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Economic Availability of Alcohol and Alcoholism Incidence Rates in Russia

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Abstract

Background: Russia has one of the highest incidence of alcoholism (alcohol dependence) in Europe, which may be explained by high overall alcohol consumption and prevalence of binge drinking of vodka. There is evidence suggesting that alcohol-related morbidity and mortality responds to changes in the economic availability (affordability) of alcohol. Objective: The aim of the present study was to estimate the relationship between affordability of vodka and alcoholism incidence rate in post-Soviet Russia. Method: Trends in alcoholism incidence rate and affordability of vodka between 1991 and 2015 were compared. **Results:** A Spearman correlation analysis suggests a statistically significant negative association between the two variables (r=-0.53; p<0.007). **Conclusions:** The results from this study suggest an inverse aggregate-level relationship between vodka affordability and alcoholism incidence rate in Russia. These findings point to the complex relationship between alcohol affordability and long-term alcohol-related outcomes. The major conclusion emerging from this study is that the estimation of the relationship between alcohol affordability and alcohol-related harm needs to take into account multiple confounding variables.

Keywords: Affordability; Vodka; Alcoholism incidence rate; Russia

Introduction

Alcoholism (alcohol dependence) is one of the most severe health consequences of harmful drinking, which characterized by a loss of the ability to control use of alcohol, increased tolerance to the effects of alcohol, and withdrawal syndrome [1]. Russia has one of the highest incidence of alcoholism in Europe [2], which may be explained by high overall alcohol consumption and prevalence of binge drinking of vodka [3-6]. Currently, there are approximately 5 million alcoholics (alcohol dependent individuals) in Russia, and the number of heavy drinkers is three to four times that number [2].

The majority of aggregate econometric studies indicate that increased taxes and real prices on alcohol reduced the consumption and alcohol-related harm [7-12]. In his recent study, Gilmore and coauthors concluded that reducing the economic availability (affordability) of alcohol is one of the most effective interventions for reducing the harm caused by alcohol [1]. Available evidence also suggests that real price increase would have a much greater effect on heavy drinkers compared to moderate drinkers [10].

There is some evidence from Eastern Europe suggesting that alcohol-related morbidity and mortality responds to changes in the economic availability of alcohol [13-15]. Most experts agree that the affordability of vodka is one of the most important predictor of the dramatic fluctuations in Russian mortality during the last decades [3-6,15]. There are, however, suggestions that heavy drinkers are less responsible to prices compared to the general population [16].

Against this background, it would be interesting to evaluate the relationship between affordability of vodka and alcoholism (alcohol dependence) incidence rate in post-Soviet Russia. With this purpose trends in affordability of vodka and alcoholism incidence rate between 1991 and 2015 were compared.

Methods

The data on alcoholism incidence rate (per 100.000 of the population), average salary and price of vodka are taken from the Russian State Statistical Committee (Rosstat) reports (http://www.gks.ru/). Here we specified the number of alcohol dependent patients, witches were admitted to hospital for the first time as incidence of alcoholism and the number of liters of vodka the average salary could by as the affordability of vodka. To examine the relation between vodka affordability and alcoholism incidence rate a Spearman correlation analysis was performed using the statistical package "Statistica".

Results

The affordability of vodka in Russia has increased significantly since the early 1990s: the average salary in 1992 could by 12.0 liters of vodka compared with 91.2 liters in 2011. The affordability of vodka decreased substantially in 1992, and then began rising again. Between 1999 and 2005, the affordability of vodka increased dramatically (mostly because of the rapid growth of disposable incomes as the economy recovered), and then the affordability trend turned down (Figure 1).

The alcoholism incidence rate fluctuated over the period: increased substantially between 1991 and 1993; from 1994-1998 there was a fall in the rates before they again jumped between 1999 and 2003, and then started a downward trend (Figure 1). As can be seen from Figure 1, the temporal pattern of affordability of vodka and alcoholism incidence rate differs markedly. A Spearman correlation analysis suggests a statistically significant negative association between the two variables (r=-0.53; p<0.007).

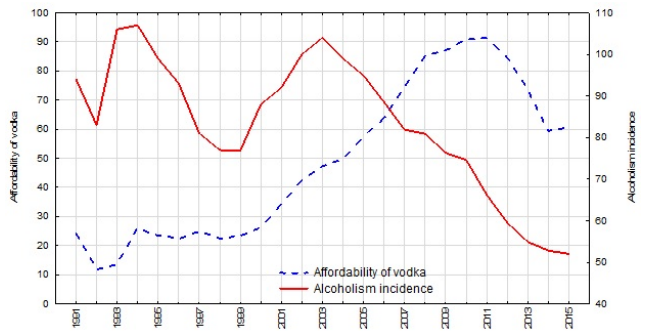

Figure 1: Affordability of vodka and alcoholism incidence rate in Russia.

Discussion

The findings from time series analysis suggest an inverse relationship between vodka affordability and alcoholism incidence rate. These results seem to contradict previous findings indicating that alcohol-related harm is closely related to prices on distilled spirits [7-12]. Nevertheless, a significant increase in the affordability of vodka appears to have been a major driver of dramatic increase in the alcoholism incidence rate between 1999 and 2003. Although taxes were periodically adjusted for inflation, the real value of the excise has dropped sharply during these years [3]. After 2003 the alcoholism incidence rate was falling, even though the affordability of vodka was increasing. It is clear that the downward trend in the alcoholism incidence rate between 2003 and 2011 is not related to the affordability of vodka.

During the recent years, the Russian government has adopted a comprehensive range of measures designed to reduce alcohol-related harm. Specifically, minimum price on vodka was introduced in 2010 [6]. Further, a new set of amendment to the 171 Federal Low was adopted in 2011 [5]. Most importantly, excise tax rates on vodka in Russia have increased 2.7 times (from 34 to 93 rubles per liter of pure alcohol) between 2011 and 2015 [6]. As a result, the affordability of vodka decreased by 34%, while the alcoholism incidence rate decreased by 33.2%. At the same time, facing economic crisis the Russian government reduced minimal price on vodka by 16% from 1 February 2015, which means an increase in the affordability of vodka [6].

Before concluding, it is necessary to consider the potential limitations of this study. This principally applies to the quality of the alcoholism incidence data used. Some expert argues that official statistics on alcoholism in Russia are misleading [2]. The deterioration in the official statistics could be attributable to the substantial decrease in the number of state-run narcological clinics and doctors during the last decade [14]. Besides, due to expansion of anonymous forms of treatment, a significant part of alcoholics failed to get registered at narcological establishments. Previous findings based on Russian data suggest that the incidence of alcoholism shows no correlation with the alcohol consumption per capita. Instead, it correlates positively with the number of doctors-narcologists [3]. In relation to this, it is important to acknowledge that alcohol affordability is just one factor that may affect alcohol consumption and alcohol-related harm and that may be the multiple confounders in this association including social and cultural variables. Therefore, additional confounding variables which may relate to the alcoholism incidence rate (the number of doctors-narcologists, availability of treatment, socio-demographic variables) should be included into analysis.

So, the results from this study suggest an inverse aggregate-level relationship between vodka affordability and alcoholism incidence rate in Russia. These findings point to the complex relationship between alcohol affordability and long-term alcohol-related outcomes. The major conclusion emerging from this study is that the estimation of the relationship between alcohol affordability and alcohol-related harm needs to take into account multiple confounding variables.

Conflict of interest

None declared

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