Gender aspects of the tobacco epidemic in Russia

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Extended abstract

Introduction

The development of the tobacco epidemic in Russia is not much different from what was previously observed in developed countries. Male smoking prevalence in Russia is one of the highest in the world, while female smoking has increased significantly in 1990-ies. In the 2010s after two decades of full liberalization, tobacco control policies have tightened significantly, leading to a steady decline in smoking prevalence, observed for the first time in the post-Soviet period. However, this decline affected mainly men, while smoking among women stagnated and even increased among certain groups.

Figure 1

In our study, we focus on several research questions. First, we provide a detailed quantitative assessment of the effect of smoking on mortality. Using national data on causes-related mortality and international estimates of the relative mortality risks for smokers, we estimate the tobacco attributable mortality in 2004-2017, as well as its contribution to reducing life expectancy and health life expectancy in Russia. Next, we shift the focus of research to the micro level, trying to reveal individual and household determinants of smoking. On the final stage of our research we discuss the problem of non-decreasing female smoking in Russia in the context of the incomplete gender transition.

Data and methods

Key sources of empirical research data are:

- The Russian Longitudinal Monitoring Survey - Higher School of Economics (RLMS-HSE) from 1994 to 2017 (prevalence of smoking and health status), https://www.hse.ru/en/rlms/;
- The Russian Fertility and Mortality database (RusFMD) of the Centre of Demographic Research of the New Economic School (CDR NES (mortality rates by cause of death and average annual population for five-year-old age groups, 1994-2017), http://demogr.nes.ru/en/demogr_indicat/data_description.

We also used estimates of relative risks for diseases associated with smoking based on CPS II data from (Oza et al. 2011)[1].

To estimate tobacco attributable mortality we calculated supplementary risk factor due to smoking separately by type of disease and sex and age groups - PAF (population attributable fraction):

$$PAF_{ij} = \left(\left(p_j^{(0)} + p_j^{(1)} \times RR_{ij}^{(1)} + p_j^{(2)} \times RR_{ij}^{(2)}\right) - 1\right) / \left(p_j^{(0)} + p_j^{(1)} \times RR_{ij}^{(1)} + p_j^{(2)} \times RR_{ij}^{(2)}\right),$$

[1] Oza S., Thun M., Henley J., Lopez A., Ezzati M. (2011). How many deaths are attributable to smoking in the United States? Comparison of methods for estimating smoking-attributable mortality when smoking prevalence changes. *Preventive Medicine*, 52 (6), 428-433. doi: 10.1016/j.ypmed.2011.04.007

where $p_j^{(0)}, p_j^{(1)}, p_j^{(2)}$ is the prevalance of smoking in sex and age group j among those who had never smoked, ex-smokers and smokers respectively. $RR_{ij}^{(1)}$ and $RR_{ij}^{(2)}$ are the relative risk of death for ex-smokers and smokers of disease i in sex and age group j compared to those who had never smoke. The values of prevalence of smoking pending on the smokes status for various sex and age groups were calculated using RLMS data with a lag of 10 years. The relative risk of death were borrowed from research based on CPS II studies'data (Oza et al 2011: table 1).

The number of supplementary AM deaths (mortality attributed to smoking) of the given disease is calculated as follows: $AM = OM \times PAF$, where OM is the total number of death due to the cause of death taken from official mortality statistics. Finally, we build life tables for current smokers, former smokers and never smoked.

RESULTS

1. Smoking as a Factor of Reduced Life Expectancy in Russia

Smoking is an important factor of preventable mortality in Russia. According to the author's calculations, based on international estimates of the relative risks of mortality for smokers and Russian data on the smoking prevalence, self-assessment of health and mortality by causes of death, in 2017 the life expectancy of smokers was lower by 5,2-5,3 years compared to non-smokers, while the health life expectancy was lower by 2,6-3,2 years.

Since 2005, smoking-related standardized mortality rates have been steadily declining, generally repeating the changes in mortality from all causes in Russia during this period. However, the aggregated data conceal significant gender differences – the main decrease in tobacco mortality was observed among men. The tobacco epidemic among men has started earlier and is now at a more mature stage (decline) compared to the female one (stagnation or even growth for some groups).

From 2004 to 2017, the life expectancy of smoking women increased significantly higher (by more than a year and a half) than for non-smokers, although for men such trend is not observed. The decomposition of differences in life expectancy between smokers and non-smokers shows that the advantage in life expectancy of non-smoking women mainly decreased in the age range from 50 to 69 years, which is mainly caused by the changes in mortality from cardiovascular diseases. For men, a similar reduction of the advantage in life expectancy of non-smokers compared to smokers occurred at younger ages, from 40 to 64 years. At older ages, non-smokers compensate for their lag in the increase of life expectancy, however, since for women this trend is observed later, its influence is not enough, and as a result, life expectancy of smoking women in the study period grows faster.

Figure 2

Figure 3

2. Gender differences in smoking in the context of incomplete gender transition

Like other countries at the mature stages of the smoking epidemic, Russia is experiencing a convergence in the smoking prevalence among men and women. While men quit smoking, women still support smoking in various educational and income groups. While Russian men have already passed peak smoking prevalence rates and moved on to the next stage of the epidemic, with high death rates from diseases caused by smoking (over 30% of all deaths between 35-69 years old in 2017), the peak of tobacco deaths among women (currently 7%) is still ahead. Russian women are slowly passing the stage of epidemic with high smoking

prevalence. We associate this phenomenon with the incompleteness of the gender transition (the so-called “half-emancipation”), preserving motives to support bad habits in women.

Figure 4

3. Why smoking is not decreasing among Russian women: a view from the micro level

Strengthening of tobacco control policies in the 2010s in Russia for the first time in the post-Soviet period led to a significant decrease in the smoking prevalence. However, this decline mainly affected men. Why are Russian women less responsive to tobacco control policies? Why rising tobacco prices and banning smoking in public places had virtually no effect on female smoking?

In this study, an attempt was made to look at smoking at the micro level, in terms of individual and household characteristics. As an empirical base, we used data from the representative national survey RLMS (Russian Monitoring of the Economic Situation and Health of the National Research University Higher School of Economics) for 2017.

The results confirm the hypothesis of a less mature stage of the smoking epidemic among women compared with men: female smoking is still concentrated in relatively more privileged groups, namely in urban areas and especially in the major cities. In addition, for women, the effect of reducing the risks of smoking for respondents with higher education is significantly less noticeable.

A complex relationship was found between smoking, overweight and age. According to the obtained results, in younger ages the body mass index (BMI) for female smokers is higher than for non-smokers. Only by the age of 45-50, the effects of smoking start to affect the weight, and the BMI for smokers becomes relatively lower. For men, differences in BMI at younger ages are practically absent. This suggests that smoking is more often used by women as a hypothetical mean of combating obesity, and the fear of gaining weight is one of the reasons for not quitting smoking.

The study also revealed a significant positive relationship between smoking and alcohol abuse, which probably suggests that smokers are less risk averse. This, in turn, may indicate a greater effectiveness of active, restrictive tobacco control measures in comparison with various educational and preventive programs.

Figure 5

FIGURES

Figure 1. Smoking prevalence in Russia in 1994-2017 according to annual representative household survey RLMS and specialized global survey GATS, % of adult population

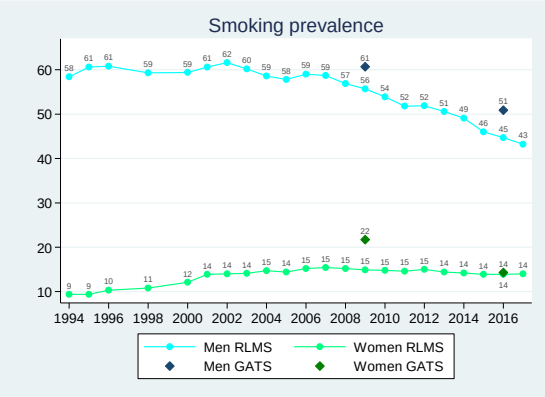

Figure 2. The structure of tobacco attributable mortality in Russia, 1994-2017, % of total deaths in ages 35-69

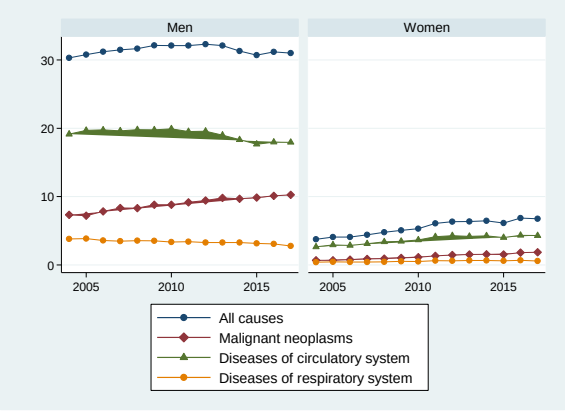

Figure 3. Dynamics of tobacco epidemic in Russia: contribution of smoking to mortality in age 35-69 and the prevalence of smoking in 2004-2017.

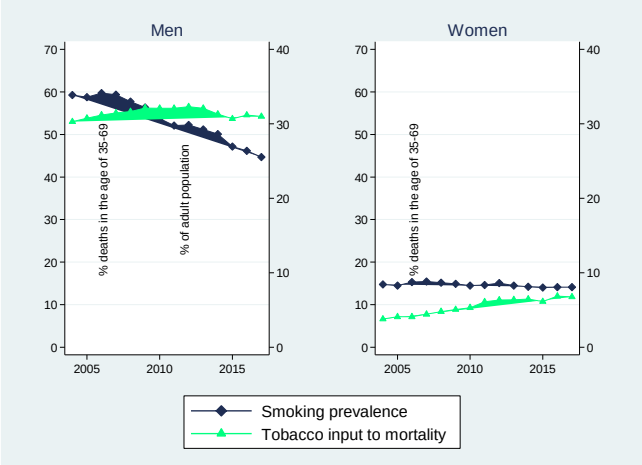

Figure 4. Gender transition and gender gap in tobacco consumption in Russia

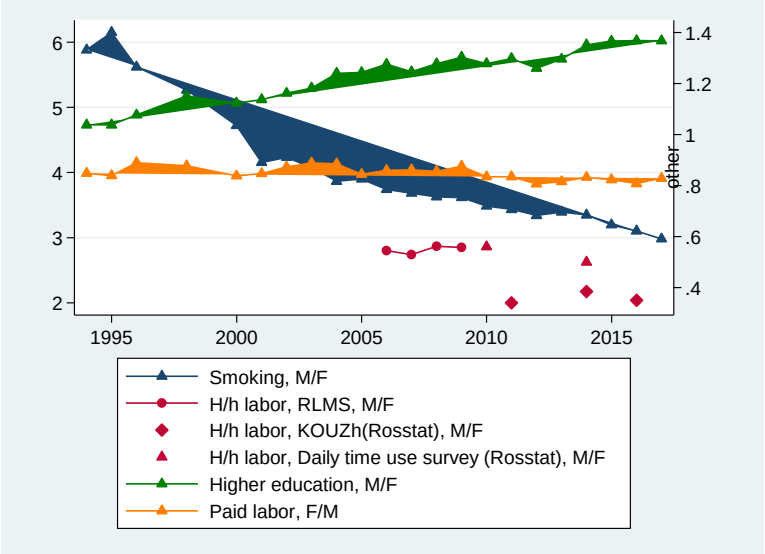

Figure 5. Determinants of prevalence of smoking among men and women in Russia