

Hazardous Drinking among Rural Residents in Belarus

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Abstract

We present the results of a study conducted in the province of Grodno, Belarus in 2012 that examined alcohol use and hazardous drinking-binge drinking and illicit alcohol consumption among the rural population. Information was obtained from 502 respondents (253 men and 249 women) aged 18-70 years using a structured interview. Binge drinking was widespread among men, and also common among women: 78.8% of men and 36.1% of women reported drinking an equivalent of 150 ml of vodka or more at one sitting. The most frequently used illicit alcoholic beverage was samogon, which was consumed by 79.5% of men and 42.3% of women. In addition, 10.3% of men and 1.5% of women consumed alcohol surrogates, most commonly, industrial alcohol and alcohol-containing medicinal preparations. These results highlight the high level of hazardous drinking in the Belarusian countryside and emphasize the need for a comprehensive alcohol policy in this setting.

Keywords: Belarus; Alcohol; Drinking pattern; Surrogates

Introduction

Alcohol has been suggested to be a crucial factor in the mortality crisis that occurred in Belarus in the post-Soviet years [1,2]. Specifically, increased alcohol-related mortality observed both in Belarus and other Slavic countries of the Former Soviet Union (FSU) has been linked to high overall alcohol consumption, a preference for spirits, binge drinking, as well as consumption of noncommercial alcohol (illegally produced alcoholic beverages and alcohol surrogates) [3]. Although evidence suggests that heavy alcohol use has had a catastrophic impact on health in both the urban and rural population in Belarus, there is some indication that the situation has been aggravated in rural areas [4]. Specifically, alcoholism became endemic in the countryside in the post-Soviet 'transition period', in part, due to the collapse of customs and traditions regulating drinking [5], while episodic heavy drinking of spirits (i.e., drinking of large quantities of strong alcohol in a short period of time) and consumption of alcohol surrogates have been linked to excess mortality from acute alcohol poisonings and cardiovascular disease in this setting [3].

Heavy drinking in rural areas of Belarus may be related to several different factors. The poor quality of rural life that was characterized by shortages of consumer goods, few amenities, or entertainment possibilities in the decades that followed World War II acted as an incentive for people to leave the countryside [4]. This process of population loss continued across the later-Soviet and post-Soviet years with the share of the rural population falling from 42% in 1981 to 34% in 1990 and just 25% in 2010 [6]. Among those who remained, leisure time became increasingly associated with drinking [7]. Moreover, the propensity of young women to migrate to cities to seek opportunities unavailable in the countryside [8] has resulted in an imbalance in the population structure in rural areas with an excess of working-age men (aged 15-59) [9]. This may have acted to intensify the consumption of

alcohol given that habitual drinking is regarded as normative lifestyle behavior for men [10], and is also a central element in the construction of masculinity in this region [11]. In addition, higher rates of poverty in rural Belarus [9] may have fomented harmful drinking, while also influencing the quantity and quality of alcohol consumption. Research from neighboring Russia has indicated for example, that limited financial resources may increase consumption of surrogate alcohols [12] while economic problems have also been linked to male heavy drinking [13,14].

Until now, there has been little focus on alcohol consumption in rural areas of Belarus. This is an important research gap given direct evidence on its link with detrimental health outcomes among rural residents [4], and possibility that poorer living conditions [8] and greater economic hardship might be facilitating hazardous alcohol use among the rural population. Moreover, a recent study from urban Belarus indicated that harmful drinking is widespread among men, while the consumption of non-commercial alcohol is common among both sexes [15]. Understanding the occurrence and factors associated with drinking behavior is essential for formulating effective alcohol policies. Thus, the aim of this study was to examine alcohol consumption and hazardous drinking behaviors (binge drinking and the use of non-commercial alcohol) among rural residents in Belarus.

Methods

Study sample

This study was undertaken in a convenience sample of five villages located in the Grodno region of Belarus in 2012. All available residents were approached to take part in the survey i.e., 732 rural residents (421 men and 311 women) aged 18-70 years. Face-to-face interviews were conducted in the respondents' homes by trained interviewers using a structured questionnaire that included questions on: (i)

Sociodemographic characteristics; (ii) Consumption of alcoholic beverages; (iii) Use of samogon and alcohol surrogates; (iv) Opinions on the quality of licensed alcohol and samogon; and (v) Factors associated with choice and consumption of alcoholic beverages. Individuals in the armed forces, prisoners and those with mental health problems or who were intoxicated at the time of the survey were excluded from the sample. The primary response rate was 60% for men and 80% for women. Thus, the final sample consisted of 502 respondents (253 men and 249 women). For this study, episodic heavy drinking was defined as the consumption of at least 60 g of pure alcohol (150 g of vodka (40% alcohol by volume)) on a single occasion.

Statistical analyses

Descriptive statistics (percentages, means and standard deviations) are used to present details of the population sample and information about alcohol consumption and hazardous alcohol use. In addition, a logistic regression analysis was performed separately for men and women to examine if there were any sociodemographic factors (marital status, educational level or income level) that were associated with drinking samogon. Results are reported as Odds Ratios (OR) with 95% confidence intervals (CI). The level of statistical significance was set as $p < 0.05$.

Sample characteristics	Male	Female
Age (years) S.D.	47.1 ± 12.1	43.1 ± 13.6
Marital status		
Single	28.8	23.6
Married	71.2	76.4
Education		
Primary	7.7	4.2
Secondary	82.7	73.6
High	9.6	22.2
Employment		
Unemployed	10.3	4.2
Manual professions	61.6	33.3
Non-manual professions	9.6	27.8
Students	0.6	11.1
Retirees	17.9	23.6
Income level		
Below average	44.9	51.4
Average	34	34.7
Above average	21.2	13.9
S.D: Standard Deviation		

Table 1: Characteristics of the study participants (%).

Results

Characteristics of the study sample

The social and demographic characteristics of the study sample are summarized in Table 1. The average age was 47.1 (Standard Deviation [SD] 12.1) years for males and 43.1 (SD 13.6) years for females. Over 70% of the respondents were married (men 71.2%, women 76.4%). Most men (82.7%) and women (73.6%) had received a secondary education, while more women (22.2%) than men (9.6%) had a higher education. In terms of employment status, the respondents belonged to the following categories: white-collar (non-manual) workers (9.6% of men and 27.8% of women), blue-collar (manual) workers (61.6% men, 33.3% women), students (0.6% men, 11.1% women), retirees (17.9% men, 23.6% women), and unemployed (10.3% men, 4.2% women). According to official data the average level of income in Belarus is about 500 US dollars per month. Using this figure as a benchmark, 44.9% of men and 51.4% of women had a below average income, 34.0% of men, 34.7% of women had an average level of income, while 21.2% of men and 13.9% of women had a high income.

Beverage type and drinking pattern

Very few men (3.4%) and women (4.1%) abstained completely from drinking alcohol in the previous month, while 63.4% of men and 40.2% of women consumed alcohol several times a week. A significant portion of men (14.0%) and women (6.9%) reported that they consumed alcohol every day.

Drinking variables	Male	Female
	n=253	n=249
Abstainers	3.4	4.1
Frequency of drinking		
Several times a month	19.2	48.8
Several times a week	63.4	40.2
Every day	14	6.9
Binge drinking		
150 to 300 ml of vodka during one drinking occasion	35.9	22.2
300 to 500 ml of vodka during one drinking occasion	26.9	13.9
More than 500 ml of vodka during one drinking occasion	16	-
Drinking of noncommercial alcohol (≥ once a month)		
Homemade wine	42.3	50.7
Samogon	79.5	40.8
Nonlicensed vodka	19.4	19.4
Surrogates	10.3	1.5

Table 2: Self-reported consumption of alcohol and alcohol surrogates in the previous month (%).

Regarding beverage preference, the proportion of men consuming the following beverages were: vodka only (35.8%); vodka and beer (31.5%); beer only (4.0%); fortified fruit wine (about 18% alcohol by volume) (5.5%); vodka and fruit wine (23.2%). For women, the beverage preference was as follows: vodka only (15.3%); vodka and dry wine (19.4%); fruit wine only (2.8%); dry wine only (40.3%); vodka and wine (22.2%) (data shown only in text). A large number of men and women also engaged in heavy (binge) drinking behavior. Specifically, the proportion of men and women consuming the following amount of vodka on one drinking occasion was: 150-300 ml-men 35.9% vs. women 22.2%; 300 to 500 ml-men 26.9% vs. women 13.9%; and >500 ml-men 16.0% vs. women 0%. Overall more than twice as many men engaged in episodic heavy drinking than women in the previous month (Table 2).

Using data on the frequency, volume and type of alcohol consumed, we also calculated the average alcohol consumption per capita per year (in terms of absolute alcohol). This revealed that men drank 21.4 and women 11.6 L of pure alcohol per year with the overall average figure of 16.5 L being significantly higher than the official sales figure for the whole country in 2012 (i.e., 12.3 L per capita).

Almost 6 out of 10 (57.0%) male respondents reported the presence of hangover syndrome while the corresponding figure for women was 29.2% (data not shown in table). Hangover or withdrawal syndrome is a group of symptoms (anxiety, dizziness, fatigue, trembling or shakiness) occurring on absolute or relative withdrawal of alcohol after prolonged and high-dose use of alcohol [2]. Based on these data it is possible that a significant proportion of men may have symptoms of alcohol dependence.

Non-commercial alcohol: prevalence and motives for its use

Homemade wine, which is produced from various types of berries and fruits, was consumed by 42.3% of men and 50.7% of women in the previous month (Table 2). However, this beverage did not comprise a significant element in the structure of rural non-commercial alcohol consumption because 26.3% of male and 40.8% of female respondents also reported that they consumed it less than once a month (data only shown in text).

Samogon (about 40% alcohols by volume) is a form of strong liquor that is traditionally homemade. Among our rural respondents, 79.5% of men and 40.8% of women stated that they consumed it occasionally (at least once a month) (Table 2). Furthermore, additional follow-up questions revealed that 89.1% of men and 87.5% of women had friends who consume samogon and 69.0% of men and 59.7% of women had friends who manufacture samogon. The main reasons men consumed samogon were low price (33.9%), belief that samogon is chemically pure (25.8%), availability (22.6%) and tradition (17.7%). To determine if there were any specific demographic factors associated with drinking samogon we also performed a logistic regression analysis separately for men and women. Among women there were no statistically significant associations between any of the sociodemographic variables and drinking samogon. For men, although neither marital status (OR: 0.74, 95% CI: 0.29-1.84) nor income (OR: 0.72, 95% CI: 0.23-2.21) were associated with consuming samogon, there was a strong association with education: men with less education had over five times higher odds for drinking samogon (OR: 5.01, 95% CI: 1.36-18.40) (data only shown in text).

Counterfeit vodka that is made from industrial and food grade alcohol is one of the common non-commercial alcohols currently

available in Belarus. This was evident from our data where 38.5% of men and 19.4% of women reported buying black market vodka that had no excise stamp. Moreover, 44.9% of men and 18.1% of women also stated that they had bought low-quality vodka from a state store that gave off an unpleasant odor, and which when drunk led to symptoms of poisoning (data only shown in text). When asked about other forms of non-commercial alcohol, 10.3% of men and 1.5% of women stated that they consumed alcohol surrogates. In addition, 15.1% of men and 7.4% of women also reported that they have friends who consumed surrogates. Of the various types of surrogate alcohol, the most often consumed were industrial alcohol and medicinal products that contained alcohol (ethanol) (e.g., tincture of Motherwort and tincture of Hawthorn).

The quality of non-commercial alcohol and its effect on health

In follow up questions (not reported in the tables) the majority of men (89.1%) and more than half of women (59.7%) believed that, in terms of its chemical composition, samogon was pure, and a "natural" product. In contrast, 10.9% of men and 40.3% of women described samogon as being a "dirty" product that was harmful to health. It is uncertain what gives rise to these differing opinions but they probably reflect respondents' contrasting experiences. Specifically, 57.4% of men and 72.2% of women noted that they had never had any health problems after consuming samogon, whereas 35.5% of men and 16.7% of women felt unwell, while for 7.1% of men and 11.1% of women, consuming samogon had resulted in symptoms of poisoning.

Alcohol policy and its possible effects

A final set of questions asked about changes in personal circumstances or state alcohol policy and how they might affect drinking behavior (reported only in text). If there was a lack of monetary resources, 25.6% of men and 47.2% of women stated that they would stop drinking alcohol, 19.2% of men and 33.3% of women said they would consume expensive high-quality alcohol beverages but in smaller volumes, while 55.1% of men and 19.4% of women would start drinking cheaper alcoholic beverages. In response to an increase in the price of vodka, 29.2% of men and 53.3% of women reported that they would begin to drink less alcohol, 8.4% of men and 11.8% of women would begin to drink fortified wine, 11.0% of men and 19.6% of women would begin to drink beer, 50.0% of men and 15.3% of women would begin to drink samogon, while 1.3% of men claimed they would start using surrogates. Results also indicated that rural residents generally regard the phenomenon of samogon production positively because 81.4% of men and 45.8% of women believed that the production of samogon for personal use should be legalized.

Discussion

To the best of our knowledge, this is the first study to specifically focus on alcohol consumption and hazardous alcohol use among the rural population in Belarus. Results from a survey undertaken in five villages in Grodno province showed that hazardous drinking behavior was widespread. Nearly 80% of men and 36% of women engaged in binge drinking while the use of different forms of illicit alcohol was also common in both sexes with over 10% of men using alcohol surrogates. In terms of commercially available alcohol, our results also highlighted that there was a sex difference in beverage preference, as vodka was the beverage most frequently consumed by men, while

women preferred dry wine. It is possible that this male preference for distilled spirits might have an important role in the much greater negative impact of alcohol on men's health and well-being in Belarus [7]. Research in neighboring Russia has indicated, for example, that consuming vodka may be more detrimental to health than drinking other types of beverages [16], while an earlier study in Belarus showed that drinking vodka is more strongly related to mortality than either beer or wine [3].

Binge drinking was common among rural men and women (although less widespread among the latter): 78.8% of men and 36.1% of women reported drinking an equivalent of 150 ml of vodka or more at one sitting. These data confirm previous research which suggested that drinking occurs relatively frequently among Belarusian men [17], and that heavy episodic drinking is also relatively common in this group [18]. It is noteworthy that the prevalence of binge drinking reported by our rural respondents was substantially higher than the estimates of hazardous drinking obtained from a nationally representative sample of the Belarus population reported by Pomerleau et al. [18]. In addition, the prevalence of male frequent drinking (every day) and extreme vodka consumption (>500 ml during one sitting) were also much higher among rural respondents compared to data collected from urban respondents during the same period [15], which might underlie the rural predominance in terms of alcohol-related harm that has been observed previously [4].

Alcohol-related harm on health and well-being in rural Belarus can be gauged by the fact that hangover syndrome (an alcohol-related disorder) was widespread especially among men. This confirms previous findings that men consume alcohol in greater quantities than women, and as a result, have higher prevalence of alcohol-related problems [5,19].

Samogon consumption was also highly prevalent among rural residents, in particular, men. Among the countries in this region, both samogon and vodka consumption have been linked to a harmful drinking pattern [18,20]. Our results indicate that several factors seem to underpin the use of samogon in this setting. A logistic regression analysis showed that low education was an important factor among men, while survey responses indicated that its cheap cost was the most frequent reason why samogon was consumed (with one-third of men listing this reason) [21-23]. Another factor which might be important was the belief that samogon (especially in its homemade and for personal use form) was 'pure' which was given as a reason for drinking this beverage by one-quarter of the male respondents. Thus, despite the fact that some respondents stated that drinking samogon had impacted negatively on their health, it is possible that sale of counterfeit vodkas in state shops and the fear of poisoning associated with them may be contributing to a preference for samogon among some rural residents.

In the present study, 10.3% of men and 1.5% of women stated that they had drunk surrogate alcohols. These figures are much higher than those reported earlier by men and women in Estonia (2.3% and 0.3%, respectively) [24], while the male figure also exceeds that (7%) reported by men aged 25-54 in the Russian city of Izhevsk [25]. Surrogate alcohols include a range of products such as medical tinctures and technical spirits with research indicating that these beverages can contain high levels of ethanol and other potentially harmful substances [5,26]. This might be why an earlier study from Russia found that the consumption of non-beverage alcohols (surrogates) was strongly associated with all-cause mortality [27]. Given the comparatively high prevalence of surrogate consumption and its potential effect on health, urgent efforts should be made to both

control the production, distribution and sale of products that can be used as surrogate alcohols as well as to inform the general public in Belarus (both urban and rural) of the possible dangers associated with drinking these products.

A large number of the respondents reported that their health had been negatively affected by drinking non-commercial alcohol. Given this and earlier research which has shown that the majority of the population in Belarus realize the importance of avoiding binge drinking in order to stay healthy [18], it is possible that interventions to reduce harmful alcohol consumption (both in terms of what is drunk and how it is drunk) might be effective in this setting. Indeed, respondents provided a wide range of differing answers concerning what they would do if there were changes in the affordability of alcohol which indicated that they were highly sensitive to changes in the price of spirits (vodka). This suggests that pricing policy (i.e., reducing the affordability of alcohol) might be one way to reduce alcohol's harmful effects, although there was some indication that a high price of legal alcohol might also facilitate a switch to samogon drinking among some people. Nonetheless, there is some evidence that a 2011 policy initiative in Belarus to reduce alcoholism, which included increasing excise duties on some alcohol products, might already have had a beneficial effect in terms of reduced mortality [28]—although the high levels of hazardous drinking that we observed in this survey conducted in 2012 indicate the continued potential for alcohol to affect health detrimentally in this setting.

There are several limitations to this study. First, as the survey was based on self-reported information, which was collected during face-to-face interviews in the subjects' homes, it is possible that reporting bias (social desirability) might have been an issue. Therefore, the binge drinking estimates obtained in this survey may be conservative. Second, the survey response rate among men was only 60%. Heavier drinkers might have been underrepresented due to intoxication at the time of the survey [18]. Third, it is also possible that our estimates are conservative as we excluded people from some population subgroups e.g. the armed forces, where heavy drinking is known to occur [17]. Finally, the study sample was drawn from several villages in one province in Belarus. Therefore caution should be exercised about generalizing our results to the whole of the country's rural population. Further research should be undertaken in rural communities in other parts of the country to determine whether these findings can be replicated elsewhere.

Conclusion

In conclusion, this study has shown that heavy episodic drinking is widespread among rural men, and fairly common among rural women in Belarus. In addition, non-commercial alcohol is also commonly used in the rural population even though it is possible that the true level of consumption may have been underreported. Thus, despite a recent policy initiative to reduce the harmful effects of alcohol, this study has highlighted that hazardous drinking remains a significant problem in rural areas of Belarus.

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