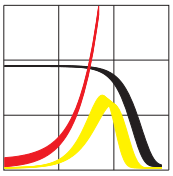

Max-Planck-Institut für demografische Forschung
Max Planck Institute for Demographic Research
Konrad-Zuse-Strasse 1 · D-18057 Rostock · GERMANY
Tel +49 (0) 3 81 20 81 - 0; Fax +49 (0) 3 81 20 81 - 202;
http://www.demogr.mpg.de

MPIDR WORKING PAPER WP 2009-016
JUNE 2009

Biological mechanisms of disease and death in Moscow: rationale and design of the survey on Stress Aging and Health in Russia (SAHR)

Maria Shkolnikova (shkolnikova@demogr.mpg.de)
Svetlana Shalnova (sshalnova@gnicpm.ru)
Vladimir M. Shkolnikov (shkolnikov@demogr.mpg.de)
Viktoria Metelskaya (vmetelskaya@gnicpm.ru)
Alexander Deev
Evgueni Andreev
Dmitri Jdanov
James W. Vaupel (jwv@demogr.mpg.de)

This working paper has been approved for release by: Vladimir Shkolnikov (shkolnikov@demogr.mpg.de), Head of the Laboratory of Demographic Data.

Study protocol

Biological mechanisms of disease and death in Moscow: rationale and design of the survey on Stress Aging and Health in Russia (SAHR)

Maria Shkolnikova[1,3], Svetlana Shalnova[2], Vladimir M. Shkolnikov[3 §], Viktoria Metelskaya[2], Alexander Deev[2], Evgueni Andreev[3], Dmitri Jdanov[3] and James W. Vaupel[3]

[1] Moscow Institute of Pediatry and Surgery, Federal Arrhythmia Centre, Moscow, Russia

[2] National Research Centre for Preventive Medicine, Moscow, Russia

[3] Max Planck Institute for Demographic Research, Rostock, Germany

[§] Corresponding author

E-mail addresses:

Shkolnikova, Maria: shkolnikova@demogr.mpg.de

Shalnova, Svetlana: sshalnova@gnicpm.ru

Shkolnikov, Vladimir: shkolnikov@demogr.mpg.de

Metelskaya, Victoria: vmetelskaya@gnicpm.ru

Vaupel, James: JWV@demogr.mpg.de

Abstract

Background: Prior research has revealed large differences in health and mortality across countries, socioeconomic groups, and individuals. Among the industrialized countries, Russia experiences one of the world's highest levels of all-cause and cardiovascular mortality, great mortality differences within the population, and a heavy burden of ill health. Psychological stress has been suggested as a likely explanation of health loss and premature death in Russia and Eastern Europe. However, physiological mechanisms connecting stress with health in Russia remain unclear since existing epidemiological data are scarce and limited to conventional risk factors.

Method and Design: The survey on Stress Aging and Health in Russia (SAHR) is addressing this knowledge gap by collecting an unusually rich database that includes a wide range of reported information, physical and cognitive health outcomes, and biomarkers in a sample of Muscovite men and women aged 55 and older. The total planned sample size is 2,000 individuals. The sample was randomly selected from epidemiological cohorts formed in Moscow between the mid-1970s and the 1990s and from medical population registers. The baseline data collection was carried out from December 2006 to June 2009. Interviews and medical tests were administered at hospital or at home according to standardized protocol. Questionnaire information includes health, socio-demographic characteristics, economic well-being, cognitive functioning, and batteries on stress and depression. Biomarkers include anthropometry, grip strength, resting ECG, conventional cardiovascular factors risk such as cholesterol lipid profile and blood pressure, and other biochemical parameters such as those related to inflammation, glucose and insulin resistance, coagulation, fibrinolysis, and stress hormones. In addition to these measurements, SAHR includes dynamic biomarkers provided by 24-hour ECG (Holter) monitoring . This method continuously registers the beat-to-beat heart rate in naturalistic conditions without restrictions on normal daily activities. It provides information about heart functioning, including heart rate variability and ischemic and arrhythmic events.
Re-examination of the study subjects will be conducted in 2009–2011 and will focus on health, functional status, economic conditions, behaviors, and attitudes towards aging. The subjects are also followed up for mortality and non-fatal health events.

Discussion: The SAHR will produce a valuable set of established and novel biomarkers combined with self-reported data for the international research community and will provide important insights into factors and biological mechanisms of mortality and health losses in Russia.