare in Banská Bystrica (n-209, 5.2%). The characteristics of the sample can be seen in Table 1. All participants willingly agreed to participate in the study and prior to their involvement.

**Results**

A total of 4044 students participated in the study, consisting of 1.850 women (45.7%) and 2194 men (54.3%). Of these, 3647 students completed the AUDIT questionnaire.

**AUDIT score.** A low AUDIT score was recorded for 2573 students (1318 men and 1255 women), accounting for 67.1% of the total participants. A medium score was found for 893 students (583 men and 310 women), representing 23.3% of the total. High scores were identified in 92 students (68 men and 24 women), which is 2.4% of the participants, and very high scores were noted in 86 students (61 men and 25 women), making up 2.2% of the total participants.

**Quality of life.** In the next part, the quality of life of students during a pandemic is focused on. Quality of life was evaluated according to the EuroQol questionnaire. Mobility and self-care were not problematic for most of the students who stayed. Difficulty performing daily activities was reported by 21.3% of the students. Mild pain was reported in 33.8% of cases, while moderate pain was reported in 5.2% of cases. Mild depression and anxiety were reported in 31.1% of the cases, and moderate depression and anxiety were reported in 13.5% of the cases. Greater mobility problems were reported by women compared to men ( $p = 0.017$ ). A statistically significant difference was observed in the incidence of pain ( $p < 0.001$ ) and anxiety ( $p < 0.001$ ) in women compared to men (Table 2).

**Relationship between quality of life and alcohol consumption.** In the question: "Q1 How often do you drink alcoholic beverages?" 4038 students answered. The answer "4x or more per

**Table 1 Baseline characteristic.**

		Total (N = 4044)
Age (years)	mean	22.33 ( $\pm 4.8$ )
Gender	Women	1850 (45.7%)
	Men	2194 (54.3%)
Year of studies	First-year undergraduate	1342 (33.2%)
	Second-year undergraduate	951 (23.5%)
	Third-year undergraduate	745 (18.4%)
	Fourth-year undergraduate	530 (13.1%)
	Fifth-year undergraduate	421 (10.4%)
	Sixth-year undergraduate	55 (1.4%)
Type of study	Full-time	3697 (91.4%)
	Remote	347 (8.6%)
University	Technical University of Košice	2769 (68.5%)
	Matej Bel University	1066 (26.4%)
	Faculty of HealthCare, Banská Bystrica	209 (5.2%)

**Table 2 EuroQol - authors survey results with the specification of individual areas.**

Item of the EuroQol	Gender	Mean score	p value <sup>a</sup>	EuroQol score				
				(1)	(2)	(3)	(4)	(5)
Mobility	Women	1.116	0.017	89,8%	9,1%	0,9%	0,1%	0,1%
	Men	1.099		92,1%	6,8%	0,6%	0,3%	0,3%
	All	1.107		91,0%	7,9%	0,7%	0,2%	0,2%
Self-care	Women	1.047	0.156	96,2%	3,3%	0,2%	0,0%	0,2%
	Men	1.056		95,3%	4,2%	0,4%	0,1%	0,2%
	All	1.052		95,7%	3,8%	0,3%	0,0%	0,2%
Usual activities	Women	1.271	0.627	79,0%	16,3%	3,6%	0,8%	0,2%
	Men	1.283		78,4%	16,4%	4,0%	0,9%	0,3%
	All	1.277		78,6%	16,4%	3,8%	0,9%	0,3%
Pain/Discomfort	Women	1.582	<0.001	52,6%	39,1%	6,5%	1,3%	0,6%
	Men	1.430		64,1%	30,5%	4,2%	0,8%	0,5%
	All	1.500		58,8%	34,4%	5,2%	1,0%	0,5%
Anxiety/Depression	Women	1.946	<0.001	40,2%	36,6%	14,9%	5,0%	3,3%
	Men	1.770		51,8%	28,8%	12,2%	5,0%	2,2%
	All	1.851		46,5%	32,4%	13,5%	5,0%	2,7%

<sup>a</sup>According to unpaired t-test.

**Table 3 Percentage of respondents to questions Q1, Q2, Q3 by EuroQol domains.**

<b>A</b>						
<b>Q1 How often do you have a drink containing alcohol?</b>						
<b>EQ-5D Domains (the worst category)</b>	<b>4 or more times a week</b>		<b>never, rarely, sometimes</b>		<b>All respondents to Q1</b>	
Pain/Discomfort	2.8%	(9/321)	0.3%	(13/3717)	0.5%	(22/4038)
Anxiety/Depression	5.6%	(18/321)	2.4%	(88/3717)	2.6%	(106/4038)
VAS (score 0–20)	7.2%	(23/321)	3.2%	(118/3717)	3.5%	(141/4038)
<b>B</b>						
<b>Q2 How many drinks containing alcohol do you have on a typical day when you are drinking?</b>						
<b>EQ-5D Domains (the worst category)</b>	<b>10 or more</b>		<b>1–9</b>		<b>All respondents to Q2</b>	
Pain/Discomfort	13%	(6/46)	0.4%	(16/3975)	0.5%	(22/4021)
Anxiety/Depression	24%	(11/46)	2.4%	(95/3975)	2.6%	(106/4021)
VAS (score 0–20)	26%	(12/46)	3.2%	(129/3975)	3.5%	(141/4021)
<b>C</b>						
<b>Q3 How often do you have six or more drinks on one occasion?</b>						
<b>EQ-5D Domains (the worst category)</b>	<b>daily or almost daily</b>		<b>never, rarely, sometimes</b>		<b>All respondents to Q3</b>	
Pain/Discomfort	2.8%	(8/287)	0.3%	(12/3430)	0.5%	(20/3717)
Anxiety/Depression	5.9%	(17/287)	2.4%	(84/3430)	2.7%	(101/3717)
VAS (score 0–20)	4.2%	(12/287)	3.4%	(118/3430)	3.5%	(130/3717)

EQ-5D EuroQOL, VAS Visual analogue scale.

**Table 4 Contingency table between AUDIT and EuroQol showing the number of respondents with a given AUDIT score value and a given EuroQol score value.**

		<b>EuroQol</b>					<b>Total</b>	
		<b>AUDIT score</b>	<b>Category 1 (5–7)<sup>a</sup></b>	<b>Category 2 (8–10)</b>	<b>Category 3 (11–13)</b>	<b>Category 4 (14–16)</b>		<b>Category 5 (17–25)</b>
AUDIT	Category 1	0–5	1529	372	89	17	3	2010
	Category 2	6–10	790	231	47	11	1	1080
	Category 3	11–15	262	92	20	5	0	379
	Category 4	16–20	60	31	5	3	0	99
	Category 5	21–25	22	13	5	2	0	42
	Category 6	25–40	14	12	5	1	5	37
Total			2677	751	171	39	9	3647

<sup>a</sup>EuroQol score in brackets.

week” was chosen by 321 (7.9%) students. There are 3717 students who drink less often or do not drink at all. In the most at-risk group of students in terms of drinking frequency, the incidence is twice as high in those who have the worst perception of pain, anxiety, and subjective feeling of health, compared to those who drink less often or do not drink at all (Table 3A). In the question “Q2 How often do you drink six or more standard drinks on one occasion?” 4021 students answered. 46 (1.14%) students chose the answer “daily or almost daily”. There are 3975 students who drink less or do not drink at all. In the highest-risk group of students, based on the amount of alcohol consumed on a single occasion, severe pain perception is, on average, 10 times more common, along with higher levels of anxiety and poorer subjective health, compared to those who drink less frequently or not at all (Table 3B). In the question “Q3 How many standard drinks will you drink during a typical day when you drink?” 3717 students answered. The answer “10 and more” was chosen by 287 (7.7%) students. In the most at-risk group of students in terms of the amount of alcohol consumed during a typical day when they drink, those who have the worst perception of pain, anxiety, and subjective health are on average 2 times more likely than those who drink less often or do not drink at all.

Based on the results of the chi-square test between AUDIT and EuroQOL variables (Table 4), it can be concluded that there is a

statistically significant relationship between AUDIT score and EuroQOL score ( $p < 0.001$ ).

**Discussion**

In our study, we observed a significant correlation between lower quality of life and higher frequency of heavy alcohol consumption among Slovak college students. This connection indicates that students who engage in excessive alcohol consumption are more likely to experience diminished quality of life. These findings highlight the critical need to address alcohol-related issues within the college student population in Slovakia. To improve the well-being of these students, it is essential to recognize the adverse effects of high alcohol consumption on various aspects of their lives. This understanding enables us to refine existing strategies and interventions to specifically target students at risk due to their alcohol consumption patterns. Additionally, further research is necessary to elucidate the underlying mechanisms and contributing factors to the relationship between heavy alcohol consumption and reduced quality of life. A deeper understanding of these dynamics can inform the development of more effective interventions and policies aimed at both preventing excessive alcohol use and enhancing the overall quality of life for college students in Slovakia. Excessive or problematic alcohol

consumption is associated with numerous health issues, including liver damage, cardiovascular diseases, and mental health disorders, all of which can significantly impair an individual's quality of life (Roerecke et al. 2019). These health problems can cause discomfort, pain, and a reduced ability to participate in daily activities, negatively affecting quality of life. Alcohol abuse is closely related to mental health problems such as depression and anxiety (Barr et al. 2016; Kushner et al. 2000; Roerecke et al. 2019; Smith and Randall 2012; Torvik et al. 2019). The mood-altering effects of alcohol can provide temporary relief, but in the long run, it can exacerbate these conditions, leading to a poorer quality of life. Excess alcohol consumption can strain relationships, lead to social isolation, and result in legal issues (Gossop et al. 2002; Wechsler et al. 2001). These social consequences can cause emotional distress and negatively impact one's overall well-being. Funding a heavy drinking habit can lead to financial strain and instability, affecting one's ability to access necessities and engage in enjoyable activities. On the other hand, it is also possible that individuals experiencing a lower quality of life may turn to alcohol as a coping mechanism or means of escape from their challenges. People facing stress, academic pressure, loneliness, or other life difficulties can use alcohol as a way to cope or self-medicate. This can create a cycle in which alcohol is relied on to numb emotional pain or stress. Alcohol consumption can serve as a way to facilitate social interactions or feel more connected. Understanding the directionality of the relationship between alcohol consumption and quality of life is challenging because it often involves a complex interplay of individual factors, including genetics, mental health, social support, and personal experiences. Offering mental health services and resources to help people cope with stress, anxiety, and depression in healthier ways. Addressing both aspects, reducing harmful drinking patterns and improving overall well-being, is crucial to promoting a healthier and happier life among college students and beyond (Alcoholism et al. 1981; Boumans et al. 2022; Michie et al. 2012).

Alcohol consumption is a way of relaxation for many people; however, alcohol can increase an individual's vulnerability, both physical and mental, and lead to higher risk behaviors such as violent reactions, depression, or anxiety (Calina et al. 2021). In our study, alcohol consumption was higher in the group which also reported a higher prevalence of pain, anxiety, and depression. Alcohol consumption is associated with many illnesses and mental disorders (Sharifi-Rad et al. 2020). Alcohol has several long-term and short-term effects on every organ of the body, so there is no "safe" limit to alcohol consumption (Aloizou et al. 2021; Kokkinakis et al. 2020). Due to the social acceptance of high levels of alcohol consumption as part of student culture, risky drinking is often downplayed. This may be partly because many students show easy recovery from hazardous drinking, often without special treatment. However, such behavior may have negative consequences in the future, and in particular, young age is associated with the highest risk of alcohol dependence.

The level of alcohol consumption has also been tested in other countries. Grossman et al. (2020) investigated consumption during a pandemic in 832 students in the United States. Participants who experienced COVID-19-related stress reported consuming more alcoholic beverages ( $\beta = 4.7$ ; CI (0.2, 9.1);  $p = 0.040$ ) and spending more days drinking alcohol ( $\beta = 2.4$ ; CI (0.6, 4.1)  $p = 0.007$ ). Furthermore, 60% reported increased alcohol consumption, but 13% of participants reported reduced drinking compared to the previous era of COVID-19. The reasons for increased drinking, such as in our study, were increased stress (45.7%). Other reasons given are the increase in

alcohol availability (34.4%) and boredom (30.1%). The effect of a pandemic on alcohol consumption in adults was also examined in a study by Nordeck et al. (2022). Men, white participants and older adults reported a steady increase in drinking days, while women and individuals living below the poverty line showed a reduction in drinking days. Rossow et al. (2021) measured the level of alcohol consumption in the Norwegian population ( $n=1,195$ ). A mean slight decrease in consumption was found for most participants. However, the small part with the highest initial consumption significantly increased its consumption and the share of heavy drinkers increased significantly ( $p < 0.001$ ). In a study by Chodkiewicz et al. (2020), alcohol is the most commonly used psychoactive substance (73% during the 2020 lockdown in Poland. More than 30% of Poland have changed their drinking habits as a result of the pandemic, with 16% drinking less while 14% are drinking more. The COVID-19 pandemic had a complex and multifaceted impact on alcohol consumption, with different effects depending on individual circumstances, social factors, and coping mechanisms. Our study was conducted during the COVID-19 pandemic and could have influenced the amount of alcohol that students consumed.

Several factors have been identified as risky for alcohol-related illnesses during a pandemic, such as social isolation, depression, lonely housing, loss of income, unemployment, home office, etc. One of the factors that people start to drink more is loss of work. A study by Weerakoon et al. (2021) focused on this issue. One-third (33%) of the participants ( $n = 2441$ ; 67% of women) reported consuming more alcohol than before the pandemic and 11% said that COVID-19 had a negative impact on their employment. Participants reported drinking more alcohol because they had more time (28%) or boredom (22%). Another important factor in alcohol consumption is social isolation. Social isolation is a major stress factor that can encourage increased alcohol consumption. In a cross-sectional study by Moura et al. (2021), 992 individuals were tested in self-isolation. A total of 68.5% of participants reported drinking during a pandemic and 22.7% reported increasing alcohol consumption. Alcohol consumption was associated with anxiety, similar to our study ( $p < 0.01$ ).

Our study was associated with several limitations that can affect the interpretation of the data. The questionnaire was distributed to students and their completion was voluntary. This may have prevented students with high or low alcohol consumption from filling in, thus affecting the overall outcome of the study. Alcohol consumption among students could also be affected by the financial situation and the availability of alcohol in families. The students reported the alcohol consumption data themselves, and it is not possible to prove the truth of the statements, and therefore some answers may be underestimated or overestimated. The cross-sectional nature of the study limits the ability to establish causality between alcohol consumption and quality of life. Longitudinal studies are needed to determine the direction of the relationship. The reliance on self-reported data for alcohol consumption and quality of life may introduce response bias. Participants might underreport or overreport their alcohol use and health status. The findings are study specific to college students in Slovakia and may not be generalizable to college students in other countries or to non-student populations. The study was conducted during the third wave of the COVID-19 pandemic, a period that might have influenced both alcohol consumption patterns and quality of life due to heightened stress and changes in social behavior (Martinez-Cao et al. 2021). The pandemic has resulted in many stressors, including social isolation (Banerjee and Rai 2020).

## Conclusion

Higher alcohol consumption was associated with a poorer quality of life in Slovak college students. Our results underscore the importance of addressing alcohol consumption in this population to potentially enhance their quality of life. The association between higher alcohol consumption and poorer quality of life in Slovak college students raises important questions about causality and the complex interplay between alcohol consumption and one's overall well-being. This relationship may be influenced by various factors such as mental health, social support, academic stress, and lifestyle choices, all of which warrant further investigation.

These findings could inform interventions aimed at improving health-related quality of life through alcohol use reduction strategies. University health services and policymakers should consider implementing comprehensive alcohol education and prevention programs that address the specific needs and challenges faced by college students. By reducing alcohol consumption, it may be possible to improve not only the immediate health outcomes but also the long-term quality of life for students.

The relationship between alcohol use and quality of life highlights a critical area for public health intervention. Addressing alcohol consumption among university students could lead to substantial improvements in their overall well-being and health-related quality of life.

## Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Received: 18 February 2024; Accepted: 14 October 2024;

Published online: 02 November 2024

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### Author contributions

ES and DL: conceptualization. ES and DL: methodology. ES: validation and supervision. EL: formal analysis. DL, MB, EL: investigation. DL, MB, ES, EL: writing. DL, MB, ES, EL: original draft preparation. DL, MB, ES, EL: writing—review and editing. EL and MB: project administration. All authors contributed to the article and approved the submitted version.

### Competing interests

The authors declare no competing interests.

### Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the ethics committee of Matej Bel University under number no. 2200/21.

### Informed consent

All participants agreed to participate in the study and consented to data processing before filling out the questionnaire.

### Additional information

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