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Does culture matter? Smoking and drinking among Mongolian and Hungarian adolescents

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ABSTRACT

Abstract
Frequencies and background variables of adolescent substance use vary across cultural and national boundaries which may raise the question of whether culture significantly impacts these behaviors. While trends of smoking and drinking are slowly decreasing in the European region, we know less about them in Central Asian countries, like Mongolia. Our cross-sectional study aims to examine adolescent substance use in two samples of Mongolian (N = 312, mean age = 16.85 years, 34.0% boys) and Hungarian (N = 320, mean age = 16.32 years, 49.4% boys) youth. Besides smoking and drinking, the questionnaire contained measures on social support, parental control, religiosity and SES self-assessment. Descriptive statistics reported not only a greater occurrence of substance use in Hungarian adolescents, but also a lack of gender differences as compared to Mongolian adolescents. While the role of familial support was stronger among Mongolian adolescents, parental control provided more protection for Hungarian youth. SES self-assessment and religiosity were not important correlates in either sample. Our findings highlight the need for considering both universal and specific cultural influences.

Kulcsszavak
Szerfogyasztás, Társas támogatás, Serdülők, Összehasonlító tanulmány

Absztrakt
Számít a kultúra? Szerfogyasztás mongol és magyar serdülők körében.
A serdülőkori szerfogyasztás gyakorisága és háttértényezői a kulturális és nemzeti határok szerint változnak, ami felveti a kérdést, hogy a kultúra befolyásolja-e ezeket a magatartásokat. Míg a dohányzás és az alkoholfogyasztás európai trendjei lassú csökkenést mutatnak, kevesebbet tudunk a közép-ázsiai országokról, mint pl.

Mongólia. Keresztmetszeti vizsgáltunkban két mintában megvizsgáltuk a serdülők szerfogyasztását: egy mongol (N = 312, átlagéletkor = 16,85 év, 34,0% fiú) és egy magyar (N = 320, átlagéletkor = 16,32 év, 49.4% fiú) mintában. A dohányzáson és alkoholfogyasztáson kívül mértük a társas támogatást, a szülői kontrollt, a vallásosságot, és a társadalmi helyzet önértékelését. A deskriptív statisztika nem csupán magasabb szerfogyasztási gyakoriságokról számolt be a magyar serdülők körében, hanem a nemi különbségek hiányáról is. Míg a családi társas támogatás a mongol fiatalok körében volt erősebb, a szülői kontroll több védelmet nyújtott a magyar serdülők számára. A vallásosság és a társadalmi helyzet egyik esetben sem volt fontos háttértényező. Az eredményeink megerősítik, hogy figyelembe kell venni az univerzális és a specifikus kulturális tényezőket is.

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Introduction

Adolescence is a pivotal period of development marked by increased vulnerability to initiating health-compromising behaviors, including tobacco use and alcohol consumption, which contribute significantly to long-term public health challenges (Sawyer and Afifi et al. 2012; LaSpada and Delker et al. 2020; Tinner and Caldwell et al. 2021; Hoteit and Hallit et al. 2024). Adolescents' engagement in risky behaviors raises their chances of experiencing health issues and may lead to higher rates of mortality later in adulthood (Maslowsky and Owotomo et al. 2019). The use of alcohol and tobacco among adolescents is associated with an increased risk of developing health problems, including cancer, respiratory and cardiovascular diseases, and neurological disorders (Hurley, Taylor and Tizabi 2012; Lee and Huang et al. 2021). Additionally, these substances are often linked to high-risk behaviors such as aggression, self-harm, driving under the influence, unprotected sexual activity, and a decline in academic performance (Lee and Huang et al. 2021).

Theories of culture offer valuable frameworks for understanding how cultural norms, social influences, and individual behaviors intersect to shape patterns of substance use. Ralph Linton (1938) defined culture as the sum total of the behavior patterns, attitudes and values shared and transmitted by the members of a given society. From the viewpoint of substance use, Heath (2001) emphasized that this pattern of beliefs and behaviors shapes the worldview of the members of a society, serving as a guide for a cognitive map for actions. This collection of ideas are passed down from one generation to the next but they are also open to change, especially in a globalized world. Nevertheless, the cultural

theories can contribute to the explanation of the social contexts of smoking and drinking (Macarthur, Hickman and Campbell 2020; Unger and Cruz et al. 2003). Cultural norms determine the level of social tolerance toward substance use in a given society, whether it is explicitly accepted, tolerated or prohibited (Kapitány-Fövény, 2019). Individuals adjust their behavior to others from their social network (e.g., through a pressure from peers), directed by the cultural norms of a society through these social influences (Moussaïd and Kämmer et al. 2013). The concept of Interpretative Phenomenological Analysis (IPA) is focused on understanding personal meanings, which are also strongly affected by cultural values and norms (Kassai, Pintér and Rácz 2017). Among cultural theories, we should also mention the concept of subcultures which represent their own unique set of values, norms, rules, interests, beliefs, practices and lifestyle choices, often characterized by common identity (Cutler 2006). From this viewpoint, youth form a special group within modern society with an own subculture that is called adolescent society by Coleman (1961). Cigarette and alcohol may usually serve as a symbolic representation of adulthood for them, also helping acceptance in a peer group; however, a negative attitude from the dominant culture can overwrite these tendencies (Poole and Carver et al. 2022).

The global issues of adolescent substance use vary across cultural and national boundaries, raising the question of whether culture significantly influences these behaviors (Johnston and Miech et al. 2022; Hoteit and Hallit et al. 2024). Thus, our cross-sectional study aims to examine adolescent substance use in Mongolia and Hungary, with particular emphasis on the cultural, social and familial factors that may influence it.

In terms of Hungary, adolescent substance use is exceptionally high in several categories, consistently exceeding the European average (Kraus and Seitz et al. 2018). For example, according to the European School Survey Project on Alcohol and Other Drugs (ESPAD) survey (ESPAD, 2020): Hungarian adolescents report the highest rates of lifetime alcohol use (over 90%) and recent alcohol consumption (61-74%) in Europe, with 18% daily smoking. Between 2015 and 2019, Hungary experienced an increase of five percentage points in current alcohol use, indicating a reversal of the previously declining trend (ESPAD 2020). Meanwhile, according to the results of Hungary's national report for the 2018 Health Behavior in School-Age Children (HBSC) survey (Németh and Várnai 2019; Varga-Tóth and Maróti-Nagy et al. 2019), the majority of adolescent girls started smoking at an average age of 13-14 years. Alcohol use is common among both sexes, with a notable increase between grades 7 and 9.

The three-month prevalence of drinking is 74.2% overall, with 76.6% of boys and 71.6% of girls reporting consumption. Additionally, 18.7% of adolescents reported having been drunk in the past 30 days (Németh and Várnai 2019). Also, a recent study (Dudok and Pikó 2023) revealed the following statistics about adolescent substance use: 22.3% of Hungarian adolescents reported having smoked at some point in their lives, while 15.6% indicated that they had smoked in the past three months. Additionally, 56.4% of students reported having consumed alcohol in their lifetime, and 50.7% stated that they had drunk alcohol in the last three months (Dudok and Pikó 2023).

Research on substance use among Mongolian adolescents is inadequately represented in international databases. Nevertheless, recent researchers are still trying to clarify whether the consumption of alcohol and tobacco by Mongolian adolescents has the same trend as in other countries in Central Asia or Europe. According to a study by Dashpuntsag and Chandaga et al. (2021), more than half of Mongolian adolescents and youth began drinking alcohol at the age of 16, while one in two people began drinking alcohol between the ages of 16 and 18 years. Also, in this study, it was mentioned that about 52% of students aged 15-19 years had tried alcohol at least once in their life, and a total of 30.8% of participants had experienced getting drunk at least once in their life (Dashpuntsag and Chandaga et al. 2021). Another survey conducted in Mongolia (Global Youth Tobacco Survey, GYTS 2019) reported that 7.5% of students were current tobacco smokers (4.8% cigarettes, 4.4% other products), while 8.2% used smokeless tobacco. Overall, 14.0% were current tobacco users, and 53.2% had ever used tobacco. E-cigarette use was reported by 3.5% of students currently, with 10.1% reporting having used e-cigarettes at least once (WHO n.d.). First and foremost, while Mongolian adolescents' substance use rates are lower than the Hungarian average, it is imperative to maintain ongoing monitoring of these trends.

Comprehending the differences in adolescent substance use and recognizing cross-cultural differences is crucial for developing effective public health interventions. Following from a previous cross-national studies, that indicated several differences in occurrence of and contributors to adolescent smoking and drinking (Piko and Luszczynska et al. 2005; Piko, Fitzpatrick and Wright 2005; Piko, Wills and Walker 2007), the present research investigates their prevalence rates and several culturally influenced social and parenting behaviors in Hungary and Mongolia. While Hungary could be described as Western in political and economic orientation (as part of the European Union), Mongolia belongs is a

Central Asian country, considerably differing from the European countries in size, socioeconomic characteristics, historical traditions and language. However, due to globalization, besides cultural variations, similarities may also happen, especially in highly globalized urban youth.

A notable example of cultural influence on substance use within various countries is observed in gender norms. In the case of Mongolia, the significantly higher smoking rate among Mongolian men (46.3%) compared to women (6.8%) indicates that gender norms heavily influence tobacco use. This disparity suggests a strong cultural link between smoking and masculinity. In contrast, women's smoking in Mongolian society may be influenced by traditional attitudes and cultural factors that contribute to feelings of shame and inferiority (Demaio and Nehme et al. 2014; Urbaeva, 2019). Several studies in Hungary have shown less influence of gender norms and social expectations on substance use among adults (Kékes and Barna et al. 2019) as well as among adolescents (Dudok and Pikó 2023). The high occurrence among females may be explained by an elevated stress level and ineffective coping, but also the greater tolerance of modern societies towards emancipation (Al-Natour, Gillespie and Alzoubi 2021). Although alcohol use has been less tolerated among women in general, gender differences are also often attributed to the country's traditional social orientation and cultural factors (Pikó, Wills and Walker 2007; Lesińska-Sawicka, Pisarek and Nagórska 2021). Further, parental monitoring and family support play a vital role in preventing substance use among adolescents (Schwinn and Schinke 2014; Hurley, Dietrich and Rundle-Thiele 2019; Ningrum, Rasni and Kurdi 2025). Adolescents, who abstained from smoking and alcohol, often reported higher levels of family support, which included parental guidance, open communication on health-related issues, and serving as positive role models (Gordon, Russell and Finan 2019). Similarly, Hungarian adolescents reported high levels of parental monitoring and strong communication with parents, which were also associated with lower rates of substance use (Lenciauskiene and Zaborskis 2008; Balázs, Pikó and Fitzpatrick 2017). The role of socioeconomic status (SES) in adolescents in western societies is less than it can be found in adults (Moor and Rathman et al. 2015; Balázs and Pikó 2016; Armstrong-Carter and Kwon et al. 2025), but we know less about it in Central Asian populations. Finally, religion traditionally has been a strong protective factor against substance use; however, due to a decreasing rate in religiosity among adolescents, it may loose its protective role in modern society (Yeterian, Bursik and Kelly 2014).

Recognizing and addressing these cultural and social determinants is essential for the development of effective, evidence-based public health interventions. Continued surveillance and culturally informed prevention strategies are imperative to mitigate the long-term health risks associated with adolescent substance use. Based on the literature reviewed above, the aim of our study is to make a cross-cultural comparison of Hungarian and Mongolian adolescents in a) prevalence rates of smoking and drinking and b) the roles of culturally relevant factors for these behaviors, such as gender, SES self-assessment, religiosity, social support from family and peers, and parental monitoring. We hypothesize not only a greater occurrence of substance use in Hungarian adolescents, but also a lack of gender differences as compared to Mongolian adolescents. In terms of the roles of contributing factors, we hypothesize both similarities (due to globalization and secularization) and cultural variations (due to specific cultural characteristics).

Materials and methods

Sample and procedure

Using samples from two culturally distinct youth populations, our study examines urban adolescents from Szeged, Hungary and Ulaanbaatar Mongolia (hometowns of the authors). While Ulaanbaatar is the capital of Mongolia, Szeged is the third largest tow in Hungary, both representing urban settings which qualifies them for comparison.

The sample of Mongolian adolescents consists of 312 secondary school students in Ulaanbaatar and Provinces aged 15 to 18 years (mean age was 16.85 years, SD = 1.04; 106 boys: 34.0% and 206 girls: 66.0%), who were selected through a cluster sampling method. The research has obtained ethical approval from the Institutional Review Board (IRB) of the Doctoral School of Education at the University of Szeged on October 14, 2023 (Reference number: 18/2023). Data collection occurred in paper-based form. Prior to participation, all students were provided with an abridged synopsis of the study's objectives and the voluntary nature of their involvement, assured anonymity and confidentiality of their responses. Participants previously provided written informed consent from a parent or legal guardian. Questionnaires were administered during regular school hours in classroom settings under the supervision of trained researchers to maintain privacy and consistency. Upon completion, the questionnaire was

placed in an envelope and sealed to protect the confidentiality of each student's responses.

The sample of Hungarian adolescents consists of 320 secondary school students aged 15 to 18 years (mean age was 16.32 years, SD = 1.06; 158 boys: 49.4% and 162 girls: 50.6%). The participants were randomly selected from Szeged Youth Study 2022. The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of the Doctoral School of Education, University of Szeged, Hungary (Reference number: 6/2022). Informed consent was obtained from all subjects involved in the study. Data were collected in the computer labs during different classes for the students through an online survey using Google drive forms with help of local teachers. Participation in the study was voluntary and anonymous. The questionnaire took approximately 25–30 min. to complete.

The questionnaires were delivered to students on their own languages (Hungarian and Mongolian), using English as intermediary language for the researchers. In addition to the questions derived from international surveys, culturally validated psychological scales were used in both settings. The two questionnaires were not completely the same. While several measurements were common, there were also altered items, thus we included only selected variables in the comparative analysis.

Measurements

Beyond sociodemographic characteristics (age, gender and SES self-assessment, religiosity), the questionnaire contained measurements on prevalence of smoking and drinking, and several psychological variables, among others, social support. SES self-assessment as a subjective measure evaluated the family's financial situation in comparison to an estimated average. Responses varied from 'among the worst' (1) to 'highly among the best' (7). In addition, we also asked the students: "How important or unimportant is religious faith in shaping how you live your daily life?" with a response scale from 1 (not at all) to 7 (very important). These evaluations were adapted from the European School Survey Project on Alcohol and Other Drugs (ESPAD) (ESPAD 2020).

Occurrence of substance use was adapted from the methodology of the Health Behavior in School-aged Children (HBSC) study (Inchley and Currie et al. 2018). In the current study, prevalence rates of smoking and drinking were measured in a dichotomized format (monthly and lifetime prevalence: No/Yes).

Measurement of social support included the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet and Dahlem et al. 1988). In this

study, two subscales were applied: social support from family and friends, both of them containing four items, e.g., "I can talk about my problems with my family" (family support) or "I can talk about my problems with my friends" (friend support). Adolescents indicated how strongly they agree with the statements. Responses varied on a five-point Likert-type scale from 'strongly disagree' (1) to 'strongly agree' (5). Higher scores suggest more social support. These subscales were reliable with the following Cronbach alphas: family support (α = .93); friend support (α = .95) – for the Mongolian sample; and family support (α = .94); friend support (α =.96) for the Hungarian sample.

Parental supervision was measured in two different ways. In the Hungarian survey, it was measured by a composite variable of two items, whether the parents set a curfew and they know where their children are when going out with friends, which has been adapted from previous Szeged Youth Studies (Pikó, Kovács and Fitzpatrick 2009). In the Mongolian survey, the direct monitoring subscale of the Parental Monitoring Instrument was applied (Cottrell and Branstetter et al. 2007). This scale contains three items about the parents' knowledge of their children's planned activities (Cronbach's alpha = .90).

Results

Table 1 presents significant differences in substance use prevalence between Mongolian and Hungarian adolescents. As indicated by chi-square tests, there is a relationship between each type of substance use and the country. The lifetime prevalence of smoking was significantly higher among Hungarian adolescents compared to Mongolian adolescents (χ^2[1, n=632]=29.27, p<.001). Additionally, Hungarian adolescents reported significantly higher monthly smoking rates (χ^2[1, n=632]=28.15, p<.001). In terms of alcohol use, Hungarian adolescents reported significantly higher lifetime alcohol consumption (χ^2[1, n=632]=259.16, p<.001), as well as higher monthly alcohol use (χ^2[1, n=632]=114.34, p<.001), compared to their Mongolian peers.

Table 1: Comparison of substance use prevalences among Mongolian and Hungarian adolescents.

Variables	Mongolian adolescents (N = 312) n (%)	Hungarian adolescents (N = 320) n (%)	Chi-square tests
Lifetime prevalence of smoking			$\chi^2 = 29.267$ $p < .0001$
No	219 (70.2)	157 (49.1)	
Yes	93 (29.8)	163 (50.9)	
Monthly prevalence of smoking			$\chi^2 = 28.147$ $p < .0001$
No	271 (86.9)	222 (69.4)	
Yes	41 (13.1)	98 (30.6)	
Lifetime prevalence of drinking			$\chi^2 = 259.159$ $p < .0001$
No	235 (75.3)	38 (11.9)	
Yes	77 (24.7)	282 (88.1)	
Monthly prevalence of drinking			$\chi^2 = 114.344$ $p < .0001$
No	277 (88.8)	158 (49.4)	
Yes	35 (11.2)	162 (50.6)	

Table 2 illustrates the examination of gender disparities in substance use among adolescents across two countries. In Mongolia, boys reported significantly higher lifetime smoking rates compared to girls (χ^2[1, n=312]=16.20, p<.001). Additionally, boys exhibited a higher prevalence of monthly smoking (χ^2[1, n=312]=4.61, p<.05). This means that there is a relationship between smoking and gender among Mongolian adolescents. However, no substantial gender differences were observed in either lifetime or monthly alcohol use, thus alcohol use is not related to gender, in contrast with smoking. On the other hand, among Hungarian adolescents, there were no significant gender differences identified in any type of the substance use variables. Lifetime smoking rates did not significantly differ by gender (p=.655), and the same was true for monthly smoking (p=.546). Furthermore,

both lifetime (p=0731) and monthly (p=.824) alcohol usage did not show significant differences between boys and girls.

Further, we analyzed associations between substance use and several social and psychological variables. As shown in Table 3, the following significant correlations among Mongolian adolescents regarding substance use should be highlighted. Lifetime smoking was positively correlated with monthly smoking (r=.60, p<.001), lifetime drinking (r=.37, p<.001), and monthly drinking (r=.21, p<.001). Conversely, lifetime smoking was negatively correlated with being female (r=-.23, p<.001). Furthermore, monthly smoking showed a positive correlation with lifetime drinking (r=.41, p<.001), monthly drinking (r=.28, p<.001) and religiousness (r=.12, p<.05). It was also negatively correlated with social support from family (r=-.12, p<.05) and being female (r=-.12, p<.05). Although parental control did not relate to any type of substance use, it was significantly and positively correlated with self-assessment of socioeconomic status (SES) (r=.25, p<.001), social support from family (r=.48, p<.001), and social support from friends (r=.34, p<.001).

In the case of Hungarian adolescents (see Table 4), lifetime smoking showed a strong positive correlation with monthly smoking (r=.65, p<.001), and moderate associations with lifetime drinking (r=.30, p<.001), and monthly drinking (r=.42, p<.001). It was negatively associated with parental control (r=-.22, p<.01) and social support from family (r=-.13, p<.05). Monthly smoking displayed similar trends, with positive correlations to drinking variables and a negative correlation with parental control (r=-.19, p<.01). Additionally, parental control was positively correlated with self-assessment of socioeconomic status (SES) (r=.17, p<.05), social support from family (r=.34, p<.001), and social support from friends (r=.24, p<.001). Despite religiousness does not showing any protective role in substance use, it was positively correlated with social support from family (r=.12, p<.05).

Table 2: Substance use prevalences by gender among Mongolian and Hungarian adolescents.

	Mongolian adolescents (N = 312)			**Hungarian adolesents (N = 320)**		
Variables	Boys n (%)	Girls n (%)	Chi-square tests	Boys n (%)	Girls n (%)	Chi-square tests
Lifetime prevalence of smoking			$\chi^2 = 16.204$ $p < .001$			$\chi^2 = 0.308$ $p = .655$
No	59 (55.7)	160 (77.7)		80 (50.6)	77 (47.5)	
Yes	47 (44.3)	46 (22.3)		78 (49.4)	95 (52.5)	
Monthly prevalence of smoking			$\chi^2 = 4.613$ $p = .035$			$\chi^2 = 0.402$ $p = .546$
No	86 (81.1)	181 (91.4)		107 (67.7)	115 (71.0)	
Yes	20 (18.9)	18 (10.2)		51 (32.3)	47 (29.0)	
Lifetime prevalence of drinking			$\chi^2 = 2.62$ $p = .127$			$\chi^2 = 0.183$ $p = .731$
No	74 (69.8)	161 (78.2)		20 (12.7)	18 (11.1)	
Yes	32 (30.2)	45 (21.8)		138 (87.3)	144 (88.9)	
Monthly prevalence of drinking			$\chi^2 = 1.387$ $p = .259$			$\chi^2 = .051$ $p = .824$
No	91 (85.8)	186 (90.3)		77 (48.7)	81 (50.0)	
Yes	15 (14.2)	20 (9.7)		81 (51.3)	81 (50.0)	

Table 3: Correlation matrix of study variables among Mongolian adolescents.

	2	3	4	5	6	7	8	9	10
1. Lifetime prevalence of smoking	.60***	.37***	.21***	-.04	-.08	-.10	-.06	.08	-.23***
2. Monthly prevalence of smoking	-	.41***	.28***	-.01	-.08	-.12*	-.01	.12*	-.12*
3. Lifetime prevalence of drinking		-	.60***	-.06	-.02	-.10	.02	-.07	-.09
4. Monthly prevalence of drinking			-	-.09	-.05	-.17***	-.08	-.08	-.07
5. Parental control				-	.25***	.48***	.34***	.03	.10
6. SES self-assessment					-	.23***	.13*	.05	.08
7. Social support from family						-	.73***	.01	.07
8. Social support from friends							-	-.01	.04
9. Religiousness								-	-.08
10. Sex (female =2)									-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4: Correlation matrix of study variables among Hungarian adolescents.

	2	3	4	5	6	7	8	9	10
1. Lifetime prevalence of smoking	.65***	.30***	.42***	-.22**	.01	-.13*	-.02	.03	.03
2. Monthly prevalence of smoking	-	.18**	.42***	-.19**	-.05	-0.08	-.01	.05	-.03
3. Lifetime prevalence of drinking		-	.37***	-.09	.02	-0.08	.01	-.03	.02
4. Monthly prevalence of drinking			-	-.11	.05	-0.02	.15*	.14*	-.01
5. Parental control				-	.17*	.34***	.24***	.04	.19*
6. SES self-assessment					-	.31***	.14*	.03	-.04
7. Social support from family						-	.48***	.12*	-.08
8. Social support from friends							-	-.07	.08
9. Religiousness								-	.02
10. Sex (female =2)									-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

Conclusion

Our cross-cultural study found significant differences in the prevalence of adolescent substance use between Hungarian and Mongolian samples. Hungarian adolescents reported higher rates of both smoking and alcohol consumption, showing that it might be a more permissive social environment and potentially weaker protective cultural norms against such behaviors (Kékes and Barna et al. 2019; Németh and Várnai 2019; Varga-Tóth and Maróti-Nagy et al. 2019). These health risk behaviors are traditionally frequent in Hungary's population (Kopp and Kovács 2006): although the trends are slowly decreasing, they are still considerably high in prevalence compared to western European countries. These trends reflect the East-West gap within the European regions: in the "Eastern" European regions the decline from high levels of substance use began later and less pronounced compared to the "Western" European regions (Kraus and Seitz et al. 2018). In contrast with these data, the Mongolian prevalence rates mirror the Central Asian trends which are still much lower than those in Europe (Charrier and van Dorsselaer et al. 2024; Dashpuntsag and Chandaga et al. 2021). In the HBSC (Health Behavior in School-aged Children) studies, only few countries have been involved (excluding Mongolia), and in comparison with the European region, Kazakhstan, Kyrgyzstan and Tajikistan showed significantly lower substance use than most others across genders and age groups (Charrier and van Dorsselaer et al. 2024).

In contrast with these findings, substance use among Hungarian adolescents seems to be less affected by gender, suggesting changing social perceptions and an increasing societal acceptability of such habits. Conversely, Mongolian adolescents exhibited lower prevalence rates, particularly in smoking, reflecting a more substantial influence of traditional gender roles and cultural norms (Demaio and Nehme et al. 2014). Also, substance use among Mongolian girls remains relatively low, likely due to long-standing traditional beliefs about genders (Even 2015). Consequently, our hypotheses on the greater occurrence of substance use in Hungarian adolescents as well as the lack of gender differences have been confirmed.

These findings suggest that we should take into account the importance of social and cultural contexts of where the adolescents' lifestyles are shaped. The culture of Central Asian countries is strongly influenced by postsocialist norms

and traditional values, resulting lower rates of smoking and drinking in these countries (Cockerham and Hinoteet al. 2006; Cockerham, Hinote and Abbott 2006). The lower rates of smoking and drinking in Central Asian countries may be also explained by a combination of cultural, religious, and socioeconomic factors (Demaio and Nehme et al. 2014; Ibrayeva and Shoranov et al. 2025). These may include traditional values related to strong family ties or socioeconomic barriers like limited income and the high cost of alcoholic beverages. In urban settings, more people have higher-skilled occupations than those in rural settings, also contributing to lower rates of smoking and drinking. The traditional gender roles are more relevant in Central Asian countries as compared with the Western countries of Europe (Cockerham, Hinote and Abbott 2006) which can limit exposure to cigarettes and alcohol among females and also participation in social activities involving substance use. The traditional gender roles are influenced by both nomadic and agrarian lifestyles and Soviet-era policies, also by Islamic traditions in some places, like Kazakhstan, where still a woman is responsible for childcare and domestic duties, and a man has dominant roles as the household head and main income earner (Urbaeva, 2019).

Among sociocultural background variables influencing the prevalence rates of adolescent smoking and drinking, the parents' role seems pivotal (Schwinn and Schinke 2014; Hurley, Dietrich and Rundle-Thiele 2019; Ningrum, Rasni and Kurdi 2025). There is evidence that parental modeling of substance use or the parents' disapproval of their children's substance use as well as the quality of their relationships may be related to smoking and drinking in adolescents (Balázs and Pikó 2016). Among the Mongolian adolescents, results are in line with these concepts: both the monthly prevalence rates on smoking and drinking are negatively correlated with social support received from the family. It can be explained by the greater impact of family guidance on children's behavior, stemming from the traditional family values and child obedience as a social norm. This finding suggests that Mongolian adolescents are still willing to accept parental instructions on the basis of respect. Previous studies also emphasized the role of parental guidance in adolescent substance use (Gordon, Russell and Finan 2019). In the Hungarian sample, only lifetime prevalence of smoking shows a weak negative association. We need to know more about timely changes in parental behaviors to explain the lowered protection from this resource in Hungary. In contrast with these findings, parental control seems to play a much greater role in preventing Hungarian adolescents from smoking (but not from drinking). In a previous cross-cultural comparison with Hungarian and

US adolescent samples also described that parental control was a strong contributor to adolescent problem behavior in both countries (Piko, Fitzpatrick and Wright 2005). It may be related to a lower level of trust between adolescents and their parents, and necessity of parental monitoring due to the weaker family ties in modern Western societies (Schout and De Jong 2018).

The level of religiousness did not provide protection against adolescent substance use in none of these samples. Although traditionally religiousness was a protective factor, the recent declining trends might limit its preventive role (Yeterian, Bursik, and Kelly 2014). Our findings suggest that this is a common feature of both societies, stemming from globalization, and post-socialist values. While in some countries of Central Asia the Islam religion is a dominant one, in Mongolia, most people are non religious or follow Buddhism and shamanism, however, religion plays a limited role in everyday life and children's socialization (Even 2015).

Among the familial variables, the family's socioeconomic status may also have a role in adolescent substance use, especially related to smoking (Moor and Rathman et al. 2015; Balázs and Pikó 2016; Armstrong-Carter and Kwon et al. 2025). In this study, we cannot see significant relationships between SES self-assessment and adolescent substance use either in the Hungarian, or in the Mongolian sample. However, the perceived familial affluence was positively associated with parental control and social support from family and friends. A German study reported an inverse relationship between social support and socioeconomic status: poor social networks and low social support were found more frequent among socio-economically disadvantaged groups of people (Weyers and Dragano et al. 2008). Thus, our findings support also similarities in the background variables of adolescent smoking and drinking, but overall, more differences have been justified.

The strength of this paper is to highlight some relevant findings of a cross-cultural comparison which is a unique opportunity to detect similarities and differences between with Mongolian and Hungarian adolescents' substance use. We know much less about Mongolian adolescent behaviors as they have not been included in international surveys thus far. Using the same or similar measurements reassured us to compare data across cultures. However, we should also note here about the limitations. First, our exploratory study is based on only descriptive statistics and bivariate analyses; an elaborated study would provide a more complex understanding into the background variables of adolescent smoking and drinking. Due to the restricted number of common

variables we can only make comparisons only in limited fields. In addition, the cross-sectional nature of the study does not allow us to justify cause-and-effect relationships between variables. All in all, we really think these data highlight some relevant results on adolescent substance in light of culture.

Summary

This research investigates differences and similarities in the prevalence rates and background variables of adolescent substance use, applying two samples of Hungarian and Mongolian adolescents. The study focuses on smoking and drinking, and other variables, such as social support, religiousness, parental control, and SES self-assessment.

Our comparative analysis reveales not only a greater occurrence of substance use in Hungarian adolescents, but also a lack of gender differences as compared with Mongolian adolescents. In addition, several cultural differences were also detected in the role of psychosocial factors. While the role of familial support was stronger among Mongolian adolescents, parental control provided more protection for Hungarian youth. SES self-assessment and religiosity were not important correlates in either sample. The lower rates of smoking and drinking in Central Asian countries may be also explained by a combination of cultural, religious, and socioeconomic factors. We also assume a higher awareness of health risks related to addictions among urban inhabitants, however, more research is needed to clarify this hypothesis. The traditional gender roles are more relevant in Central Asian countries as compared with Western countries of Europe. While in selected Central Asian countries where Islam is a dominant religion, alcohol consumption is discouraged, in Mongolia the practice of Islam religion is rare. The decline of religion and its role in providing protection against substance use is a common feature due to secularization and globalization processes and also the postsocialist traditions in both countries.

We can conclude that despite common features, culture does matter in a comparison of adolescents from two distinct cultural settings, like Hungary and Mongolia. These findings of our study highlight the need for culturally appropriate public health strategies that consider both universal and specific cultural influences on adolescent health behaviors. Future public health prevention programs should address cultural attitudes, gender norms, and emerging social values and increase family and community involvement.

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