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Original Research Article

Ethnic variation in self-rated health–mortality association: Results from a 17-year follow-up study in Estonia

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ABSTRACT

Background and aim: Previous research has highlighted the role of self-rated health (SRH) as an important predictor of mortality. With substantial ethnic differences in SRH and mortality reported in Estonia, this study aims to examine the ethnic variation in SRH–mortality association in this setting.

Materials and methods: The baseline data come from the nationally representative 1996 Estonian Health Interview Survey. Individual records of 3983 respondents in the 25–79 age group were linked with mortality data with 17 years follow-up time. The association between SRH and all-cause mortality was analyzed using the Cox regression for two ethnic groups and separately for men and women.

Results: Among ethnic Estonians, both men and women with bad or very bad SRH had about 60% higher mortality compared to those with good or very good SRH even after adjustment for age, socioeconomic and health-related variables. In contrast, SRH did not predict mortality among non-Estonian men and women. A strong and universal inverse association with mortality was found for personal income. Education (among men) and occupation (among women) predicted mortality only among non-Estonians, whereas ever smoking was associated with mortality in Estonian men and women. Overweight women had lower mortality risk compared to women in normal weight category.

Conclusions: We found considerable ethnic variation in SRH–mortality association and in socioeconomic predictors of mortality. Further research, preferably focusing on cause-specific mortality and reporting heterogeneity of SRH could potentially shed further light on ethnic differences in SRH–mortality association in Estonia and more generally on socioeconomic inequalities in mortality in Eastern Europe.

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1. Introduction

Self-rated health (SRH), a commonly used measure of individual health status, has proven to be a reliable and valid predictor of subsequent mortality [1] even after controlling for a wide range of objective health markers [2,3]. Poor SRH at the baseline has been associated with elevated mortality risk also in studies with 20–30 years of follow-up data [4,5]. Although the association with mortality indicates the biological basis underlying subjective health evaluations, previous research suggests that socioeconomic variables influence SRH, in that adverse socioeconomic profiles are generally associated with poorer health assessment. This observation generally extends to the association between SRH and mortality but the results have varied between the studies. While some studies have shown little to no variation in SRH–mortality association by occupational class [6], education [5], or income [7], substantial socioeconomic differences have been reported by others [8–10].

It is well documented that ethnic or racial minorities tend to report poorer health than general population. While a range of individual and social characteristics can influence health evaluation frameworks [11], the lower health ratings of ethnic minorities have also been attributed to the differences in socioeconomic status [12,13]. The magnitude of socioeconomic inequalities has been found to be larger for baseline SRH than for subsequent mortality [14]. Similarly, the previous research has shown that ethnic minorities often report worse baseline SRH but have similar risk of mortality compared to general population [10,15,16]. At least partly, these variations can be explained by socioeconomic and cultural differences in subjective health assessments [16–19]. Given the claims for nearly universal association between SRH and mortality outcomes [20], the likely ethnic differences in SRH–mortality association have remained relatively little researched.

Previous studies from Eastern Europe [21–23] have reported large socioeconomic inequalities in SRH. In Estonia, belonging to a minority ethnic group, being low educated or having low personal income were independently related to poor SRH [24]. Similarly strong educational and ethnic gradient has been reported for mortality, although the magnitude of the association varied by causes of death [25,26]. Only few studies have looked the association between SRH and mortality in this setting. A Dutch–Lithuanian comparative study [27] found that poor SRH predicted mortality risk in both cohorts even after adjustment for a wide range of socio-demographic variables and cardiovascular risk factors. Similar association was reported for Russia [28]. A recent study [29] from Estonia, while analyzing predictors of mortality by levels of SRH, found that ethnicity was related to mortality only for good SRH. Although these results generally confirm that SRH predicts mortality risk also in Eastern Europe, the possible variation in the association between SRH and mortality in different ethnic groups has, to the best of our knowledge, not been investigated in this setting.

This study aims to further explore SRH–mortality association in Estonia and extends on the findings of previous studies reporting large socioeconomic disparities in SRH and mortality in Eastern Europe. More specifically the study will assess whether the association between SRH–mortality varies

between ethnic Estonians and other ethnic groups. Furthermore, we will analyze which socioeconomic and health-related determinants may explain the SRH–mortality association in both ethnic groups.

2. Materials and methods

2.1. Data

The baseline data for this longitudinal study come from the Estonian Health Interview Survey (EHIS), a nationally representative cross-sectional survey among 15–79 year olds, carried out as face-to-face interviews in Estonian or in Russian between November 1996 and February 1997. In total, 4711 interviews were completed with adjusted response rate of 84.3%. Details on the survey are available elsewhere [30]. For vital status, the data were linked to the Population Registry using personal ID numbers with the date of death or emigration marking the end of follow-up. The respondents were followed up for max 17.3 years, until December 31, 2013. During the follow-up time, 115 individuals had emigrated. The overall attrition rate was 1.2%, with main reason being missing records in the Population Registry; these cases were right censored in the analysis. Current study uses data of 3983 respondents who were 25–79 years old at baseline (1778 men and 2205 women). Of those respondents, 1465 had died during the follow-up (965 deaths among ethnic Estonians and 500 deaths in other ethnic groups). The study protocol was approved by the Tallinn Medical Research Ethics Committee (Approval No. 456; 14.11.2013).

2.2. Measures

A single question: “How would you evaluate your health status?” was used to measure SRH and the response options were trichotomized into categories of (1) very good/good, (2) average, and (3) bad/very bad self-rated health. Respondents' socio-demographic characteristics covered age (at the baseline), gender and ethnicity. Ethnicity is based on self-reported ethnic identity and was aggregated into subcategories of (1) Estonians and (2) other ethnic groups (hereafter called non-Estonians), where Russians, Ukrainians and Belarusians had the largest share. Education, income, and occupation were used to specify respondents' socioeconomic status at the baseline. Education indicates the highest level of education obtained and was categorised as (1) tertiary (with 15–16 years of schooling on average), (2) upper secondary (10–14 years), and (3) lower secondary or less education. Income refers to the average personal monthly net income (converted from kroons) and was divided into quartiles with the cut-off points of 144.2, 72.4 and 58.8 Euros respectively. Occupation is based on the main occupational class during respondents working life and was dichotomised as (1) non-manual, and (2) manual occupation using the ISCO-88 classification. Baseline health status was measured by (1) not having or (2) having a limiting long-standing illness, a chronic disease/health problem affecting coping with everyday activities. Smoking variable differentiated (1) never smokers, and (2) ever smokers, referring to current or previous regular smoking. BMI was

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