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# Attitudes towards alcohol consumption and related behaviours among inhabitants of Kępno district in Poland

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#### **ABSTRACT**

**Introduction:** Excessive drinking habits increase health-related, social and financial costs. This study aims to assess the alcohol-related behaviour and frequency of alcohol consumption in the inhabitants of the Kepno district in Poland.

Material and methods: Study subjects included 299 inhabitants of the Kepno district in Poland consisting of 177 women (59.2%) and 122 men (40.2%) with the age range of 18-73 years and 19-69 years, respectively. The study was carried out anonymously in 2019 using a questionnaire employed in the direct interview method.

Results: A total of 78.6% of participants were found to be currently drinking alcohol, 10.7% were not drinking alcohol at present and 12.7% had never drunk alcohol. The majority of respondents initiated drinking alcohol between 13 and 18 years of age. People from rural areas started drinking alcohol significantly earlier; more than half first consumed alcohol before the age of 15. About half of the subjects drank no more than 4 units of alcohol during a typical day of alcohol consumption. A total of 41.3% of people aged 43-70 years consumed 7-9 units of alcohol during a typical day compared to only 23.9% of the youngest respondents. A total of 60% of participants consumed alcohol several times a year regardless of sex, age and place of residence. Rates of alcohol being consumed a few times per month were slightly higher in men than women (18.3% vs. 15.4%, respectively).

Conclusions: Healthy lifestyle should be promoted, highlighting the harm caused by alcohol drinking at primary and secondary schools because of the concern over the early age of alcohol initiation in the Kepno district, in particular with attempts to target adolescents living in rural areas. Taking into account the trends in the study group, special attention should be paid to women and the population of the oldest people.

KEY WORDS: alcohol, risk factors, inhabitants of Kepno.

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#### INTRODUCTION

Alcohol consumption is associated with many adverse health consequences such as increased risk of cancer, liver cirrhosis or cardiovascular diseases, including stroke. The Global Burden of Disease Study (GBD) analysed 34 risk factors and confirmed that

the greatest modifiable risk factor for cancer is tobacco (33.9%), followed by alcohol (7.4%) [1]. Excessive drinking habits increase health-related, social and financial costs. Moreover, excessive alcohol consumption can also lead to death and disability sustained through injuries, accidents, assaults and violence. Alcohol abuse led to

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the death of 140,000 people in 2019 alone [2]. The Eastern European region has one of the highest disease burden rates resulting from alcohol consumption as well as alcohol-use derived disorders [3]. According to OECD (Organization for Economic Co-operation and Development) data, by 2050 the average life expectancy in Poland will be shorter by 1.6 years, due to diseases and injuries caused by alcohol drinking [4].

Consuming alcohol is a well-known part of social life and cultural behaviour in many societies, including Polish. Registered alcohol consumption is defined as the annual sales of pure alcohol in litres per person aged 15 years and over [5]. Harmful and excessive alcohol consumption is common. According to the World Health Organization (WHO), 2.3 billion people worldwide are current alcohol drinkers [6]. A study performed by the OECD in 52 countries (OECD, EU and G20 members) in 2021 demonstrated that 3.7% of the population is addicted to alcohol, constituting around 50 million people, and 30% of adults get drunk at least once a month, whilst every fifth teenager has been drunk before the age of 15 [4]. The study found that 10 litres of pure alcohol per person (i.e. 2 bottles of wine or almost 4 litres of beer) was consumed per week by the inhabitants of OECD countries in 2018. The average for the European Union countries was 11.3 litres per capita, whereas it was 7.9 litres per capita in the G20 countries - almost 3.5 litres less [4].

Data from the State Agency for Solving Alcohol Problems (PARPA) showed that almost 12% of adults in Poland abuse alcohol. Consumption of spirits has also been growing (calculated as the amount of pure alcohol) from 28.3% in 2000 to 37.8% in 2019. The PARPA has additionally shown that the average annual consumption of spirits, wine and beer in 2021 per capita was respectively 3.8 l, 6.7l, and 92.7 l [7, 8].

The problem of alcohol abuse is recognised all over the world and the WHO management board thus issued an Action Plan (2022-2030) document during the World Health Assembly in May 2022 aimed at effectively implementing this global strategy for reducing the harmful use of alcohol [9]. An important aspect is the age of alcohol drinking initiation, the constant trend in a decreasing age of alcohol initiation all over the world that adversely effects the nervous system and habits of adolescents and that can lead to a greater propensity for drinking alcohol in adulthood [10]. This study aims to assess the alcohol-related behaviour and frequency of alcohol consumption in the inhabitants of the Kepno district in Poland.

### **MATERIAL AND METHODS**

#### MATERIAL

The survey study was conducted in 2019. Study subjects included 299 inhabitants of the Kępno district in Poland consisting of 177 women (59.2%) and 122 men (40.2%) with the age range of 18-73 years and 19-69 years, respectively. Most respondents had secondary

education: 61.6% of women and 72.1% of men. Half of the participants lived in the city (50.5%), of whom 54.8% were women and 44.3% men. There were no statistically significant differences between male and female subjects in terms of age, level of education or place of residence (Appendix Table 1).

#### **STUDY TOOLS**

The study was carried out anonymously among the inhabitants of the Kepno district in 2019 using the direct interview method. The research tool was a questionnaire which included the following questions regarding attitudes towards drinking alcohol:

- 1) At what age did you first try alcohol?
- 2) How often do you drink alcohol?
- 3) How many standard drinks containing alcohol do you typically consume on one occasion?

For the first question, the respondent could choose between: 'I have never tried/drunk alcohol' when aged 'under 9', '9-12', '13-15', '16-18' or 'over 18' years. The choices for the second question were between 'I don't drink alcohol', 'I drink several times a year', 'a few times a month', 'once a week', 'a few times a week' and 'almost every day'. The third question included a definition of a standard unit of alcohol contained in alcoholic beverages, i.e. 10 g of pure alcohol is contained in approximately 250 ml of 5% alcohol beer (half a bottle), in 100 ml of 12% alcohol wine (one wineglass) and in about 30 ml of 40% vodka (one small vodka shot). The subjects could choose between: 'I don't drink alcohol', '1-2 units', '3-4 units', '5-6 units', '7, 8 or 9 units' and '10 or more'.

#### **METHODS**

A database was established based on the collected replies to the survey questionnaires. Three research groups were created for detailed analyses.

Group 1: People currently drinking alcohol, consisting of 229 subjects who had given any one of the answers 'almost every day, several times a week, once a week, several times a year or several times a month' to the question 'How often do you drink alcohol?'

Group 2: Those currently not drinking alcohol, of whom 32 subjects had answered 'I do not drink alcohol' to the question 'How often do you drink alcohol?' and had responded to the question 'At what age did you try alcohol for the first time?' by giving their age of alcohol initiation.

Group 3: Subjects who had never drunk alcohol (n = 38), who replied to the question 'How often do you drink alcohol?' with 'I don't drink alcohol'.

Because of the relatively low number of subjects in groups 2 and 3 (those currently not drinking alcohol and those never drinking alcohol, respectively), their data were combined for the purposes of performing comparisons with group 1 (i.e. people currently drinking alcohol), when regarding attitudes towards alcohol drinking.

Respondents' age in group 1 differed significantly from a normal distribution (K-S test, d = 0.111, p < 0.01), Lilliefors test (p < 0.001), Shapiro-Wilk test (W = 0.953, p = 0.0001)), when divided into age groups; therefore percentiles of 33.3% and 66.7% were adopted and three age groups created: 18-30 years, 31-42 years and 43-73 years.

The ANOVA (analysis of variance) was used to assess the relationship between socio-demographic factors and alcohol consumption in the Statistica 13.1 software. A level of p < 0.05 was taken to be statistically significant.

The number of alcohol abstainers was low, with women slightly predominating.

Alcohol drinking initiation – the vast majority (90%) of subjects started drinking at ages 13-18 years.

Over half of the subjects living in rural areas first consumed alcohol before the age of 15 compared to just over a third of urban residents.

#### **RESULTS**

#### **DRINKING PREVALENCE**

Seventy nine (78.6) percent of subjects were found to be currently drinking alcohol, 10.7% who did not drink alcohol at present and 12.7% who had never drunk alcohol.

Group 1: Subjects currently drinking alcohol were aged 18-73 years and nearly 60% were women. Most had a higher education, and more than half were city dwellers (Appendix Table 2).

Group 2: Subjects currently not drinking alcohol were aged 20-60 years and over half were women and urban dwellers. Most people currently not drinking alcohol had secondary education (Appendix Table 2).

Group 3: People who never drink alcohol were aged 22-69 years, of whom 60.5% were women, 55.3% were town dwellers and 60.5% had secondary education (Appendix Table 2).

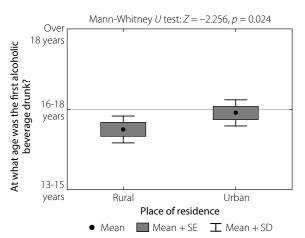
There were no statistically significant differences between the study groups in terms of age, gender, level of education or place of residence (Appendix Table 2).

#### AGE OF ALCOHOL INITIATION

This variable was determined for all 269 subjects, including those 32 who stated they did not currently drink alcohol. It was extremely rare to start drinking alcohol before the age of 13. The vast majority of respondents stated that they had initiated drinking alcohol between 13 and 18 years of age. There were however no statistically significant differences in the age of alcohol initiation between women and men (Appendix Table 3).

People from rural areas started drinking alcohol statistically significantly earlier; more than half had first consumed alcohol before the age of 15, compared to just over a third of urban residents (Figure 1).

The age of alcohol initiation was also investigated in those 229 subjects who reported drinking alcohol, according to their levels of education and age. It was found that the vast majority of respondents drank alco-



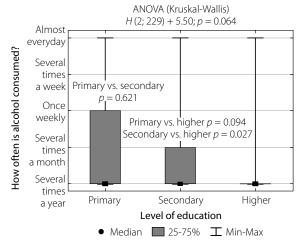
**FIGURE 1.** Age of alcohol drinking initiation according to place of residence and significance testing

hol for the first time at ages 13-18 (Appendix Table 4), irrespective of their education levels and current age.

#### FREQUENCY OF ALCOHOL CONSUMPTION

Over 60% of participants consumed alcohol several times a year in the n=229 group (i.e. those drinking alcohol), regardless of sex, age and place of residence. Rates of alcohol being consumed a few times per month were slightly higher in men than women (18.3% vs. 15.4%, respectively). They were likewise slightly higher for those aged 43-73 and 18-30 years compared to subjects aged 31-42 (respectively: 17.3%, 16.9% vs. 15.5). Such differences were however not statistically significant (Appendix Table 5).

The only significant differences in frequencies of alcohol consumption were found when education levels were investigated. Half of those with higher education reported drinking alcohol several times a year, whilst half with sec-



**FIGURE 2.** Frequency of alcohol consumption in studied subjects drinking alcohol according to education level and significance testing (Kruskal-Wallis) and multi-comparisons using post-hoc testing

TABLE 1. Amounts of consumed alcohol in the studied subjects according to sex and age

Amounts	Sex		<i>p</i> -value			<i>p</i> -value			
of consumed alcohol	Women, n = 136	Men, n = 93		18-30, n = 83	31-42, n = 71	43-73, n = 75			
How many units of alo	How many units of alcohol are drunk during a typical week? (n) %								
1-2 units (1)	(14) 10.3	(5) 5.4		(8) 9.6	(5) 7.0	(6) 8.0			
3-4 units (2)	(59) 43.4	(43) 46.2		(38) 45.8	(37) 52.1	(27) 36.0			
5-6 units (3)	(15) 11.0	(13) 14.0	0.558	(8) 9.6	(11) 15.5	(9) 12.0	0.511		
7-9 units (4)	(44) 32.4	(31) 33.3		(27) 32.5	(17) 23.9	(31) 41.3			
10 and over (5)	(4) 2.9	(1) 1.1		(2) 2.4	(1) 1.4	(2) 2.7			
Me (Q1-Q3)	2 (2-4)	2 (2-4)	0.709	1 (1-2)	1 (1-2)	1 (1-2)	0.688		

Me - median (50%), Q1 - lower quartile (25%), Q3 - upper quartile (75%).

TABLE 2. Amounts of consumed alcohol in the studied subjects according to place of residence and education

Amounts Place		Place of residence		Education			<i>p</i> -value	
of consumed alcohol	Rural, n = 117	Urban, n = 112		Primary, n = 16	Secondary, n = 152	Higher, n = 61		
How many units of alcohol are drunk during a typical week? (n) %								
1-2 units (1)	(11) 9.4	(8) 7.1		(2) 12.5	(13) 8.6	(4) 6.6		
3-4 units (2)	(52) 44.4	(50) 44.6		(7) 43.8	(68) 44.7	(27) 44.3		
5-6 units (3)	(16) 13.7	(12) 10.7	0.489	(1) 6.3	(19) 12.5	(8) 13.1	0.186	
7-9 units (4)	(34) 29.1	(41) 36.6		(5) 31.3	(52) 34.2	(18) 29.5		
10 and more (5)	(4) 3.4	(1) 0.9		(1) 6.3	(0) 0.0	(4) 6.6		
Me (Q1-Q3)	2 (2-4)	2 (2-4)	0.602		2 (2-4)	3 (2-4)	0.787	

Me – median (50%), Q1 – lower quartile (25%), Q3 – upper quartile (75%).

ondary education drank alcohol more often, ranging from several times a month to several times a year (Figure 2). People with primary education were drinking even more often, (from several times a week to several times a year), but due to their small number (n = 16), the differences were not significant (p > 0.05).

#### AMOUNTS OF ALCOHOL CONSUMED

About half of the subjects drank no more than 4 units of alcohol during a typical day that alcoholic beverages were being consumed irrespective of sex, age, place of residence and education (Tables 1 and 2). Despite no statistically significant differences, it is worth noting that 41.3% of people aged 43-70 years consumed 7-9 units of alcohol during a typical day compared to only 23.9% of the youngest respondents. The same amount of alcohol drinks were consumed by 33.3% of men and 32.4% of women, 36.6% of urban residents and 29.1% of rural residents (Tables 1 and 2).

#### DISCUSSION

This study presents data on alcohol consumption patterns of participants living in the Kępno district in Poland broken down according to socio-demographic factors and age of alcohol initiation, together with rates and amounts of alcohol consumed.

Polish society is an interesting subject for study because there have been large changes in attitudes regarding alcohol consumption over recent years. Since 2000, the consumption of alcoholic beverages with high content of alcohol (spirits) has significantly increased in Poland [7, 8] and a systematic increase in alcohol consumption has been observed [11]. The country has a unique problem in the constant sale of miniature bottles of vodka, colloquially termed 'monkeys', of which Poles buy 1.1 billion annually [12]. Increasing alcohol consumption may cause deterioration of health status [13]. The levels of alcohol prevalence observed in those currently drinking in our study were comparable to the rates reported in the PURE Polska cohort study (76.6 vs. 67.3, respectively) [14]. According to a CBOS survey from 2019, more than half of Poles stated that they drink occasionally, every tenth respondent reported frequent alcohol consumption whilst every third abstained from drinking. Compared to 2010 data, there was a clear increase in occasional alcohol consumption with a parallel decrease in the number of abstainers [15]. Similarly, in our study, the number of abstainers was small at only 12.7%.

The age at which alcohol initiation occurs is visibly and constantly decreasing as demonstrated by studies both in Poland and abroad [10, 16-18]. In Poland the average age of alcohol initiation stands at 13 years and 2 months [10].

An adolescent 2018 study conducted by CBOS noted that alcoholic beverages were found to be the most common psychoactive substance taken by school youth, used more often than cigarettes or drugs [10]. The nationwide ESPAD (European School Survey Project on Alcohol and Other Drugs) surveys showed that over 92% of 15- and 16-year-olds and 96% of 17- and 18-year-olds drink alcohol [16]. Our study shows that the age of alcohol initiation fell within the 13-18 year range for the vast majority of subjects. Likewise, Osaki *et al.* found that alcohol consumption in Africa begins as early as early adolescence and even earlier, at the age of 10 [17]. Brazilian data also show that over 40% of adolescents aged 13-15 years admitted to drinking alcohol within the last year [18].

In this study, the place of residence was shown to be a factor differentiating the age of alcohol initiation. Over half the subjects lived in rural areas, where the first time that alcohol was consumed was before the age of 15 years compared to just over a third of urban dwellers, who initiated drinking similarly early. Osaki et al. also noted a relationship between the age of alcohol initiation and the place where subjects came from, the social environment playing an important role in alcohol initiation [17]. The CBOS data showed increased rates of people drinking alcohol occasionally, from several times a year at 50% in 2010 to 56% in 2019. Similarly, our study found that over 60% of participants reported consumption of alcohol several times a year. The factor differentiating the frequency of alcohol consumption in the present study was education. Half of those with higher education reported drinking alcohol several times a year, whilst half with secondary education drank alcohol more often, i.e. from several times a month to several times a year. In keeping with our present findings, a study by Wojtyniak et al. showed that a higher level of education was associated with lower alcohol consumption in men [19]. Furthermore, Rossoff et al. noted that lower levels of education lead to risky behaviour related to excessive alcohol consumption [20], which was also consistent with our study. Likewise, Murakami and Hashimoto found that a lower level of education was significantly associated with an increased risk of heavy and problem drinking in Japan [21].

A 2018 report of the OECD showed that the average consumption of pure alcohol per adult inhabitant per year was 11.3 litres, whereas the consumption in Poland was higher at 11.7 litres, which is equal to 2.4 bottles of wine or 4.5 litres of beer per week [4]. The average consumption of alcohol per capita in Eastern Europe, including Poland, may even be higher due to unofficial

production of alcohol at home, including vodka, wine and tinctures [22]. Our study showed that during a typical drinking day, more than half of people consumed 4 portions of alcohol; nonetheless Poles still believe that they drink safely. According to the CBOS report from 2019, over half of Poles are convinced that they drink very little, and 44% of those who consume alcohol believe that they drink within the norm [15].

A limitation of this study is that the division into groups differentiated by attitudes toward alcohol consumption (those drinking alcohol at present, those who formerly drank alcohol and those who had never drunk alcohol) was made on the basis of replies given by participants to questions regarding the age of alcohol initiation, the frequency of alcohol consumption and the amount of alcohol consumed. A second limitation is the sample size and the lack of random selection. The small number of subjects in each group affects the precision of the analysis, since the population of the Kepno district was recorded to comprise 24,282 people (as of December 31, 2019) according to data of the Central Statistical Office, and thus the size of the surveyed group was 1.2% of the total population. The lack of random selection of the sample could have contributed to a lack of participants with vocational education, thereby making any conclusions problematic regarding levels of education.

Despite the limitations of the study, it is worth noting the trends in the surveyed population that make it possible to detail the phenomenon of alcohol drinking among residents of the Kepno municipality. In groups of subjects currently not drinking alcohol and people who never drink alcohol there was a higher average age compared to the group currently drinking alcohol, a predominance of women, people with secondary education and urban residents. Despite the lack of statistical significance, it should be noted that alcohol initiation under the age of 13 was more common among women than men. Those aged 31-42 most often consumed alcohol for the first time between the ages of 16 and 18. In contrast, the oldest individuals first drank alcohol under the age of 15. Also noteworthy is the fact that men are slightly more likely to consume alcohol once a week, while women are more likely to drink several times a week, with nearly 3% of them reporting consuming 10 or more servings of alcohol during a typical drinking day, compared to 1% of men. In addition, it is worth mentioning that the groups drinking alcohol once and several times a week are dominated by those in the middle age group, while the oldest respondents, with the highest percentage among those reporting the highest alcohol consumption, are among the daily drinkers.

Our results indicate that further research is required that will concern a representative study sample of the Kepno district. Ideally, the survey sample, drawn from the PESEL database by the Ministry of Digitization, should be randomized by gender, age and place of residence. The research tool should be a modified survey questionnaire prepared based on the existing survey.

#### **CONCLUSIONS**

Healthy lifestyle should be promoted, highlighting the harm caused by alcohol drinking at primary and secondary schools because of the concern over the early age of alcohol initiation in the Kepno district, in particular with attempts to target adolescents living in rural areas.

In addition, taking into account the trends in the study group in activities promoting healthy lifestyles, special attention should be paid to women and the population of the oldest people.

#### **DISCLOSURE**

The authors report no conflict of interest.

#### References

- GBD 2019 Cancer Risk Factors Collaborators. The global burden of cancer attributable to risk factors, 2010-19: a systematic analysis for the Global Burden of Disease Study 2019. Lancet 2022; 400(10352): 563-591.
- Blakemore E. Doctors want alcohol warning labets to flag cancer risks. Available from: https://www.washingtonpost. com/health/2022/09/19/alcohol-cancer-risk-labels/ (accessed: 22 March 2023).
- Shield K, Manthey J, Ryllet M, et al. National, regional, and global burdens od disease from 2000 to 2016 attributable to alcohol use: a comparative risk assessment study. Lancet Public Health 2020: 5(1): e51-e61.
- OECD Health Policy Studies, 2021. Preventing Harmful Alcohol Use. Available from: https://www.oecd.org/health/preventing-harmful-alcohol-use-6e4b4ffb-en.htm (accessed: 22 March 2023).
- OECD Health Policy Studies, 2022. Alcohol consumption. Available from: https://data.oecd.org/healthrisk/alcohol-consumption.htm (accessed: 22 March 2023).
- World Health Organization, 2018. Global status report on alcohol and health. Available from: https://www.who.int/publications-detail-redirect/9789241565639 (accessed: 22 March 2023).
- 7. World Health Organization, 2020. Drinking spirits. Available from: https://gateway.euro.who.int/en/indicators/hbsc\_55-drinking-spirits (accessed: 22 March 2023).
- The State Agency for the Prevention of Alcohol-Related Problems (PARPA). Alcohol consumption in Poland – statistics. Available from: http://parpa.pl/index.php/badania-i-informacje-statystyczne/statystyki (accessed: 22 March 2023).
- Global Alcohol Policy Alliance. WHO EB recommends Alcohol Action Plan, 2022. Available from: https://globalgapa.org/index.php/2022/01/28/who-executive-board-recommends-global-alcohol-action-plan/ (accessed: 22 March 2023).
- Grabowska M, Gwiazda M. Raport z badania "Młodzież 2018"
  [Report from the study "Youth 2018"]. CBOS, Warszawa 2019. Available from: https://www.cinn.gov.pl/portal?id=1475772 (accessed: 22 March 2023).

- World Health Organization, 2021. Health warning labels on alcoholic beverages: opportunities for informed and healthier choices. Available from: https://www.who.int/publications/i/ item/9789240044449 (accessed: 22 March 2023).
- Zatoński WA, Janik-Koncewicz K, Zatoński M, Wojtyła A. Alkohol – ojciec polskich chorób [Alcohol – father of Polish diseases]. Menedżer Zdrowia 2021(1-2): 82-87.
- Zatoński W. The alcohol crisis in Polish public health. J Health Inequal 2019; 5(2): 122-123.
- Zatońska K, Psikus P, Basiak-Rasała A, et al. Patterns of alcohol consumption in the PURE Poland cohort study and their relation-ship with health problems. Int J Environ Res Public Health 2021; 18(8): 4185.
- Komunikat z badań CBOS. Konsumpcja alkoholu w Polsce 2019; 151: 1-8 [Communication from CBOS research. Alcohol consumption in Poland 2019; 151: 1-8]. Available from: https:// www.cbos.pl/SPISKOM.POL/2019/K\_151\_19.PDF (accessed: 22 March 2023).
- 16. Sierosławski J. Używanie alkoholu i narkotyków przez młodzież szkolną. Raport z ogólnopolskich badań ankietowych zrealizowanych w 2019 r. Europejski Program Badań ankietowych w Szkołach ESPAD [Use of alcohol and drugs by schoolchildren. Report on nationwide surveys carried out in 2019 European School Survey Programme ESPAD]. Warszawa, 2020. Available from: https://www.cinn.gov.pl/portal?id=15&res\_id=1880417 (accessed: 22 March 2023).
- Osaki H, Mshana G, Mbata D, et al. Social space and alcohol use initiation among youth in northern Tanzania. PLoS One 2018: 13(9): e0202200.
- 18. Guimarães MO, Guimarães GL, Walewska Rodrigues da Silva J. Does religiosity impact binge drinking among early adolescents? A cross-sectional study in a city in Southeastern Brazil. Ciênc Saúde Coletiva 2022; 27(9): 3669-3678.
- Wojtyniak B, Moskalewicz J, Stokwiszewski J, et al. Genderspecific mortality associated with alcohol consumption in Poland in transition. Addiction 2005; 100(12): 1779-1789.
- 20. Rossoff DB, Clarke TK, Adams MJ, et al. Eductional attainment impacts drinking behaviors and risk for alcohol dependence: results from a two-sample Mendelian randomization study with ~780,000 participants. Mol Psychiatry 2021; 26(4): 1119-1132
- Murakami K, Hashimoto H. Associations of education and income with heavy drinking and problem drinking among men: evidence from a population-based study in Japan. BMC Public Health 2019; 19(1): 420.
- 22. Psikus P, Wojtyła-Buciora P. The effect of alcohol consumption on demographics, population health and social wellbeing in Poland. J Health Study Med 2021; 4: 67-82.

#### **AUTHORS' CONTRIBUTIONS**

KPZ, WZ, KZ – took part in preparing the concept of the article; PP collected data; PP, KPZ, BG analysed data; KPZ, BG wrote the article; PP, KPZ, AW, WZ, KZ critically revised it. All authors approved the final version of publication.

APPENDIX TABLE 1. Socio-demographic profile of the surveyed participants

Parameter	Total	Women, n = 177	Men, n = 122	<i>p</i> -value
Age (years)				
M ± SD	38.6 ±12.3	37.9 ± 12.5	39.7 ± 11.9	
Me (Q1-Q3)	36 (28-49)	36 (28-49)	38 (30-50)	0.141
Min-Max	18-73	18-73	19-69	
Sex, (n) %				
Women	(177) 59.2			
Men	(122) 40.8			
Education, (n) %				
Primary	(21) 7.0	(16) 9.0	(5) 4.1	
Secondary	(197) 65.9	(109) 61.6	(88) 72.1	0.102
Higher	(81) 27.1	(52) 29.4	(29) 23.8	
Place of residence, (n) %				
Countryside/Rural	(148) 49.5	(80) 45.2	(68) 55.7	0.004
City/Urban	(151) 50.5	(97) 54.8	(54) 44.3	0.094

M – arithmetic mean, SD – standard deviation, Me – median (50%), Q1 – lower quartile (25%), Q3 – upper quartile (75%), Min – minimum value, Max – maximum value.

**APPENDIX TABLE 2.** Characteristics of the study group in regards to attitudes toward alcohol consumption

Parameter	Currently drinking, n = 229	Not drinking, total, n = 70	<i>p</i> -value	Former drinking, n = 32	Never drinking, n = 38	<i>p</i> -value			
Age (years)									
M ± SD	38.6 ± 12.1	40.4 ± 13.0		40.3 ± 12.6	40.4 ± 13.4				
Me (Q1-Q3)	38 (28-49)	37 (29-50)	0.280	36 (30-53)	38 (28-50)	0.231			
Min-Max	18-73	20-69		20-60	22-69				
Sex, (n) %				0.231	0.231				
Women	(136) 59.4	(41) 58.6	0.006	(18) 56.2	(23) 60.5	0.131			
Men	(93) 40.6	(29) 41.4	0.986	(14) 43.8	(15) 39.5				
Education, (n) %									
Primary	(16) 7.0	(5) 7.1		(3) 9.4	(2) 5.3				
Secondary	(152) 66.4	(45) 64.3	0.946	(22) 68.7	(23) 60.5	0.468			
Higher	(61) 26.6	(14) 28.6		(7) 21.9	(13) 34.2				
Place of residence, (n) %	Place of residence, (n) %								
Countryside/rural	(117) 51.1	(31) 44.3	0.300	(14) 43.8	(17) 44.7	0.043			
City/urban	(112) 48.9	(39) 55.7	0.390	(18) 56.2	(21) 55.3	0.943			

M – arithmetic mean, SD – standard deviation, Me – median (50%), Q1 – lower quartile (25%), Q3 – upper quartile (75%), Min – minimum value, Max – maximum value.

# APPENDIX TABLE 3. Age of alcohol drinking initiation in the study group

Question	Total, I			
	Women, n = 154	Men, n = 107	<i>p</i> -value	
1. At what age did you first try drinking alcohol? (n) %				
Before the age of 9 (1)	(2) 1.3	(0) 0.0		
9-12 years (2)	(7) 4.5	(4) 3.7	0.904	
13-15 years (3)	(60) 39.0	(42) 39.3	0.904	
16-18 years (4)	(79) 51.3	(57) 53.3	]	
Age over 18 years (5)	(6) 3.9	(4) 3.7		
Me (Q1-Q3)	4 (3-4)	4 (3-4)	0.845	

# APPENDIX TABLE 4. Age of alcohol drinking initiation in current alcohol drinkers according to education and age

Age of alcohol		Education			Age (years)			
drinking initiation ( <i>n</i> ) %	Primary, n = 16	Secondary, n = 152	Higher, n = 61	<i>p</i> -value	18-30, n = 83	31-42, n = 71	43-73, n = 75	<i>p</i> -value
Below 9 years age (1)	(0) 0.0	(1) 0.7	(1) 1.6		(0) 0.0	(1) 1.4	(1) 1.3	
9-12 years (2)	(0) 0.0	(7) 4.6	(1) 1.6		(2) 2.4	(3) 4.2	(3) 4.0	
13-15 years (3)	(7) 43.8	(63) 41.4	(23) 37.7	0.475	(36) 43.4	(22) 31.0	(35) 46.7	0.521
16-18 years (4)	(9) 56.3	(79) 52.0	(32) 52.5		(44) 53.0	(43) 60.6	(33) 44.0	
Over 18 years age (5)	(0) 0.0	(1) 1.3	(4) 6.6		(1) 1.2	(2) 2.8	(3) 4.0	
Me (Q1-Q3)	4 (3-4)	4 (3-4)	4 (3-4)	0.371	4 (3-4)	4 (3-4)	3 (3-4)	0.281

# **APPENDIX TABLE 5.** Frequency of alcohol consumption in studied subjects according to gender, age and place of residence

Frequency Sex		2X	p-value Age (years)			<i>p</i> -value	Place of r	esidence	<i>p</i> -value	
of alcohol consumption (n) %	Women, n = 136	Men, n = 93		18-30, n = 83	31-42, n = 71	43-73, n = 75		Rural, n = 117	Urban, n = 112	
Several times a year (1)	(90) 66.2	(56) 60.2		(55) 66.3	(43) 60.6	(48) 64.0		(71) 60.7	(75) 67.0	
Several times a month (2)	(21) 15.4	(17) 18.3		(14) 16.9	(11) 15.5	(13) 17.3		(25) 21.4	(13) 11.6	
Once weekly (3)	(11) 8.1	(13) 14.0	0.488	(7) 8.4	(9) 12.7	(8) 10.7	0.521	(12) 10.3	(12) 10.7	0.303
Several time weekly (4)	(12) 8.8	(5) 5.4		(6) 7.2	(8) 11.3	(3) 4.0		(9) 6.8	(9) 8.0	
Almost daily (5)	(2) 1.5	(2) 2.2		(1) 1.2	(0) 0.0	(3) 4.0		(3) 0.9	(3) 2.7	
Me (Q1-Q3)	1 (1-2)	1 (1-2)	0.436	1 (1-2)	1 (1-2)	1 (1-2)	0.688	1 (1-2)	1 (1-2)	0.605