



Prevalence of alcohol use disorders in primary health-care facilities in Russia in 2019

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Abstract

Aims: To estimate prevalence of alcohol use disorders (AUD) and alcohol dependence (AD) for Russia in 2019, based on clients in primary health-care facilities.

Design: Cross-sectional assessment of AUD and AD. Prevalence estimates were cross-validated using a treatment multiplier methodology.

Setting: A total of 21 primary health-care facilities, including dispensarization units (population health preventive care settings).

Participants: A total of 2022 participants (986 women and 1036 men) 18 years of age and older.

Measurements: Composite International Diagnostic Interview.

Findings: The prevalence of AD and AUD was 7.0% [95% confidence interval (CI) = 5.9–8.1%] and 12.2% (95% CI = 10.8–13.6%), respectively. Marked sex differences were observed for the prevalence of AD (women: 2.8%; 95% CI = 1.7–3.8%; men: 12.2%; 95% CI = 10.3–14.1%) and AUD (women: 6.1%; 95% CI = 4.6–7.7%; men: 19.5%; 95% CI = 17.2–21.8%). Age patterns of AD and AUD prevalence were sex-specific. Among women, the prevalence of AUD and AD was highest in the youngest age group and decreased with age. Among men, the prevalence of AUD and AD was highest among men aged 45–59 years. Sensitivity analyses indicated that the prevalence of AD as

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estimated using a treatment multiplier (6.5%; 95% CI = 5.0–8.9%) was similar to the estimates of the main analysis.

Conclusions: Even though alcohol use has declined since 2003 in Russia, the prevalence of alcohol use disorders and alcohol dependence remains high at approximately 12 and 7%, respectively.

KEYWORDS

Alcohol, alcohol use disorders, dependence, prevalence, Russia, treatment

INTRODUCTION

Alcohol use is a major risk factor for mortality and burden of disease [1], with alcohol use disorders (AUD) and alcohol dependence (AD), in particular, contributing markedly to this burden [2]. Russia and other eastern European countries have long been identified as having high alcohol consumption levels, and consequently one of the highest alcohol-attributable burden of disease rates globally [3, 4].

Despite the high burden of alcohol-attributable disease, research on the epidemiology of AUD and AD in Russia has been scarce, even though such data are relevant for health-care planning. To our knowledge, there has been no national survey on AUD reported for Russia in the past decade and, as a result, the prevalence of AUD and AD used in major comparative risk assessments or policy studies has been estimated indirectly based on treatment statistics [1, 5] using the treatment multiplier methodology common in the epidemiology of illicit drugs [6]. A recent validation study to adapt the Alcohol Use Disorder Identification Test (AUDIT) for Russia [7, 8] provides an opportunity to assess the prevalence of AD and AUD for 2019, and to validate whether the previous estimates of AUD and AD based on treatment statistics were accurate. Thus, the main objective was to determine the prevalence of AUD and AD and to discuss the results.

METHODS

Design and sample

This study is a secondary analysis of national cross-sectional survey data (see [7, 8] for a description of the survey methodology). A total of 21 publicly owned primary health-care facilities, covering seven of eight Federal Districts of the Russian Federation, participated in the data collection. The primary health-care system in Russia is complex and more extensive than in European high-income countries [9]. Polyclinics, as the major providers of primary health-care, offer not only services from general practitioners, but also from specialists such as surgeons and cardiologists, whose services are considered to be part of primary health-care services under Russian law [10]. The large-scale federal program of ‘dispanserization’ is also part of primary health-care and is carried out in polyclinics; dispanserization comprises a wide range of regular preventive check-ups and screenings for the entire population, including screening for potential alcohol use disorders. In 2018, the year before the study, 60% of the general

population was covered by these preventive screenings [11], and another 60% visited their general practitioner (GP) at least once in that year [12]. The overlap between the population covered by preventive screenings and those who visited their GP is unknown.

Between August 2019 and February 2020, a sample of 2173 participants were recruited from rural and urban facilities, with at least 200 participants from each region. A quota sampling design was implemented for each region to achieve representation of important sociodemographic groups, which included quotas of 50% men, 50% patients aged 40 years and older and a limit of 50% of patients recruited from dispensarization settings. All patients who visited a participating primary health-care facility on the day of the interviews, who were aged at least 18 years and able to give informed consent, were eligible for the study.

Interview and measures

Trained interviewers conducted face-to-face interviews following a standardized assessment chart [13]. The World Health Organization Composite International Diagnostic Interview (WHO CIDI) served to assess the past 12-month prevalence of AD and AUDs (the latter defined as either AD or harmful use) as defined by the ICD-10 [14]. The CIDI version used was based on the version adapted for and used in a large study in primary health-care centres in six European countries [15], translated into Russian and back-translated with the support of an expert panel, which included narcologists (i.e. psychiatrists, who are addiction treatment specialists) among other specialists [16]. The CIDI has been shown to perform similarly to psychiatric interviews or the Schedule for Clinical Assessment in Neuropsychiatry in a large WHO reliability and validity study [17]. AUDs were assessed for all people with a country-adapted AUDIT (RUS-AUDIT) score of 5 or higher [7]. To conserve resources and reduce the interview burden for respondents, only every third patient with an AUDIT score of 4 or lower was assessed for AUDs, by design. Figure 1 gives an overview of the assessment process and the statistical procedures applied.

Statistical analysis and weighting

The past-year (12-month) prevalence of AD and AUD was derived from the CIDI using population weights based on sex and age (18–29, 30–45, 46–59, 60–74, ≥75 years of age) [18]. Participants who

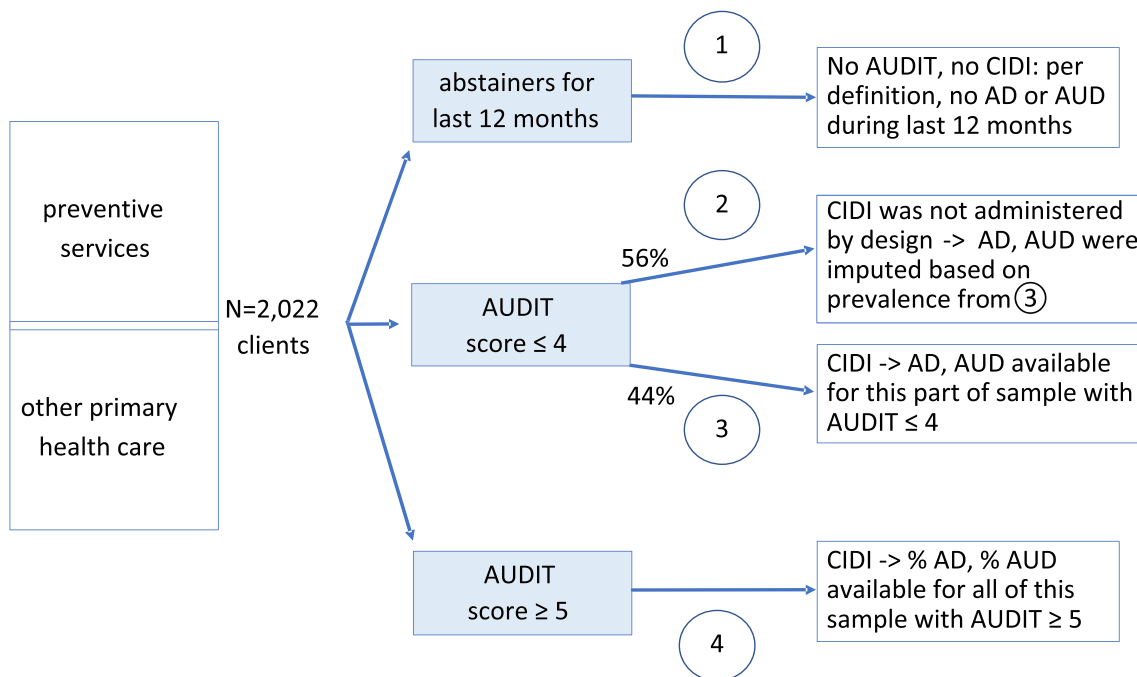


FIGURE 1 Overview of data assessment procedures and processing. The Russian version of the Alcohol Use Disorders Identification Test (AUDIT) (RUS-AUDIT [7,8]) was used to measure hazardous and harmful use of alcohol and to screen for alcohol use disorder (AUD) and alcohol dependence (AD). The Composite International Diagnostic Interview (CIDI) was used to measure 12-month prevalence of AUD and AD

abstained from alcohol during the past year were assumed to have had neither AD nor AUD in the past year. By design, the CIDI was given to only a random subsample of participants who scored 4 or less on the AUDIT; for these participants without CIDI scores, AD and AUD statuses were imputed based on the sex-specific prevalence. This imputation was performed for 299 individuals and resulted in an estimate of two individuals with AD and 15 individuals with AUD. Statistical differences by sex, age and the interaction of sex and age were determined by logistic regression, where the interaction between age and sex was estimated using a likelihood ratio test which compared a model with an interaction term and a model without an interaction term for age and sex. As AUD and AD are overlapping outcomes, we applied a Bonferroni correction.

For the sensitivity analysis, prevalence of AD was estimated via the multiplier method using treatment data as reported by the V. Serbsky Federal Medical Research Centre of Psychiatry and Narcology of the Ministry of Health of the Russian Federation [19]. This centre publishes national and regional treatment data on alcohol and drug use disorders. Average treatment coverage was taken from the meta-analysis of Mekonen and colleagues [20].

All statistical calculations were performed using SYSTAT version 13.2 [21] and R [22]. As the analysis was not pre-registered, the results should be considered exploratory.

RESULTS

Of the 2173 people eligible based on our selection criteria, 143 (6.6%) declined to participate, two did not fall within the required age range

(18 years and older) and six did not identify their sex. Among the 2022 people (986 women and 1036 men) who participated in the study, the age range was 18–96 years, with an average age of 43.1 [standard deviation (SD) = 16.0] and 40.7 (SD = 15.3) for women and men, respectively. A total of 30.7% finished special secondary education (e.g. technical schools), 39.3% completed some form of higher education and 55.3% were married; 20.2% of the sample indicated that they did not have enough money for food and/or clothing, and a further 43.1% indicated that they had sufficient resources for food and clothing, but some could not afford to purchase large household appliances. Of all the participants, 26.5% were current smokers.

A total of 1513 participants (74.8%) reported alcohol use in the past year, of whom 1497 (688 women and 809 men) provided valid responses to the AUDIT questions (i.e. 98.9% of the completed forms had no missing values).

The prevalence of AD and AUD was 7.0% [95% confidence interval (CI) = 5.9–8.1%] and 12.2% (95% CI = 10.8–13.6%), respectively (Table 1). Marked sex differences were observed for the prevalence of AD (women: 2.8%, 95% CI = 1.7–3.8%; men: 12.2%, 95% CI = 10.3–14.1%) and AUD (women: 6.1%, 95% CI = 4.6–7.7%; men: 19.5%, 95% CI = 17.2–21.8%). The sex differences proved significant for both AD and AUD on the Bonferroni-adjusted 2.5% alpha level (see Table 2).

The prevalence of AD and AUD by age and sex can be found in Figs 1 and 2. For both indicators there seem to be sex-specific age patterns. For women, we find a continuously decreasing pattern with the highest prevalence in the youngest age group, and almost no AD or AUD for women above the age of 75 years. For men, the 45–59-year-olds have the highest prevalence, and while prevalence

decreases in older ages it is still considerable, even for the over 75-year-olds. The interaction between sex and age was significant at the Bonferroni-adjusted level of 2.5% for both AD and AUD (see Table 2).

Using the treatment multiplier yielded an estimate for AD of 6.5% (95% CI = 5.0%, 8.9%). Not only is the treatment-based point estimate very close to the estimated prevalence from the survey, the CI from the survey (Table 1) falls completely within the larger interval

TABLE 1 Prevalence of alcohol dependence (AD) and alcohol use disorders (AUD) in Russia in 2019 by sex

Sex	Alcohol dependence		Alcohol use disorders	
	Prevalence	(95% CI)	Prevalence	(95% CI)
Men	12.2%	(10.3, 14.1%)	19.5%	(17.2, 21.8%)
Women	2.8%	(1.7, 3.8%)	6.1%	(4.6, 7.7%)
Total	7.0%	(5.9–8.1%)	12.2%	(10.8–13.6%)

Sex differences were statistically significant for both alcohol dependence and alcohol use disorders (see Table 2 for details). CI = confidence interval.

produced when calculating the prevalence using the treatment multiplier estimate (Fig. 3).

DISCUSSION

This contribution calculates survey-derived estimates for the prevalence of AD and AUD for Russia, and compares the overall numbers with existing treatment-derived data. This study found an overall prevalence of AD and AUD of 7.0 and 12.2%, respectively, indicating that Russia has one of the highest prevalences in the world (for comparisons, see [23]), surpassing even the average prevalence of the WHO European region by 86 and 30% for AD and AUD, respectively.

The current prevalence estimates are limited, as they are based on a survey of all patients attending primary health-care facilities on a single day, and are not based on a probability sample with a sampling frame comprising all adults in the Russian Federation. Such a sampling frame would be impractical and costly to implement due to the size of the country. Furthermore, current rates of response for household-based surveys (e.g. [24]) indicate that such a survey would not be

TABLE 2 The association of sex and age with alcohol use disorders and alcohol dependence

Sex/measure	Alcohol use disorders				Alcohol dependence			
	Odds ratio	(95% CI)	P-value	Interaction by sex (P-value) ^a	Odds ratio	(95% CI)	P-value	Interaction by sex (P-value) ^a
Total								
Age (10-year increase)	0.96	(0.88, 1.04)	0.307	0.001	0.96	(0.86, 1.07)	0.413	< 0.001
Sex (men compared to women)	2.86	(2.14, 3.81)	< 0.001		3.58	(2.41, 5.32)	< 0.001	
Males								
Age (10-year increase)	1.05	(0.95, 1.16)	0.386		1.06	(0.94, 1.19)	0.377	
Females								
Age (10-year increase)	0.76	(0.64, 0.91)	0.002		0.65	(0.50, 0.86)	0.002	

^aThe significance of the interaction between age and sex was estimated using a likelihood ratio test which compared a model with an interaction term to a model without an interaction term for age and sex.

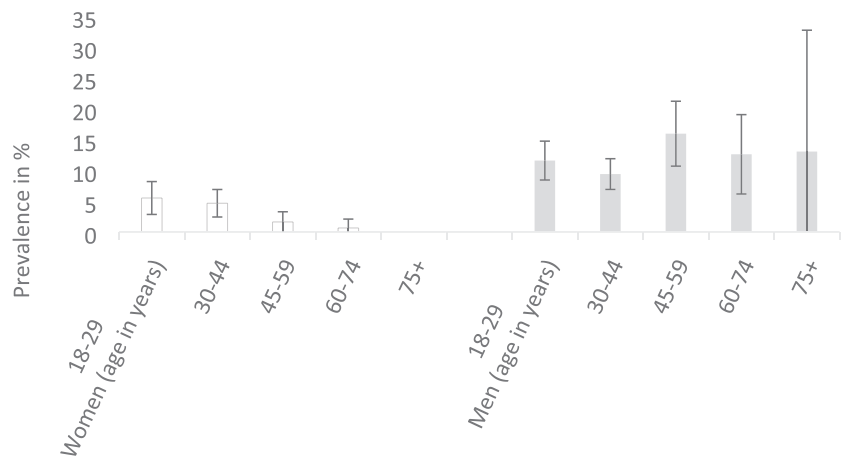


FIGURE 2 Prevalence of alcohol dependence in Russia in 2019 by sex and age

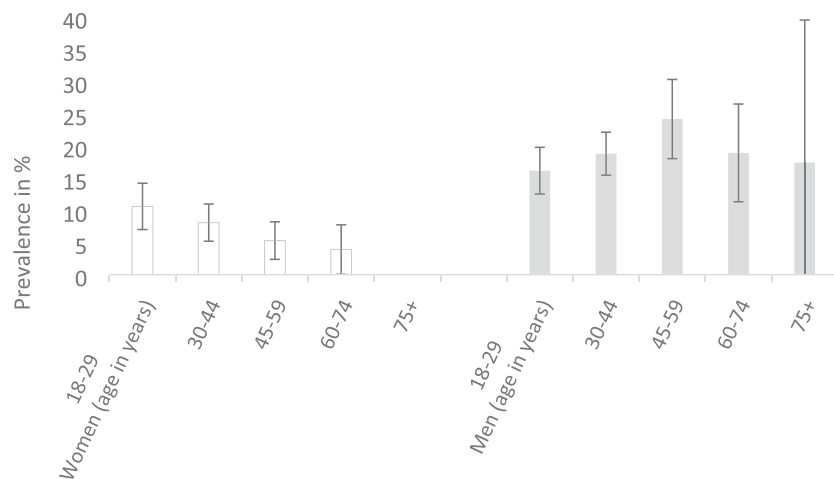


FIGURE 3 Prevalence of alcohol use disorders in Russia in 2019 by sex and age

representative based on sampling and response biases [25–27]. However, the response rate of 93.4% for this study is much higher than the response rate for general population surveys. For the 6.6% non-responders we needed to assume similar drinking patterns as for the whole sample. Furthermore, Russian surveys on alcohol, as in almost all survey-based alcohol studies, underestimate the overall level of drinking when compared to alcohol sales, or to production, import and export data [28]. It may be argued that the prevalence among primary care patients is higher than among the general population, as people visit such facilities due to health problems [29]. However, we have reason to believe that the surveyed participants are quite similar to the general population. Due to the specifics of the Russian health-care system and the overall legislative framework, a very high proportion of primary health-care visits are not related to the provision of medical care as such. For instance, an analysis of more than 2500 medical records from a Moscow city polyclinic in 2017 suggests that almost half of the patients' visits to GPs did not involve the provision of any direct medical care [30]. Given the multiple functions of Russian polyclinics, including prevention, we believe that we have covered a large variety of individuals. The non-response rate was very low (6.6%), and while we cannot rule out the possibility that the characteristics of non-responders were different from responders with respect to their levels of drinking and AUD, it is unlikely that this would have caused a large bias.

Another limitation relates to the fact that any assessment of AD and AUD may be susceptible to social-desirability biases, especially in Russia. In Russia, those with an AUD are nationally registered, which may be associated with difficulties in finding or maintaining employment. In line with current regulations, narcological registration restricts patients from holding certain professions (professional drivers, law enforcement officers and professionals who operate heavy machinery, for instance) and employers often check for the presence of narcological registration even when hiring for other positions which are not subject to this rule [31]. However, as patients with AUDs were not registered in the narcology system due to the results of their testing while participating in the survey, the study may, in fact, have elicited more truthful responses, as there was no fear of registration and its consequences.

Russia is still a country with a high prevalence of AUD, and especially of AD. The respective prevalence numbers for the European Union (EU) in 2010 were 3.4% for AD (1.7% for women and 5.2% for men [32]), both of which comprise fewer than half the Russian estimates for the overall prevalence and for men alone. Furthermore, the sex ratio in AD was lower in Russia (1:4.3) than in the EU (1:3.1; EU numbers from [32]). It should be noted that the last review of AD in Europe used here was for 2010. However, given the stability of alcohol per capita consumption for the EU, there is no reason to believe that EU prevalence has increased over the past decade. Finally, the age patterns for AD and AUD were sex-specific in Russia. While men shared the traditional age pattern of several other central and eastern European countries [33], women were found to show a decreasing pattern with age, as is typical for North America [34] and in most samples in the World Mental Health Survey [35]. It would be very interesting to further explore cultural differences in these sex \times age patterns found for AUD.

CONCLUSION

While the prevalence of AD and AUD is high in Russia there is a clear downward trend, at least from currently available data. Based on treatment data, this trend has been moving steadily downwards in recent years, with rates being reduced to almost one-third of the rate reported in 2003 [5, 36]. This reflects the much-reduced alcohol consumption in Russia during this time—in large part a result of Russia's national strategy to reduce the prevalence of AUD at the population level, and the increase in alcohol control policy measures which led to a reduction in the affordability and availability of alcoholic beverages, including unrecorded alcohol [5, 31].

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DECLARATION OF INTERESTS

The authors have no conflicts of interest to declare. The authors alone are responsible for the views expressed in this publication and these do not necessarily represent the decisions or the stated policy of the World Health Organization, where C.F.-B. and M.N. are staff members.

AUTHOR CONTRIBUTIONS

Jurgen Rehm: Conceptualization; formal analysis; funding acquisition; methodology; project administration; resources; supervision; validation. **Kevin Shield:** Formal analysis; investigation; methodology; supervision. **Anna Bunova:** Conceptualization; investigation. **Carina Ferreira-Borges:** Funding acquisition; resources; supervision. **Ari Franklin:** Data curation. **Boris Gornyi:** Conceptualization; investigation. **Pol Rovira:** Formal analysis; visualization. **Maria Neufeld:** Data curation; investigation; validation.

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