Reviewer’s report

Title: The interplay between healthy behaviors and health outcomes among older adults in Russia

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Reviewer: Luana Giatti

Reviewer’s report:

The fast population ageing is a great challenge to society aiming to maximize the health, functional capacity and the social participation of the elderlies. The present study investigated the association of four risk behavior measure and self-rated health in older adult (50 and more years old) that participated on the wave I of the SAGE (Study on Global Ageing and Adult Health) in Russia Federation. It is a relevant and important topic.

Below my considerations:

Major compulsory revisions

The approach of the risk factors should be improved. For example, present the prevalence in all population and after that, present the prevalence in older adults, than the changes that happened in Russia that could explain the prevalence in older adults.

The authors pointed health related cultural heritage from communist regime, in special, the passive health attitude in Russia and the absence of the individual responsibility for personal health. However numerous studies had investigated the influence of social and environmental factors on behavior risk factors. The theoretical background used in the study seems to explain the relation between health and behaviors at individual level. How could the environmental and social factors influence the health behaviors in Russian Federation? The theoretical model could be clarified for the study’s population.

One of the important contributions of the paper is the investigation of four risk factors. These four risk factors frequently coexist, they are interrelated and these aspects are important to propose interventions at the individual and population levels. This could be somewhat clarified, either here or in the discussion.

The aim of the study should be specified.

Methods

What was the study’s population? Is the sample representative of the European part of Russian Federation only or the sample was representative of Asian population of the country as well?

Some descriptions of the sample design should be included. Is the sampling procedure performed using multistage or stratified design? Is there any variation
in the sample fraction of the individuals?

Was the response rate showed about the wave I only? What was the response rate on the first wave?

The reasons to use the outcome variable (SRH) and exposures variables could be presented in the introduction and withdrawal of the methods.

SRH is a subjective, robust and comprehensive measure of health. SRH is associated with many factors, including the physical and mental health. Thus in old age the influence of objectives measures of health on SRH could be considered. Why didn’t the authors use any objective health measure as a confounder variable?

What was the software used to performed the analysis? How was the multicollinearity evaluated? Were the results weighted?

Results:
The numbers of participants could be reported with more information. What was the range of years of the participants? What was the men and women average age? About 60% of the participants were women. Why?

Missing information for each variable should be shown in the Table 1

The unadjusted estimates could be included in results.

Line 331-336. Physical activity is the most significant factor for men, but not for women (see alcohol, for example). The results should be reviewed and the implications on discussion too. Interpretation of results should be taken carefully, there were CI96% overlap, indicating no statistically significant differences.

Discussion:
The results suggest that physical activity has strong influence on SRH among men. But for women, the results suggest the influence of alcohol, physical activity and fruit and vegetable consumption on SRH worked in the similar level. Probably, the risk factors act in different way on SRH on men and women.

Moreover, the results provide independent association between SRH and each risk factor. Therefore, how the interplay among behaviors and SRH was investigated and discussed?

Considering that Russian adults have high rates of premature death and the importance of alcohol as cause of death (Zaridze D et al, 2014), what is the impact of the survival bias on the results? How could it explain the absence of association between SRH and alcohol?

The under-reported of alcohol consumption could be a study limitation? The under-reported could be different between male and female?

The abstract should be reviewed in order to included objectives of the study at the end of the introduction and some the most important values.

Title should be change, the term interplay is not appropriate.

References should be updated

Minor essential revisions
The authors emphasize the economic reasons to promote healthy ageing. I think they could indicate others reasons to promote healthy ageing, like to keep healthy to enjoy life.

The text between the lines 87-90 about young women is not necessary.

In relation the consumption of fruit and vegetables, what is the relevant information, the decreased of the consumption once a week or the increase of the daily consumption of fruit during 2001-2010? The recommendation to healthy life is the consumption of five a day.

The authors aggregated the marital status categories never married with separated and widowed. Were the categories similar? In discussion, there is reason to guess those marital status could work in different way on healthy. (lines 440-442)

Tables: reviewed titles, including period of the study.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

No competing interests