Reviewer's report

Title: All-cause and Cardiovascular mortality among ethnic German immigrants from the Former Soviet Union: a cohort study

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Reviewer: Arlene M Miller

Reviewer's report:

General

This is an interesting study of a relatively little known population of immigrants to Germany: descendents of ethnic Germans, known as Aussiedler, who lived in the former Soviet Union until moving to Germany following the fall of the Soviet Union. Despite living in Russia and other Republics for several generations, they retained a German ethnic identity and were awarded German citizenship immediately upon migration (1990-2001). Because the morality rate for people in FSU countries is one of the highest in the world, particularly for deaths due to cardiovascular diseases (CVD), the authors hypothesized that the German immigrants from the FSU would have a higher mortality rate due to CVD relative to the general German population. Unexpectedly, this hypothesis was not confirmed, and the immigrants had lower rates of CVD-related mortality. A few other notable findings are reported, including higher CVD mortality rates for 15-39 year olds in the study cohort relative to the older immigrants, and a higher mortality rate for immigrants who migrated more recently (1998-2001) compared to those who migrated in 1990-1993. The study makes a contribution to the literature on the impact of immigration on health of host countries, and suggests several potential avenues of future research to explain this particular cohort.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

There are several points in the manuscript that would benefit from clarification.

Background:

1. More background literature on the phenomenon of “healthy immigrants” would be helpful, as would more information regarding differences in health status and mortality rates for immigrants in relation to those of their new host countries. Examples from the literature might include other studies that have found that immigrants had lower rates of CVD than native-born US citizens (Singh & Siahpush, 2002), but immigrants to Sweden had a higher CVD risk than the general population (Dotevall et al., 2000). See also Nair et al., 1990 regarding immigrants to Canada. Mexican immigrants to the US tend to have better health than longer term or second generation immigrants. Including studies on other ethnic groups would help place this one in a more global context. If these studies and others like them are reviewed in the background, the findings from this study can be compared to them in the Discussion section. Also, comparing methods for data analysis with these studies might be helpful.

2. Some information regarding the social status or identity of the ethnic Germans in Russian society would be useful. For example, did they tend to be different in any way from the mainstream of Russians? Socialize together? Have higher education or job status? Maintain religious or cultural
affiliations? The purpose of this would be to see if there might be sociocultural reasons for their lower CVD risk. Russians who maintained their ethnic Jewish identity and Russians who were Baptists, for example, are known to have had much lower rates of alcohol use than the general population. Also, even if the ethnic German immigrants have lower SES in Germany as noted in the manuscript, they may have had a higher SES in Russia, and the effect of SES is probably longer term than the period of time in this study.

3. The authors have not made a clear case for their hypothesis in the background. Perhaps they should include primarily the data supporting the hypothesis that immigrants would have higher CVD mortality rates to show why they originally thought that argument was more compelling. There is some data in the literature that the stress of migration per se leads to higher rates of CVD morbidity; this could support the study hypothesis. Then alternative explanations can be discussed in more detail in the discussion section.

Methods:

1. More detail in the methods section would help the reader understand what was done in the study. “Vital status” is an unfamiliar term to me. Also, more information on the way the German government assigns immigrants to states and cities would be of interest to readers from other countries who are not familiar with this process.

2. The reason for stratification by family size is not obvious—is there any literature to support doing this?

3. It is not clear from the beginning what age of the German population was used and how this was comparable to the immigrants. Perhaps looking at immigrants from age 15 is too early for differences to be apparent?

4. The use of the Poisson regression analyses is not clearly explained. I am not familiar with it, and the results do not seem to be presented in the way multivariate regressions are usually done in other journals. The units of analysis are not spelled out and more detail on the statistical methods would be helpful.

Discussion:

1. The discussion, as noted above, would benefit from somewhat different organization. Perhaps the authors could start by comparing their findings with other studies in the literature of the same or different population, and then suggest explanations for the findings of this study specific to this sample.

2. In the discussion, the authors should talk about why the transition to living in Germany might or might not be particularly stressful for this population. In general, more literature regarding other ethnic groups would be helpful to round out the background rather than limit the review of literature only to immigrants to Germany.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. The use of the term “calendar period” to refer to the time of analysis is confusing and I wasn’t sure what it meant at first.
2. For the graphs, make it clear that the men are being compared to the male population; women to female population.

3. The conclusion section could be clearer in its recommendations for future research and policy implications.

Discretionary Revisions (which the author can choose to ignore)

1. There are a lot of similar tables; maybe could be decreased.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

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

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests