REPLY

High cardiovascular mortality in Russia: role of alcohol versus smoking, blood pressure, and treatment

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We thank Dr Sergei Jargin for his Correspondence ([Cardiovascular mortality trends in Russia: possible mechanisms. *Nat. Rev. Cardiol.* doi:10.1038/nrcardio.2015.166](#))¹ on our Review (Ezzati, M. *et al.* Contributions of risk factors and medical care to cardiovascular mortality trends. *Nat. Rev. Cardiol.* **12**, 508–530; 2015).² We agree with Jargin's concluding paragraph that a number of reasons explain why cardiovascular disease (CVD) mortality is, and has been, so high in Russia compared with most other industrialized countries. The quality of health care (primary and secondary prevention) in Russia—with low levels of treatment with, and compliance to, antihypertensive medications—is almost certainly an important contributor to the high CVD mortality.³ To this factor, we would add the high prevalence of current smoking among men, which has been fairly constant at ≥60% since the early 1990s.^{4,5} Regarding alcohol, a great deal of evidence now indicates that a pattern of drinking ethanol-based spirits to intoxication—a fairly common feature of drinking in Russia—is associated with an increased risk of cardiovascular events and death.^{5,6} There are also likely to be contributions from dietary factors, although these have proved difficult to identify, with the proatherogenic lipid profile generally associated with increased CVD mortality not being found in Russia.⁷

Although the average difference in CVD mortality in Russia compared with other countries involves all these important factors, alcohol is distinctive in that it remains the strongest explanation of the very sharp and unprecedented fluctuations in cardiovascular and all-cause mortality seen in Russia since the mid-1980s.^{8–11} Jargin is in partial agreement with us on this matter, describing the sudden decline

in mortality seen in the mid-1980s as being a consequence of President Gorbachev's anti-alcohol campaign, and that alcohol was also implicated in the very steep increase in CVD and all-cause mortality that followed the collapse of the Soviet Union in the first half of the 1990s. We have undertaken detailed analyses of the cause-specific profile of these fluctuations, and have shown that the causes most likely to respond to sharp changes in the prevalence of heavy drinking (injuries and violence, cirrhosis, as well as explicitly alcohol-related causes such as acute alcohol poisoning) are the ones that fluctuated the most.^{8,11,12} Moreover, this cause-specific 'fingerprint' is also seen in the acute changes in mortality that occurred in 1998 and thereafter. The declines in cardiovascular mortality that have been seen since the mid-2000s, however, have some novel features, such as appreciable reductions in cerebrovascular disease mortality among women aged >65 years, that might indicate improvements in treatment of hypertension.⁸

As our Review² makes clear, a number of puzzling features of CVD mortality trends in Russia and in other countries remain. Issues of misclassification of cause of death are important. We believe that these misclassifications are primarily within the overall category of CVD, rather than being, for example, misdiagnosed acute alcohol poisonings. We concur with Jargin that some of these might be owing to the quality of autopsy diagnoses in Russia. These and other issues are currently being investigated in a series of studies that will hopefully clarify some of the reasons for Russia's very high burden of CVD.

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Competing interests

The authors declare no competing interests.

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