Socio-demographic characteristics, alcohol drinking and self-rated health among Russian women

A cross-sectional study
Abstract

Background: Russia has undergone tremendous socioeconomic transformations. Particularly detrimental was the period of 1990-s that evidenced hazardous trends in public health. Alcohol consumption was suggested to be responsible for the negative health trends in the society. Male alcohol consumption attracted disproportional attention leaving female alcohol consumption, its predictors and influence on women’s health disregarded and uninvestigated.

Aim: To describe the practices of female alcohol consumption and socio-demographic predictors of drinking, to explore the impact that drinking might have on the self-rated health of Russian women.

Method: Cross-sectional analysis of data drawn from the Russia Longitudinal Monitoring Survey, round 20th. The association tests between the measures of alcohol consumption and covariates were run. Ordinal regression model tested the predictors of self-rated health.

Results: A Russian female drinker is middle-aged, high-educated, married/ cohabiting or divorced, resides from the urban area and is infrequent drinker. The frequency of drinking increases when she is young, high-educated, married/ cohabiting, resides from urban area. U-shaped relation between drinking and self-rated health was demonstrated: never drinkers and regular drinkers report poorer health than seldom-drinkers.

Conclusion: Predictors of female drinking in Russia are poorly investigated due to overrepresentation of research focused on men’s drinking. More studies are needed in order to explore the impact of drinking on self-rated health of Russian women.

Key words: female alcohol consumption, Russian women, self-rated health, socio-demographic characteristics, health predictors, alcohol use
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1. Introduction

In the last 20 years Russia has undergone tremendous changes: the collapse of the Soviet Union, the birth of a new democratic state, transition from a planned economy into a market economy. Somewhat in parallel with the structural changes of the country, researchers and demographers reported the alarming decline of public health in the region. The unprecedented health situation during the transition period became known as Russia’s “mortality crisis” which was determined by dramatic fluctuations in mortality and a growing gap between the life expectancy of men and women (Leon et al., 1997; Shkolnikov 2001).

There is increasing evidence that the hazardous trends in health of Russians observed in the transition period are associated with alcohol consumption (Shkolnikov et al. 2001; Chenet et al. 1998; McKee et al. 2001; Nemtsov 2002; Leon et al. 2007). Alcohol is a well-known contributor to the global burden of disease and in 2000 it caused 3.2% of the global deaths (Rehm et al., 2004). Rehm, a leading alcohol researcher in Europe, demonstrated that alcohol is an important factor in the health differentiation between countries in the European Union, particularly highlighting that alcohol contributes to the large life expectancy gap between Russia and Western Europe (Rehm et al., 2004; Rehm et al., 2007). This has also been referred to as the European Health Divide (Vågerö & Illsley, 1992) or the European Mortality Divide (Bobak & Marmot, 1996).

According to World Health Organization (2011) Russian women are estimated to consume 15.3 litres pure alcohol per adult capita, whereas Russian men are estimated to consume considerably more – 35.4 per capita (recorded + unrecorded), with most of alcohol being consumed as spirits. In comparison, for Sweden estimations will be respectively 7.8 per capita and 16.7 per capita, with most of alcohol being consumed as wines (WHO, 2011). Another measurement used to compare countries – patterns of drinking score measured from 1 to 5 (the higher the patterns of drinking score – the greater the alcohol-attributable burden of disease for the country), would estimate Russia as 5 (most risky), whereas Sweden estimated at middle score (WHO, 2011).

Repeatedly researchers reported differences in drinking behavior between men and women. Men have traditionally been the primary subjects in alcohol studies, particularly in Russia, where the differences in alcohol consumption between genders are much greater than in other countries (Bobrova et al., 2010). Being strongly aware of the gender factor in alcohol research, this paper, however, intends to address mostly women’s drinking habits in Russia.
The aim of this paper is to investigate the patterns of alcohol consumption practiced by Russian women, whether there are any socio-demographic predictors of female drinking, and to explore the impact that drinking might have on the self-rated health of Russian women.

This paper involves the empirical analysis of the survey data which was drawn from the Russia Longitudinal Monitoring Survey (RLMS) – the longitudinal study of Russian households and individuals. I have used a cross-sectional study design based on the data from one of the rounds of the RLMS. The survey data was intended to provide statistical information on how the alcohol is consumed by Russian women, frequency of consumption and what are the social-demographic predictors of drinking. Moreover further statistical analyses were performed to investigate the association between drinking and self-rated health of Russian women.

The paper consists of four main sections. The following chapter (chapter 2) circles around social and structural transformations in the region in the past 20 years. The review is going along with the changes in alcohol consumption of population. Moreover, policy level and the unique anti-alcohol campaign are reviewed. Further, the gender perspective is presented reporting the differences in alcohol consumption between men and women. Next chapter describes the research design, methodology, and the analytical approach taken in respect to the data. This chapter discusses the choice of covariates and determinants selected for the analyses and the main measurements of alcohol consumption. Next chapter presents the main results starting with the descriptive statistics in the first part. It demonstrates the patterns of drinking practiced by Russian women in respect to four main socio-demographic characteristics: age, education, marital status and area of residence. Next part of this section focuses on the results of the ordinal regression analyses. Finally, the concluding chapters of discussion and conclusions are finishing the paper.

This thesis contributes to the scope of knowledge in female alcohol consumption which is somewhat unfairly neglected as a field, partly due to the one-sided focus on studies about male alcohol consumption. This study meant to address this knowledge gap and is an attempt to draw extra attention to the problem of female drinking in Russia and women’s health.

2. Theoretical background

Alcohol consumption in Russia is legendary and obviously plays a big role in the Russian society. Compared to other countries, Russia has its own style of alcohol consumption
determined by a rich history. The main goal of this section is to review the socioeconomic transformations in Russian society that took place in the past 20 years and the affect they has had on alcohol consumption. Particular attention is devoted to the structural changes and the role of the state as a controlling institution. The example of a unique anti-alcohol campaign is reviewed in detail.

2.1 Social frame: back into USSR

There is an opinion that the contemporary problems with alcohol in Russia might have grounds back in the Soviet times. The relationship between ordinary citizens and the Soviet authorities was bilateral towards the alcohol. On the one hand, in order to build a powerful totalitarian state, the authorities needed sober citizens who were required as a work force; on the other hand, rapid development needed large economic investments which could have been only derived internally due to the closed nature of the Soviet state. Consequently, trade of spirits was regarded as a potential source of revenue. Nemtsov (2011) in his summary of alcohol history in Russia pointed main characteristics of the alcohol situation of the post-war Soviet period: very high levels of state alcohol sales, high percentage of illegal alcohol consumption, drift to the consumption of hard liquor and the low quality of alcoholic beverages. Although, the seriousness of the problem seems obvious to the reader, Soviet authorities neglected it for many years and tried to withhold official statistics concerning alcohol abuse. In view of high secrecy regarding the alcohol situation and scanty of available data, the mission of researchers was hindered prior to the late 1980-s (Treml, 1997). Remarkably, already by then, the alarming difference in life expectancy between men and women in Russia was established (62 years VS 73 years, 1984) arousing speculations made by the western demographers about the role that alcohol abuse might possibly play in the pronounced difference (Nemtsov, 2011).

With the beginning of Gorbachev’s reforms and transformations, a new landmark of alcohol history in Russia has been started. One of the primary actions initiated by the new general secretary of the Communist party, who was concerned by the adverse effects of alcohol on health – was to launch a unique and forceful anti-alcohol campaign in 1985. Further, it was followed by two other campaigns, “perestroika” and “glasnost”, the former, applied reconstruction of the old political system and views, whereas the latter, claimed the freedom of speech and openness (Nemtsov, 2011; Vågerö, 2010). By 1985 Soviet authorities finally acknowledged the seriousness of the alcohol situation in the state and therefore launched the
anti-alcohol campaign. The following measures were introduced: reductions in state production and sale of alcoholic beverages, price increases, lowered minimum age level to 21 years, restrictions for sale in terms of time and serving places, shut-down of breweries and uprooting of vines (Reitan 2001). However, the nature of this campaign was mainly based on the ambitions of the leaders rather than on the scientific premises or accurate statistical calculations. Neither did it take to account the citizenry’s perspective, their basic values and needs, nor the role of alcohol as a cultural phenomenon. As a result, the campaign initiated a dramatic rise in illegal alcohol production, problems with sugar supply and substantially decreased budget revenue. The consequences of the anti-alcohol campaign gave rise to divergent assessments in the society. Some believed that it was a total fiasco of the command-administrative state which chose a compulsory and violent anti-alcohol measures that resulted into the loss of faith towards the leaders and state, creating the climate of united dissatisfaction and revolt at the citizenry level (Reitan 2001). On the other hand, introduced anti-alcohol measures created certain demographic changes that altered the stagnation period that the Soviet times generated (Vägerö 2010). The male mortality was substantially lowered and life expectancy for men increased. Moreover it is suggested that anti-alcohol campaign saved more than 1 million lives (Nemtsov, 2011). One should also bear in mind that the implementation of the anti-alcohol campaign coincided with the transition period in Russia that has been accompanied by social disorganization and has put enormous social and economic pressure on families which per se made the population exceptionally vulnerable and consequently raised the public’s resistance to the implemented from above measures.

What happened later in the history was totally unprecedented and would not probably happen in any Western country. The catastrophic collapse of the Soviet system brought total chaos to all spheres of life, particularly the alcohol sector, which went out of control arm-in-arm with new market reforms. Liberalization of the county, redistribution of property and the end of state monopoly resulted in the entrance of new actors on the market producing mostly illegal alcohol products (Nemtsov, 2011). Not being regulated by the state, alcohol market flooded with cheap surrogate alcohols that in turn resulted into the rise of consumption partly due to facilitated affordability of alcohol beverages. The period of 1990-1994 marked the drastic fall in life expectancy for men and sharp increase in mortality rates (Shkolnikov et al. 2001; Walberg et al. 1998; Vägerö 2010). Nemtsov (2011) compares human losses induced by alcohol in 1990-s with the war deaths during the military conflicts in Chechnya. Ironically, the increasing impoverishment of the Russian population that took place in the middle of 1990-s altered drinking patterns – expenses on the alcohol declined and therefore the

2.2 Drinking and its consequences for Russian population

Dramatic fluctuations in mortality rates witnessed in Russia over the transition period, have drawn considerable attention to the potential hazardous effect of alcohol consumption on overall health of Russians. Dynamics of alcohol consumption and matching changes in health indicators bore witness to the significance of the impact that alcohol has on the health of people in Russia. There is a numerous scope of research in Russia showing the direct and indirect negatives of alcohol consumption. Russia has a very low male life expectancy in comparison to European countries, and hazardous alcohol consumption is regarded as one of the key contributing factors (Gil et al., 2010). There is a specific attribute of alcohol consumption in Russia recognized as “binge drinking” or “zapoj” in Russian, i.e. a period of continuous drinking lasting several days which leads to person’s withdrawal from social life (Solodun et al. 2011).

The estimations show that alcohol may be responsible, in direct or indirect way, for more than 30% of all deaths in Russia and is an important contributor to all-cause mortality in the region (Nemtsov 2005). Specifically, drinking is related to deaths from accidents and violence (Zaridze et al. 2008), premature mortality (Leon et al., 2007), suicide rates (Pridemore 2006), homicide rates (Pridemore 2002), alcohol poisoning (Stickley et al., 2007). In spite of a known opinion that alcohol can function as a protecting factor against heart diseases (Doll et al., 2005), studies from Russia show the opposite: alcohol suspected to have an impact on cardiovascular mortality (Chenet et al. 1998, Leon et al. 1997, Sidorenkov et al. 2011). Studies showed an increased number of ambulance calls related to cardiovascular diseases on week-ends and Mondays when the excessive alcohol consumption usually takes place (Drachev et al., 2012). The possible explanation is the above-mentioned different pattern of alcohol consumption in Russia comparing to the other countries. It was also referred to as “Northern” way of alcohol consumption, i.e. large-dose drinking in a short period of time (Nemtsov, 2011).
2.3 Alcohol and gender differences

Studies from all over the world that measured alcohol use of men and women pointed the distinctive gender differences in alcohol consumption. Men’s alcohol consumption and related problems were universally found to exceed women’s (Wilsnack et al. 2000; Holmila & Raitasalo 2005). Studies from different societies and cultures have reported that heavy drinking predominates among men’s behavioral patterns. The International Research Group on Gender and Alcohol (IRGGA) has analyzed datasets from Canada, Australia, the Czech Republic, Estonia, Russia, the Netherlands, Sweden and USA on men’s and women’s drinking patterns and consequences in order to find out: how consistent is the prevalence of men’s alcohol use and related problems over women’s, and whether there are any evidence of recent convergence of men’s and women’s drinking patterns. Results showed that men are more likely to use alcohol; male drinkers drank more frequently, and with higher rates of adverse consequences (Wilsnack et al., 2000). Moreover the study showed that women were almost as likely as men to be current drinkers, although the gender ratios were much higher in relation to frequencies and quantities.

The gender differences in alcohol consumption can be reasoned from different perspectives. One perspective emphasizes the biological differences between men and women in relation to alcohol. Women tend to have greater vulnerability to ethanol’s effects: equivalent doses of alcohol seem to have different effect on men’s and women’s bodies due to either different volumes of body water that makes women more subjected to intoxication at equal doses of alcohol in comparison with men who have greater volumes of body water for distribution of alcohol; or different ethanol metabolism (Cole-Harding & Wilson, 1987; Mumenthaler et al. 1999; Lieber 2000). However, biological explanations for gender differences in alcohol use can neither adequately explain, basing on the notion of body water effects within-gender variations in drinking behavior, nor can they explain the variation of men’s and women’s patterns of alcohol consumption and alcohol-related problems across societies and cultures, etc. (Wilsnack et al. 2000).

The other, social-structural approach, sees the variation of men’s and women’s drinking behavior embedded in social roles that impose gender particular patterns of behavior in society (Wilsnack et al., 2000). Therefore, higher rates of male drinking are easier tolerated in the society and can serve as men’s exercise of masculinity and way to show self-control, self-confidence and willingness to take risks. Moreover, drinking for men can function as a way to establish personal ties with each other (McDonald 1994, Campbell 2000 cited by Wilsnack et
al., 2000). Conversely, women who are traditionally perceived as home-keepers and are tightly associated with family/domestic roles, i.e. bearing and nurturing of children, are morally condemned and socially disapproved to be drinkers (Wilsnack et al., 2000). A drunken woman seems more vulnerable: incapable to control her sexuality and is often perceived as a threat to a growth of problems with children, homes and traditional moral order (Holmila & Raitasalo, 2005).

Despite the consistency of results related to the gender gap, some studies have recently found evidence of “convergence” of drinking rates between men and women. McPherson, Caswell & Pledger (2004) in their study from 1995 and 2000 based on the New Zealand population, found evidence for gender convergence across a range of measures of alcohol consumption and alcohol-related problems. According to the results of the Finnish surveys, there was an increase in the proportion of consumed alcohol in 1970-s and 1990-s by women in Finland (Mustonen et al., 1999). There were also signs of slow increase in women’s proportion of the total consumption of alcohol in Sweden (Bergmark 2004), the Netherlands (Neve et al., 1996), Norway (Nordlund 1977, 1987), and Italy reporting the growth of moderate consumers particularly among young women (Osservatorio 2001). However, the consistency of the new tendencies of female drinking behavior was not established, but rather fluctuating trends were discussed.

Possible explanations for the convergence of men’s and women’s drinking refer to the changes in family structure, social life and gender roles particularly during the postwar era. The fundamental shift in the domain of women’s rights, opportunities and choices has challenged the traditional society structures and consequently standards of drinking. Modern society required equal participation of women and men in working life as well as family. Karin Bergmark (2004) speaking about the Swedish drinking culture pointed at the convergence between sexes, at least in urban areas. According to Bergmark, old women still tend to drink modest as it was traditionally implied to women according to the feminine roles in earlier times, whereas younger cohorts of women that have recently entered adulthood and working life, have increased the level of drinking (Bergmark, 2004). Remarkably, a possible growth in women’s drinking that was triggered by mentioned gender role changes is usually perceived alarming by men and will always attract public concern (Wilsnack et al., 2000). However, it would be unreasonable to ever expect the level of alcohol consumption of women and men to be equal. But the fact that alterations in women’s drinking behavior have occurred can not be disregarded – alcohol consumption among women became more prevalent, some fluctuations within specific age groups were evidenced. No drastic changes in women’s
drinking were observed and women incontrovertibly score lower in terms of drinking comparing to men. One can not help mentioning that differences between sexes in alcohol studies are so often taken for granted that they in one way might discourage further research in the inquired area particularly with women as a main focus group (Wilsnack et al., 1994, Hormila & Raitasalo 2004). Markedly, it is not only woman’s susceptibility to the alcohol and biological differences in general that distinguish sexes, but also needs, reasons and motivations to drink alcohol. Studies comparing values and attitudes of girls and boys found a large gap in attitudes towards alcohol, tobacco and drugs. School children already at the younger ages show gender variations: girls seem to be more aware of the dangers which drugs, alcohol and violence might pose for family relations in comparison to boys (Halstead & White, 2001). A study from New Zealand reports that male adolescents significantly more likely than females to report unsafe driving behaviors, drinking and driving, speeding on the open road, breaking the night curfew. While female adolescents were more likely to have been a passenger of a drinking driver after the last party they attended (Harré et al., 1996). Studies of adults, namely British middle-class individuals, pointed to significant gender differences, highlighting the higher likelihood of males to adopt risky health behaviors. Further, the social correlates of such behaviors also varied: such behaviors for men were significantly associated with marital status, the experience of social mobility and region. For women – with the presence of dependent children, educational level and the number of hours spent in paid employment (Burrows & Nettleton 1995).

A study of drinking habits from Finland reported that women more commonly used alcohol in order to sort out interpersonal problems at home or in the work-place, to feel more optimistic about life and to express their feelings. Whereas men more commonly reported that alcohol had helped them to increase their social attractiveness – be funnier and wittier, and to get closer to the opposite sex. Researchers also reported significant differences between men’s and women’s perceptions of the costs and benefits of drinking. Men perceived hedonic benefits, whereas women – functional benefits, and reported more reckless behavior under alcohol as being loud-voiced, being involved in quarrel or argument, losing money and regretting something they had said or done (Mäkela & Mustonen 2000). The other social studies also pointed out the gender variations in drinking control. Men were suggested to have a more externalized drinking control than women that makes them more prone to bingeing. Women, on the other hand, seemed to have a more internalized mechanism of drinking control and are less likely to indulge in binge drinking (cited by Holmila & Raitasalo, 2005).
The other important aspect of alcohol consumption – informal drinking control. The role as a moderator or warden of her partner’s drinking, is frequently attributed to women who in general direct efforts to control drinking. The role of inciter, on the contrary, is ascribed to men in relation to their wives’ drinking (Järvinen 1991; Room, Bondy & Ferris 1996). The results of a comparative study of family and alcohol in Finland and Estonia reported that wives were more likely to attempt to control their spouses’ drinking, which particularly took place in blue-collar families (Holmila, Mustonen & Rannik 1990).

2.4 Alcohol consumption among Russian women

Not surprisingly, to find out that most studies of alcohol consumption in Russia circle around men. There is convincing evidence that hazardous alcohol consumption plays an important role in explaining high mortality among working-age men (Leon et al. 2007). Bearing the burden of alcohol mortality, men, as a focus group, unquestionably attract the biggest bulk of literature leaving women’s drinking habits poorly described. The gender differences were once taken for granted, while additional secrecy of data about drinking resulted in scarcity of studies devoted to women’s alcohol consumption in Russia.

A study using the community samples in Moscow and Toronto discovered that sex differences in alcohol use are not uniform but are strongly dependent on gender role orientation and national context. Russia, bearing the heritage of communist time, exemplifies the society of collectivistic norms, goals and concerns (Van Gundy et al., 2005). Therefore, normative drinking behavior of men and women is profoundly embedded into cultural context and gender role orientations in Russia. Heavy alcohol consumption of Russian men is socially tolerated and is regarded as normative and permissive social behavior, whereas drinking among Russian women, on contrary, is more susceptible to social penalties. Moreover, the impact of cultural norms was suspected to determine the reporting accuracy of alcohol consumption among Russian women. According to Laatikainen et al. (2002) the self-reported mean consumption of pure alcohol showed significant higher consumption in the North Karelia province in Finland than in the neighboring Republic of Karelia in Russia among females, but no differences between males, while biological markers of drinking did not differ. Therefore, estimations of female consumption might be under-reported in Russia due to cultural aspects.

In parallel with international findings reporting that younger women are more likely than older to drink and be engaged in heavy episodic drinking (Wilsnack et al., 2000), findings
from Russia report an increased alcohol intake among women, particularly at younger cohorts (Malyutina et al., 2004, Perlman 2010). However, epidemiology of female drinking and alcohol-related problems in Russia remains poorly explored. 

Among the gender-specific health consequences that alcohol consumption has – is the effect on pregnancy. Alcohol-exposed pregnancies can result in fetal disorders, as fetal alcohol syndrome, and generally can have detrimental effects on pregnancy outcomes. A few studies of women’s alcohol consumption in Russia focus on differences in drinking between pregnant and non-pregnant women. A study of women of childbearing age from St. Petersburg and the Nizhniy Novgorod region reported that 89% of non-pregnant women consumed alcohol, 65% reported binge drinking in the past three months (Balacheva et al., 2011). Among pregnant women lower alcohol levels were reported, however 60% reported drinking when they knew they were pregnant and 35% drank in the past 30 days. A concerning fact was that among the latter, 7.4% reported drinking more than 5 drinks on at least one occasion despite the fact, that 90% of pregnant and non-pregnant women believed that alcohol had harmful effects to the offspring (Kristjanson et al., 2007). Similarly, in another longitudinal pregnancy outcome study conducted in the Moscow region: 85% of respondents reported some drinking, whereas 20% of drinking women reported at least one episode of five or more drinks around the time of conception (Chambers et al., 2006). The other cross-sectional study conducted in public women’s clinics in Russia reported a substantial reduction of drinking after pregnancy recognition. However, a high prevalence of binge drinking was found among women who might become pregnant or who were trying to conceive (Balachova et al., 2011). Mentioned studies showed relatively high rates of women’s alcohol use which is somewhat higher than reported earlier (Bobak et al., 1999; Malyutina et al., 2001; Perlman 2010). Possible explanations for the variations might be differences in data collection (interviews VS questionnaires) and the actual recent increase in women’s drinking in Russia (Balachova et al., 2011).

2.5 Alcohol consumption and its correlates

Earlier studies have concluded that socio-economic characteristics are closely associated with person’s drinking habits. Cockerman et al. (2006) investigated the relationship between psychological distress, gender and health lifestyles in Belarus, Kazahstan, Russia and Ukraina. Findings showed that although females expressed significant more psychological distress than males, it was not translated into greater alcohol consumption either for men or
for women. The study of alcohol consumption conducted in Taganrog in 1993, a middle-sized Russian city, revealed that family relations might be of vital importance for the men’s drinking behaviors. Those men who experience conflicts and strained relations in families reported heavy drinking more often than the other men (Carlson & Vågerö, 1998). However, to distinguish whether the problematic family relations caused heavy drinking behavior or vice versa, was impossible. A study conducted with a sample of 1190 Muscovites reports a strong link between economic strain and binge drinking. Economic problems among men were strongly associated with binge drinking, whereas among women the opposite was observed. Moreover, in the same cohort, a woman’s excessive alcohol drinking increased when she was single, separated or divorced, and had regular contacts with friends, whereas men’s marital status made little variation on drinking (Jukkala et al., 2008). The relationship between educational level and drinking behavior was mixed. Some studies report that people with a lower education tend to have greater rates of drinking and more often are engaged in binge drinking than those with higher education in both men and women (Jukkala et al., 2008; Malyutina et al., 2004). On the other hand, some studies have suggested that well-educated women are more likely to abuse alcohol than their less-educated counterparts (Huerta & Borgonovi 2010). Studies that investigated employment and drinking habits highlighted that alcohol consumption increased with unemployment, particularly in men (Bobak et al., 1999). Experiencing economic problems was found to be related to the risk of binge drinking among men. However, women seemed less likely to binge drink while experiencing economic problems (Jukkala et al., 2008).

In general, findings related to women’s alcohol consumption are inconsistent and sparse in Russia. Partly because of the disproportional focus on men which is logical since there is a striking difference between men’s and women’s alcohol abuse in the region. Unavailability of relevant data and very short tradition of alcohol investigations, particularly among women, worsen the picture. At the same time, gender studies highlight women’s higher susceptibility to alcohol, due to biological characteristics that results in higher alcohol concentrations in the female bodies from the same amount of alcohol comparing to men. It might result in earlier disorder development among women. Moreover, gender-specific health consequences related to the pregnancy outcomes are of particular concern. This study meant to address the knowledge gap existing in Russia in relation to women’s drinking and health-related consequences, and is an attempt to draw extra attention to this evaded issue.

The main objectives of the study therefore are to investigate:

- the patterns of alcohol consumption among Russian women;
• the possible socio-demographic predictors of female drinking;
• the effect of drinking and socio-demographic characteristics on self-rated health of Russian women.

3. Methodology of empirical research

3.1 Data description

The data used in the empirical analyses were drawn from the Russia Longitudinal Monitoring Survey (RLMS) – a panel study of households and individuals within them from 38 population centers across the Russian population\(^1\). The RLMS was initially designed to measure the impact of Russian reforms on the economic well-being of individuals and households. These effects were measured by a variety of means which included detailed monitoring of individuals’ health and dietary intake, precise measurement of household-level expenditures and service utilization etc. Covering the vast territory this survey required a sophisticated sampling technique. Data were collected for 160 communities. These 160 communities were allocated into 38 primary units based largely on geographic factors and level of urbanization. These sampling unites were later collapsed into eight regions.

The RLMS comprises two phases that were conducted on different sample. Phase I encompasses 4 rounds which were performed in 1992-94, whereas the Phase II, with a smaller sample size, had an onset in 1994 and is ongoing. Data for the empirical analyses in this paper were drawn from the 20\(^{th}\) round and presents the sample of 2011 that includes 17024 respondents, men and women. The non-response rate was approximately 15 \%. Detailed information about the sampling overview and attrition rates can be accessed through the above mentioned link.

The RLMS is the first nationally represented survey performed in Russia and is considered a unique and rich source of information on post-Soviet households. This database was extensively used by the researches from all over the world, particularly investigating alcohol consumption, and furthermore, the alcohol data were reported to be reliable and matching estimates from other sources (Trem, 1997). For instance, this dataset was used to investigate the association between alcohol consumption and labor market outcomes in Russia (Tekin, 2004), and by Perlman and Bobak (2008) to study the association between self-rated health

\(^1\) The RLMS is a collaborative effort of the University of North Carolina at Chapel Hill, the Russian Central Statistical Bureau (Goskomstat), and the All-Russia Center for Preventive Medicine. Detailed information about the survey can be found at http://www.cpc.unc.edu/projects/rlms.
and mortality. Also, by Perlman (2010) to study changes in drinking during the transition from Communism and by Baltagi & Geishecker (2006) to estimate a rational addiction (RA) model for alcohol consumption.

3.2 Measures and variables

3.1.1 Alcohol consumption

The survey asked respondents whether they consumed alcohol at least sometimes. This constitutes the primary measure of alcohol consumption – a general drinking indicator that indicates whether the respondent consumed alcohol at least sometimes. Those respondents, who answered affirmatively, i.e. admitting drinking at least sometimes, proceeded with the other questions concerning alcohol consumption. The next question asked respondents (those who consumed alcohol at least sometimes) whether they consumed alcohol in the past month (yes/ no). Based on both variables, a new variable i.e. alcohol consumption group, was created. It combined the responses on both questions and was grouped into three categories: never-drinker (respondents who answered that they never consumed alcohol in the general drinking question), seldom-drinker (respondents who admitted drinking at least sometimes but negated drinking in the last month), drinker (respondents who admitted both drinking at least sometimes and in the past month).

Those who admitted drinking in the past month were asked to specify the frequency of drinking which constitutes the second important measure of alcohol consumption, i.e. frequency of drinking. In addition, for descriptive purposes a number of other variables was included: “Do you drink alcohol before eating?”; “Do you drink alcohol when you eat?”; “Do you drink alcohol without food?”; “Do you drink alcohol at home?”; “Do you drink alcohol in restaurants or bars?”; “Do you drink alcohol in parks, on the street, at the entrance halls?”; “Do you drink alcohol at work, at the place where you study?”; “Do you drink alcohol when you visit someone?”.

Previous studies questioned the validity of suggested measurements of alcohol consumption referring to the tendency of individuals to underestimate the alcohol consumption (discussed above). However, several studies have examined the validity of self-reported alcohol and drug use comparing it with alternative sources of information and have found a fairly high validity rates (Tekin, 2004).
3.1.2 Frequency of alcohol consumption

The question about frequency was formulated to specify how frequently respondents (those who had consumed alcohol in the past month) drank alcohol during the previous month. It constitutes the second measure of alcohol consumption. Frequency was initially divided into subcategories: every day; 4-6 times a week; 2-3 times a week; once a week; 2-3 times a month; once in the last month. For the analyses this variable was collapsed into: more than once a week; once a week; 2-3 times in the last month; once in the last month.

3.1.3 Type of alcohol beverage

Those respondents who had consumed alcohol within the last month were asked whether they had consumed the following alcohol drinks: beer, wine, fortified wine, vodka, home-distilled spirits (it was named “samogon” in the questionnaire, i.e. a sort of local moonshine) or “other drinks”.

3.1.4 Social-economic characteristics (determinants and covariates)

In order to describe the sample a number of covariates was chosen. Age of the respondent was divided into 6 groups: 18-29, 30-39, 40-49, 50-59 and 60 and over. Education was divided into: primary/ incomplete secondary, complete secondary, higher. Marital status was divided into 4 categories: single, married/ cohabiting, divorced and widowed. Area of residence was divided into two categories: urban and rural. Employment status was ascertained by asking “what are doing currently doing in your life?”. Responses were divided into following 5 categories: “I’m working”; “parental leave up to 3 years”; “on any other paid vacation”; “on unpaid vacation”; and “don’t have any job”. Subjective income derived from “Imagine yourself being at the stairs with 9 steps, where on the lowest the poorest population groups are located, whereas on the highest – the richest, how would you evaluate your position?” and answers implied the range from 1 – the lowest and 9 – the highest. Numeric number of children was also included.

3.1.5 Health status

Self-rated health was based on the question “How would you evaluate your health?” and the answers were graded on a 5-point scale: very good; good; average; poor; or very poor. As a measure, subjective health is one the most frequently used assessments of the perceived health status in epidemiological research. Moreover it was earlier demonstrated that self-rated health
is a powerful predictor of future mortality and morbidity (Idler & Benyamini 1997; Eriksson et al., 2001).

3.3 Data preparation

For the statistical analyses the total sample was restricted to female respondents who were at least 18 years old, since this is the official minimum age for purchasing and drinking alcohol in Russia. This left us with 8077 respondents. All variables involved in the analyses were carefully translated into English and recoded into the view required for the purposes of analysis.

Since the analysis focuses on alcohol consumption, individuals were included in the final data analysis if they answered questions regarding the subject.

To ease the readers’ understanding, each piece of statistics presented in the paper will be accompanied by the respective number of respondents involved in the particular analysis.

3.4 Statistical analyses – guide to results

The results section is divided into two parts. The first one has a goal to describe the general patterns and practices of alcohol consumption among Russian women – how alcohol is consumed, how often the alcohol is consumed and what is the social-demographic distribution of drinking, with respect to two main measures of alcohol consumption – general alcohol consumption (by groups: never-drinker, seldom-drinker and drinker) and frequency of drinking (coded on a five-point scale: 1 = more than once a week, 2 = once/week, 3 = 2-3 times/week, 4 = once/month, plus 5 = never-drinkers). Four main social-economic predictors were chosen: age, education level, marital status and area of residence. Those variables are believed to discern the social context which may be a key determinant of choices over whether and how much alcohol an individual consumes (Huerta & Borgonovi, 2010). Associations are estimated and presented separately in accordance with measurements of alcohol consumption. Significant associations between the variables are presented as well. In order to see whether the relationships between categorical variables exist, Pearson’s chi-square tests are carried out (Field, 2009).

The second part has a goal to estimate how women’s self-rated health is affected by socio-demographic factors and alcohol consumption. It demonstrates the statistics obtained from the ordinal regression analysis. This type of regression models if often used in epidemiological studies to predict the dependent variable which is ordinal in its nature. Self-rated health was chosen as a dependent variable (outcome) in the regression equation and was represented by
an ordinal variable, which was coded: 1= very poor, 2= poor, 3= average, 4= good, 5= very good. In order to estimate the influence of different factors on this outcome, one equation for all women who answered the question about alcohol consumption (n=8077) was carried out. Following predictors were added into the regression equation: age (1= 8-29, 2= 30-39, 3= 40-49, 4= 50-59, 5= 60 and over), area of residence was represented by a binary variable (0= rural, 1= urban), marital status was chosen as a dummy factor and coded as four categories (1= widowed, 2= married/cohabiting, 3= divorced, 4= single; the latter is the reference group), general alcohol consumption was coded 1= never-drinker, 2= drinker, 3= seldom-drinker (the reference group). Additionally, the influence of frequency of alcohol consumption (1= more than once a week, 2= once/week, 3= 2-3 times/week, 4= once/month) was added.

Before the ordinal regression analysis was chosen as the most applicable way with regards to the aims of analysis and the specificity of data, I considered other possible ways of applying the regression analysis. One of the options was to use the linear regression analysis. However, the usual linear regression models do not work well in predicting ordinal responses. This method would be relevant assuming that the dependent variable is represented on the interval scale. Consequently, the application of the linear regression may not best reflect the relationships in the data. Ordinal regression procedure was therefore chosen as a way to build models and evaluate the importance of various predictor variables in our case where the dependent variable, self-rated health, is ordinal in nature.

Ordinal regression is an extended version of the standard logistic model which is used in many areas of research, in particular, in epidemiologic studies, as long as outcome variables can have more than two values, as health status, for instance, which is often measured on a graded scale in epidemiologic studies (Armstrong & Sloan.; 1989). The key difference from the logistic regression is that the categories of nominal variables can be ordered (e.g. from low to high as with health status in our case). Several statistical models were developed in order to make the full usage of information based on ordinal response scales. Widely recognized is the proportional odds model which is being implemented in this paper. The model allows us to turn the ordinal scale into a number of binary cut-off points that usually correspond to the number of categories of the dependent variable discarding one. Those cut-off points are considered as thresholds and are estimated separately as binary logistic regression models²

² Source: https://www.strath.ac.uk/aer/materials/5furtherquantitativeresearchdesignandanalysis/unit6/ordinalregression/ Accessed on 08.05.2014
The produced cut-off points are: 1= very poor self-rated health and below, cut-off point 2= poor self-rated health and below, cut-off point 3 = average self-rated health and below, cut-off point 4= good self-rated health and below.

All statistics are being performed with the help of Statistical software SPSS, version 13.

4. Results

4.1 Descriptive statistics. Socio-demographic characteristics of women’s drinking

Table 1 demonstrates the descriptive statistics for the full sample (n=8077). The age groups spread relatively equal. Being married/ cohabiting was the most common marital status followed by being widowed. More than half of the sample had less than higher education and only quarter attended University. The majority of the sample reported area of residence as urban – 68.2%. Interestingly, nearly equal amount of respondents described current employment status – “employed”, as those, who do not have any job (48.1% VS 48%). The average number of children is 1.75. The majority of Russian women perceive their health status as average – 52.8%. Among the rest of respondents, positive subjective health is prevailing – 29%, whereas 17.6% perceives health negatively.

The survey asked respondents whether they consumed alcohol at least sometimes. The majority of women in the studying sample drinks alcohol at least sometimes – 63.7% responded affirmatively and 36% negated (n=8077) (see Table 1).

Table 1. Descriptive statistics (n=8077)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>1573</td>
</tr>
<tr>
<td>30-39</td>
<td>1286</td>
</tr>
<tr>
<td>40-49</td>
<td>1229</td>
</tr>
<tr>
<td>50-59</td>
<td>1477</td>
</tr>
<tr>
<td>60 and over</td>
<td>2512</td>
</tr>
<tr>
<td><strong>Total (number of respondents)</strong></td>
<td>8077</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1200</td>
</tr>
<tr>
<td>Status</td>
<td>Count</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Married/ cohabiting</td>
<td>4412</td>
</tr>
<tr>
<td>Divorced</td>
<td>861</td>
</tr>
<tr>
<td>Widowed</td>
<td>1584</td>
</tr>
<tr>
<td>Missing</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>8077</td>
</tr>
</tbody>
</table>

**Education groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary/Incomplete secondary</td>
<td>1444</td>
<td>17.9</td>
</tr>
<tr>
<td>Complete secondary</td>
<td>4535</td>
<td>56.1</td>
</tr>
<tr>
<td>Higher</td>
<td>2021</td>
<td>25.0</td>
</tr>
<tr>
<td>Missing</td>
<td>77</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>8077</td>
<td></td>
</tr>
</tbody>
</table>

**Area of residence**

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>5505</td>
<td>68.2</td>
</tr>
<tr>
<td>Rural</td>
<td>2572</td>
<td>31.8</td>
</tr>
<tr>
<td>Total</td>
<td>8077</td>
<td></td>
</tr>
</tbody>
</table>

**Employment status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm working</td>
<td>3889</td>
<td>48.1</td>
</tr>
<tr>
<td>Parental leave up to 3 years</td>
<td>276</td>
<td>3.4</td>
</tr>
<tr>
<td>On any other paid vacation</td>
<td>22</td>
<td>0.3</td>
</tr>
<tr>
<td>On unpaid vacation</td>
<td>4</td>
<td>0.0</td>
</tr>
<tr>
<td>Don't have any job</td>
<td>3874</td>
<td>48.0</td>
</tr>
<tr>
<td>Missing</td>
<td>12</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>8077</td>
<td></td>
</tr>
</tbody>
</table>

**Subjective income (1-9) – mean**

| Missing | 190 | 2.4 |
| Total   | 8077| 97.6|

**Number of children – average**

| Missing | 1588 | 19.7 |
| Total   | 8077 | 80.3 |

**Self-rated health (%)**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>180</td>
<td>2.2</td>
</tr>
<tr>
<td>Poor</td>
<td>1244</td>
<td>15.4</td>
</tr>
<tr>
<td>Average (not bad/ not good)</td>
<td>4264</td>
<td>52.8</td>
</tr>
<tr>
<td>Good</td>
<td>2217</td>
<td>27.4</td>
</tr>
<tr>
<td>Very good</td>
<td>126</td>
<td>1.6</td>
</tr>
<tr>
<td>Missing</td>
<td>46</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>8077</td>
<td></td>
</tr>
</tbody>
</table>

**General alcohol consumption (%)**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (=drinker)</td>
<td>5142</td>
<td>63.7</td>
</tr>
<tr>
<td>No (=never -drinker)</td>
<td>2905</td>
<td>36.0</td>
</tr>
</tbody>
</table>
Table 2 shows that regular drinking is most prevalent among women 30-39 and 40-49 years old. Moreover, likelihood of drinking is significantly lower among women in the age group 60 and over. So generally, the middle-aged groups drink more than older groups. However, on this step of analysis only the fact that alcohol was consumed at all can be captured, neglecting other parameters as quantity and frequency, which may vary between different social groups.

As Table 2 displays, while stratifying for the three levels of education, high-educated are more likely to be drinkers than low-educated respondents. Education in Russia can be a key factor to the employment and consequently, economic independence and possibility to spend money free including on alcohol, which can result into increased drinking rates.

Further, married/ cohabiting and divorced women are more likely to be drinkers. The least consuming group according to Table 2 – are widowers (54.1% of never-drinkers). Finally, drinkers are more likely to reside from urban areas. It is important to mention that age structure should be taken into account, for instance, because age is closely related to marital status. Therefore, looking at the frequency of drinking (next step) may provide a clearer picture of differences in drinking habits between various marital status groups.
### Table 2. Alcohol consumption groups by age, education, marital status and area of residence

<table>
<thead>
<tr>
<th>Variables</th>
<th>Alcohol consumption groups (n=8039)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never-drinkers (n=2905)</td>
<td>Seldom-drinkers (n=1770)</td>
</tr>
<tr>
<td><strong>Age (n=8039)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>34.3%</td>
<td>22.1%</td>
</tr>
<tr>
<td>30-39</td>
<td>23.6%</td>
<td>23.2%</td>
</tr>
<tr>
<td>40-49</td>
<td>23.1%</td>
<td>21.9%</td>
</tr>
<tr>
<td>50-59</td>
<td>30.4%</td>
<td>23.1%</td>
</tr>
<tr>
<td>60 and over</td>
<td>53.4%</td>
<td>20.8%</td>
</tr>
<tr>
<td><strong>Education (n=7963)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary/ Incomplete secondary</td>
<td>56.9%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Complete secondary</td>
<td>33.4%</td>
<td>24%</td>
</tr>
<tr>
<td>Higher</td>
<td>27%</td>
<td>21.5%</td>
</tr>
<tr>
<td><strong>Marital status (n=8039)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>41.9%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Married/ Cohabiting</td>
<td>29.2%</td>
<td>22.8%</td>
</tr>
<tr>
<td>Divorced</td>
<td>30.9%</td>
<td>21%</td>
</tr>
<tr>
<td>Widowed</td>
<td>54.1%</td>
<td>21.3%</td>
</tr>
<tr>
<td><strong>Area of residence (n=8039)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>31.9%</td>
<td>21.9%</td>
</tr>
<tr>
<td>Rural</td>
<td>45.4%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

**Note:** Pearson chi-square asymp. sig (2-sided) <0.001.

Results at the first step of analysis are scarce and do not provide a full picture of alcohol consumption. On this level of analysis we can simply state the fact that someone has been drinking in the relevant period of time by socio-demographic characteristics. In the reality, drinking for a married woman compared to a single woman may not have the same meaning, and therefore, controlling for the other variable as frequency of drinking is important and will capture the wider picture of a Russian female drinker.
4.2 Frequency of drinking during the last month

Among those women who affirmed alcohol consumption in the last month, almost half of them specified that they consumed alcohol a couple of times in the last month and a third reported even less frequent consumption. Consequently, Russian women can be considered infrequent drinkers.

Note: Pearson chi-square asympt. sig (2-sided) <0.001.

Figure 2. Frequency of alcohol consumption by age (n=8062)
There are significant age differences in the frequency of alcohol consumption. Data presented in Figure 2 show that younger women are more likely to be frequent drinkers than their counterparts in older ages. There are approximately 13.9% (summing the frequency groups) young women consuming alcohol at least once a week or more often comparing to 11.5% among 50-59 years old and about 4.1% in the eldest group of 60 and over. The finding that young Russian generation has a tendency towards more frequent alcohol consumption might be imbedded in the differences of lifestyles of Russians. Youngsters tend to be involved in a greater variety of social activities that may include alcohol drinking, whereas elder generations traditionally spend time mostly at home or with families. However, it is important to mention that the variable frequency of drinking did not specify the volume of the alcohol consumed at one sitting, therefore, one may assume that some individuals can consume a glass of wine, whereas the others may practice excessive drinking, while both respondents will perceive that as one sitting of drinking.

Note: Pearson chi-square asymptotic significance (2-sided) <0.001.

**Figure 3. Frequency of alcohol consumption by education (n=7985)**

There are significant differences in frequency of drinking by education. As Figure 3 demonstrates, the frequency of alcohol consumption increased with the women’s education. The high-educated women have a higher likelihood to practice drinking more frequently – 13.2% drink at
least once a week or more often comparing to 7.2% among low-educated counterparts (when summing two first frequency groups). It can be explained by the higher chances of being employed among high-educated which can result into higher participation of women in social activities that can include alcohol consumption.

Figure 4. Frequency of alcohol consumption by marital status (n=8042)

Figure 4 shows that the most frequent drinkers are women who are married/cohabiting, as opposed to widowed women who has the least likelihood to be frequent drinkers. Divorced women have quite similarly frequency rates of drinking as married/cohabiting. Bearing in mind the high rates of men’s drinking reported in Russia, one might assume that frequency of women’s drinking can be influenced by their spouses’ drinking habits in a way that men can take a role of inciter and thus, increase the frequency of women’s drinking. The possible explanation of the least frequent drinking among widowed women can be the fact that mostly elder women belong to that group, whereas elder groups were reported earlier to have significantly lower frequency rates of drinking.

Note: Pearson chi-square asymp. sig (2-sided) <0.001.
According to the Figure 5, urban residents have significantly higher likelihood to be frequent drinkers in comparison to their rural counterparts (13.8% VS 6% combining two frequency groups). Possible explanation may be that urban areas in Russia are substantially more developed in comparison to the rural areas. Respondents who are living in cities can easily access the entertainment sphere, for instance, bars and restaurants. It can lead to their greater participation in social activities and consequently higher frequency of drinking. Whereas rural residents, due to the lower choice of options of leisure activities, might spend more time at home and consequently drink less often. However, no speculations upon the amount of alcohol that is being consumed can be made here, but mainly the fact that it was consumed certain amount of times.

4.3 Types of alcohol beverages

Question concerning the favored type of alcohol beverages consumed in the past month reports (see Figure 6) that the most popular type of alcohol drink for Russian women is dry wine/ champagne, second place belongs to beer and third, interestingly, vodka/ other hard liquor.
Figure 6. The consumption of various types of alcoholic beverages (n=3467) (multiple choices)

Alcohol is mostly consumed while having a meal, while being at home and often while visiting someone. A fifth of respondents consumed alcohol while being in restaurants and bars. Quite rarely alcohol is consumed before eating or without food or while working/studying.

Table 3. How and when alcohol is consumed

<table>
<thead>
<tr>
<th>Variables</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you drink alcohol when you eat? (n=3443)</td>
<td>Yes 91.4</td>
</tr>
<tr>
<td>Do you drink alcohol without food? (n=3439)</td>
<td>Yes 14.2</td>
</tr>
<tr>
<td>Do you drink alcohol at home? (n=3443)</td>
<td>Yes 84.8</td>
</tr>
<tr>
<td>Do you drink alcohol in restaurants or bars? (n=3441)</td>
<td>Yes 22.5</td>
</tr>
<tr>
<td>Do you drink alcohol in parks, on the street, at the entrance halls? (n=3442)</td>
<td>Yes 2.2</td>
</tr>
<tr>
<td>Do you drink alcohol at work, at the place where you study? (n=3442)</td>
<td>Yes 7.1</td>
</tr>
<tr>
<td>Do you drink alcohol when you visit someone? (n=3443)</td>
<td>Yes 74.6</td>
</tr>
</tbody>
</table>
In sum, the descriptive analysis of data has revealed that the majority of Russian women consume alcohol but not very frequently. Summarizing their social-demographic characteristics, a following profile of a female Russian drinker appears: she is middle-aged, high-educated, married/cohabiting or divorced, resides from an urban area, consumes alcohol a couple of times in a month; the frequency of drinking increases when she is young, high-educated, married/cohabiting and resides from urban area. She prefers to drink wine/champagne or a beer while being at home or visiting someone.

4.4 Ordinal regression analysis.

This part of the paper presents the results of the ordinal regression analysis that aimed to evaluate the effect of socio-demographic characteristics and drinking habits on the self-rated health of Russian women. The variable self-rated health is used as a dependent variable (outcome) in the regression equation. The following variables were added into the equation: age, education, area of residence, marital status (the reference group= single), general alcohol consumption group (the reference group= seldom drinker). The regression analysis (see Table 4) is based on a multivariate analysis. The estimates in the first column represent the influence of each factor on the outcome, adjusted for the influence of all the other factors in the model. It has shown that the main predicting factors of the self-rated health of women for the study sample are: education (the higher is the level of education, the better is the self-rated health of women), respondent’s age (elder women are more likely to have worse health status), area of residence (women in the rural area tend to have a better self-rated health), marital status (widows are more likely to have lower self-rated health in comparison to singles). Moreover associations with dummies based on general alcohol consumption groups has shown that those who are not drinking and drinking have worse self-rated health than those who are drinking seldom. Frequency of alcohol consumption was not significant (not presented).
### Table 4. Results of the ordinal regression analysis

<table>
<thead>
<tr>
<th>Y</th>
<th>Estimate (α)</th>
<th>C. I. (LL UL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut-off point 1 (very poor and below)</td>
<td>-6.9***</td>
<td>(-7.194, -6.616)</td>
</tr>
<tr>
<td>Cut-off point 2 (poor and below)</td>
<td>-4.4***</td>
<td>(-4.651, -4.149)</td>
</tr>
<tr>
<td>Cut-off point 3 (average and below)</td>
<td>-1.0***</td>
<td>(-1.271, -0.823)</td>
</tr>
<tr>
<td>Cut-off point 4 (good and below)</td>
<td>2.5***</td>
<td>(2.312, 2.859)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>Estimate (β)</th>
<th>C. I. (LL UL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td>-.765***</td>
<td>(-0.806, -0.723)</td>
</tr>
<tr>
<td>Education</td>
<td>.364***</td>
<td>(0.293, 0.436)</td>
</tr>
<tr>
<td>Area residence</td>
<td>-.245***</td>
<td>(-0.343, -0.147)</td>
</tr>
<tr>
<td>Marital status dummy (widowed)</td>
<td>-.593***</td>
<td>(-0.781, -0.406)</td>
</tr>
<tr>
<td>Marital status dummy (married)</td>
<td>-.077</td>
<td>(-0.218, -0.64)</td>
</tr>
<tr>
<td>Marital status dummy (divorced)</td>
<td>-.123</td>
<td>(-0.315, -0.70)</td>
</tr>
<tr>
<td>Marital status dummy reference (single)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alcohol consumption group dummy (never-drinker)</td>
<td>-.454***</td>
<td>(-0.577, -0.332)</td>
</tr>
<tr>
<td>Alcohol consumption group (drinker)</td>
<td>-.202**</td>
<td>(-0.320, -0.085)</td>
</tr>
<tr>
<td>Alcohol consumption group (seldom-drinker) reference</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

| Nagelkerke R² | .352 |
| Model sig.    | .000 |
| Goodness of-Fit Sig | .395 |
| N             | 8077 |

Note: *, **, and *** Estimated coefficients are statistically different from zero at the 10%, 5%, and 1% levels, respectively.

Similarly to any regression analyses, ordinal regression model needs to be significant to indicate the extent to which the model predicts the outcome. A number of tests were carried out in order to evaluate the quality of the model. Primarily, a model fit is tested by a chi square test for the model with the intercept only (-2 log likelihood) and for the model with all predictors included into analysis. The result of the test is presented in Table 4 (see Model sig. row). If the significance level (p) is lower than 0.05, it indicates that the model gives a

---

*Cut-off points of the outcome, i.e. self-rated health*
significant enhancement over the intercept-only model\textsuperscript{4}. According to the statistics from the Table 4 the estimated model is significant and improves the ability to explain self-rated health.

The other test that was included in order to measure the goodness of model fit – the \textit{Goodness-of-fit Sig} which captures the consistency of data with the estimated model. This coefficient is based on the zero-hypothesis that the data is fitting the model. The p-value according to the results is significant for the estimated model, therefore implying the validity of the estimated model and the acceptance of zero-hypothesis.

Finally, the \textit{Nagelkerke R Square} which is a pseudo R-squared measure summarizes the proportion of variance in the dependent variable associated with the predictor (independent) variables. According to the results presented in the Table 4, independent variables explain a relatively large proportion of the variation in the outcome, self-rated health.

5. Discussion

The gender differences in alcohol consumption in Russia are widely recognized. Women’s rates of drinking, with no exception, are lower than men’s (Bobak et al., 1999; Malyutina et al., 2001; Rahav et al., 2006). Not surprisingly, the majority of alcohol studies are focused on men. On contrary, this study focuses on women and their drinking habits and health status. First part of analysis – descriptive, aimed to review the patterns and practices of drinking assessing the relationships between socio-demographic characteristics and drinking. It revealed that the majority of Russian women consume alcohol. However, contrary to men, women were found to be infrequent drinkers. In sum, the analysis of socio-demographic predictors revealed that Russian female drinker is middle-aged, high-educated, married/cohabiting or divorced, resides from an urban area, and consumes alcohol a couple of times a month. The frequency of alcohol consumption tends to increase when the woman is younger, high-educated, residing from urban area and is married/cohabiting. Russian women prefer light alcohol drinks.

In general previous findings of socio-economic determinants of female drinking were inconsistent. Some reported that women who drink are significantly younger than non-drinkers (Baltagi & Geishecker, 2006). A number of previous studies reported a similar to our findings tendency towards reduction of alcohol use in elder ages (Cockerham et al., 2006).

For instance, in South Korean study researchers reported a steep decrease in high-risk drinking with aging among women (Chung et al., 2012).

The general finding of the previous research, as well as of this study, is that the younger women are engaged in alcohol consumption (Bobak et al., 1999; Wilsnack et al., 2000). Specifically, in this study was found that young women are frequent drinkers in comparison to the other age groups. This pattern is particularly concerning since drinking in child-bearing ages, specifically during pregnancy, can be hazardous for the offspring. In fact, according to the study conducted in St. Petersburg, most pregnant women reduced their drinking during pregnancy, one-third of the pregnant women, however, did not stop drinking, despite the fact that almost all women believed that alcohol has a detrimental effect on pregnancy outcomes (Kristjanson et al., 2007). These results indicate that young women are a vulnerable group concerning alcohol use and should be considered as a target for future preventive programs.

On contrary to the findings of male alcohol consumption that found the clear inverse educational gradient in drinking (Carlson & Vågerö, 1998; Malyutina et al., 2004), findings for females were inconsistent. Some studies have suggested that better educated women have likelihood to abuse alcohol than less educated once (Huerta et al., 2010). Whereas, certain studies reported negative association between level of education and heavy alcohol consumption (Jukkala et al., 2008; Malyutina et al., 2004; Chung et., 2012). This study showed that high-educated women are more likely to be drinkers than low-educated respondents. Moreover frequency of drinking was significantly higher among high-educated women. In some societies, being higher educated increased the chances of women to be financially independent which entails the freedom to spend their money as they wish, for instance on drinking (Ahlström et al., 2001).

The researchers investigating the association between drinking and marital status, report gender differences. Whereas the general finding is that alcohol drinking is higher in unmarried persons (Cockerham et al., 2006; Leonard et al., 1999; Power et al., 1999), by gender, women’s excessive alcohol consumption increased when she was single, separated, divorced or widowed (Pomerleau et al., 2008; Jukkala et al., 2008). This study has found that married/ cohabiting as well as divorced women are more likely to be drinkers. Moreover the same marital status groups have the highest likelihood to be frequent drinker, whereas widowed women – the least. For men findings on the same dataset reported that male drinkers are more likely to be married (Baltagi & Geishecker, 2006). Other studies reported that divorced people consistently drink more often and in greater volumes than people of other marital statuses (Ahlström et al., 2001). The substantially lower frequency of alcohol
consumption in Russia among widowed women can be explained by the fact that there are mostly elder females in that group and age is a well-recognized predictor of health behaviors as smoking and drinking.

It is important to mention that the way alcohol is consumed in Russia by females may be imbedded in a traditional gender structure in Russian society as it was discussed in the literature review. A traditional role of a mother and a keeper of family makes female’s life more time-consuming, leaving less time for occasions to drink (Bobrova et al., 2010). Furthermore, it has been reported in Russia and some other eastern European countries that the “double burden” for women in combining responsibilities in working life and domestic life functions in a protective way, i.e. decreases women’s drinking and prevents from heavy drinking (Ahlstrom et al., 2001; Ashwin, 2007).

The survey conducted in the Russian city of Novosibirsk investigated gender differences in drinking patterns report that women in Russia are expected to drink much less than men or only “symbolically”. Moreover women highlighted that heavy drinking among spouses influenced their own alcohol intake in a way that they “could not stand alcohol” and avoided keeping it at home (Bobrova et al., 2010). According to the results of the current study, being married/ cohabiting increased the likelihood to be a drinker for a woman, therefore, further investigations of the impact that male’s drinking on the other family members, particularly wife’s/ partner’s health and their drinking habits are needed.

The second part of analysis had a goal to investigate the predictors of self-rated health of Russian women. Self-perceived health has been found to be a good predictor of mortality and morbidity (Idler & Benyamini, 1997) and therefore is a reliable measure. Furthermore, large socio-economic inequalities have been observed in health status. The research of self-rated health of Russian women is not extensive. A study from Moscow and two rural regions of Russia estimated family influences on self-rated health has found that the family economic difficulties affected self-rated health of both spouses (Cubbins et al., 2001). Likewise the findings of this study, previous research has shown that age, education, employment status (not tested in this study) and urbanization are important socio-demographic determinants of excellent health (Mackenbach et al., 1994). Moreover according to the same group of researchers the important specific risk factors were leisure exercise, housing problems, smoking, negative life events, obesity and alcohol intake.

Findings in this study report that education is positively related to self-rated health, i.e. the higher is the level of education – the better is the self-rated health women. It was suggested
earlier that better-educated individuals have a greater access to information and may be, therefore, more aware about the risks that alcohol abuse entails (Huerta & Borgonovi, 2010). The other study based on the same data set reports that men and women with less education experienced significantly higher mortality and worse self-rated health (Perlman & Bobak, 2008).

In line with socio-economic status of individual, life-style factors were suggested to affect self-rated health (Cockerham 2006). For instance, alcohol intake was identified as a risk factor. Among men, the highest level of drinking was reported for those with the lowest self-rated health. The pattern was different in this study. Ordinal regression analysis demonstrated a U-shaped relation between drinking and self-rated health. Never-drinking women and regular drinkers had worse subjective health than seldom drinkers when several socio-demographic characteristics have been controlled for. It was suggested earlier that alcohol may be used among women to sort out interpersonal problems, cope with stress and depression, and helps to feel more optimistic about life. Thus, better self-rated health among seldom drinking Russian women may be explained by the positive effect alcohol may have on the psychological well-being of women. Moreover, it was shown in the previous research that former drinkers and lifelong abstainers had worse health and functioning than current drinkers (Green & Polen, 2001), and alcohol consumption in moderate forms may have a favorable effect (de Lorimer, 2000).

In future more studies are required to distinguish the differences in alcohol consumption between Russian women and men. Gender differences have to be taken into account while studying alcohol consumption in Russia both in terms of biological reaction to alcohol intake, needs and reasons for drinking and health-related consequences. Female drinking still remains largely under investigated and, therefore, more research is needed in order to develop effective alcohol policies targeted at specific social groups.

5.1 Strengths and limitations

This study is based on the largest population sample from post-transition Russia, and provides a unique possibility to investigate the contemporary determinants of health. Due to the special sampling technique, the study sample is representative on the national scale, and the findings thus may be generalized within Russia.

The second notable contribution of this paper is that it brought up a gender perspective into the subject of alcohol consumption which is innovative in some way, especially concerning
the predomination of literature focused on male alcohol consumption. Therefore, this paper improves the literature on drinking among women that is disproportionally underrepresented. While this paper extends the literature on the effect of alcohol consumption on self-rated health focusing on Russian women, more research is clearly needed to investigate profoundly the possible adverse effect drinking has.

There are also several limitations to this study. The first is the choice of measurements. Both alcohol consumption and self-rated health are subjectively reported. As it was discussed above alcohol consumption might be under-reported that is particularly relevant for the women in Russia due to socio-cultural norms and values that exist in the society (Laatikanen et al., 2002). Thus, it is possible that Russian women lessen the actual consumption due to negative attitude towards drinking. This would influence downwards the estimates of how many women that are regular drinkers. But it is less clear in which direction, if any, it may influence our estimates in ordinal regression analysis. Furthermore, it was already noted that RLMS sample of drinking population is biased. Such groups as migrants, serviceman, inmates, homeless people and other marginal groups are not represented in the sample (Nemtsov, 2003). And finally, the design of the study is cross-sectional and, consequently, the interpretation of the estimated associations should be done with caution.

6. Conclusions

The objectives of this study were to investigate:

- the patterns of alcohol consumption practiced by women in Russia
- possible socio-demographic predictors of drinking
- the impact of drinking on self-rated health of Russian women.

The analysis has shown that the majority of Russian women consume alcohol, however they are infrequent drinkers. The social-demographic predictors of female drinking are: age, education, marital status and area of residence. The main finding is – the U-shaped relation between drinking and self-rated health of women.

Female drinking as an area of research is mostly neglected in Russia. Reasons for that might be the substantially higher rates of drinking among men, but also the stigmatization of women’s drinking due to the persisting traditional gender roles in Russian society and as a result underreporting of drinking, which makes it even more difficult to explore the subject. The current study was meant to address the knowledge gap in relation to women’s drinking and health-related outcomes. Founded patterns of drinking among women differ from male’s
drinking behaviors. Furthermore, gender-specific health consequences of drinking, as for instance, the effect on pregnancy, define women as a vulnerable group that requires gender-defined prevention policies. Moreover, future studies of the impact of men’s drinking on their spouses’ drinking and health, might substantially enrich the knowledge of drinking among women.

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References:

on weekends. *Int J Circumpolar Health*, 71: 19124 - http://dx.doi.org/10.3402/ijch.v71i0.19124


Appendix

Appendix 1. The part of questionnaire concerning alcohol consumption

1) Do you consume alcohol at least sometimes, including beer?
   - Yes, I consume
   - No, I never consume

Those who responded affirmatively proceeded with the rest of questions.

2) Have you been consuming alcohol during the last 30 days?
   - Yes
   - No

3) How often did you consume alcohol during the last 30 days?
   1) everyday
   2) 4-6 times per week
   3) 2-3 times per week
   4) Once a week
   5) 2-3 times during the last 30 days
   6) once during the last 30 days

4) Do you drink alcohol before eating?
   - Yes
   - No

5) Do you drink alcohol when you eat?
   - Yes
   - No

6) Do you drink alcohol without food?
   - Yes
   - No

7) Do you drink alcohol at home?
   - Yes
   - No

8) Do you drink alcohol in restaurants and bars?
   - Yes
   - No

9) Do you drink alcohol in parks, on the street, at the entrance hall?
   - Yes
10) Do you drink alcohol at work, at the place where you study?
   - Yes
   - No

11) Do you drink alcohol when you visit someone?
   - Yes
   - No

12) Did you drink beer during the last 30 days?
   - Yes
   - No

13) Did you drink home-brew during the last 30 days?
   - Yes
   - No

14) Did you drink dry wine, champagne during the last 30 days?
   - Yes
   - No

15) Did you drink fortified wine during the last 30 days?
   - Yes
   - No

16) Did you drink homemade liquor (samogon) during the last 30 days?
   - Yes
   - No

17) Did you drink vodka or other hard liquor during the last 30 days?
   - Yes
   - No

18) Did you drink alcohol cocktails during the last 30 days?
   - Yes
   - No

19) Did you drink anything else during the last 30 days?
   - Yes
   - No