

Socioeconomic inequalities in health in Central and Eastern Europe: synthesis of results of eight new studies

Anton E. Kunst

Department of Public Health, Academic Medical Centre (AMC), University of Amsterdam, PO Box 22660, 1100 DD Amsterdam, the Netherlands

Anton Kunst is a medical demographer and social epidemiologist working at the Department of Social Medicine of the Academic Medical Center at Amsterdam, the Netherlands. He has extensive experience with research on socioeconomic, ethnic and geographical inequalities in health. He has coordinated several European research projects on this topic.

Introduction

Ever since the persistence of social class differences in mortality in England and Wales was rediscovered around 1980 thanks to the Black report (Whitehead et al. 1988), socioeconomic inequalities in health have been studied for increasingly more European countries. With some delay, health inequalities were also documented for many of the countries in Central and Eastern Europe (CEE). As by now, there is sufficient evidence to conclude that health inequalities persist across Europe, and that for some health outcomes, notably general mortality, inequalities are particularly large in CEE (Mackenbach et al. 2008; Eikemo et al. 2008; Leinsalu et al. 2009).

Still, the documentation of health inequalities in CEE countries is yet fragmentary, and the understanding of the causes is yet poor. Further research is needed to document the magnitude of the problem in populations not yet covered by previous studies, to determine the contribution of specific causes at individual and national levels, and to indicate opportunities for effective intervention. The current issue of the *International Journal of Public Health* contributes to closing this gap by presenting eight original research papers (Habibov 2009; Habicht et al. 2009; Pikhartova et al. 2009; Richter et al. 2009; Rosicova et al. 2009; Skodova et al. 2009; Slachtova et al. 2009; Todorova et al. 2009). The results of these papers are not only relevant to CEE countries themselves, but may also interest those who are willing to learn from the experiences of other countries in describing and understanding health inequalities.

This special commentary brings together some of the key results of these eight studies. I will do so by addressing three broader issues that are common to many studies in CEE countries. The first issue is a methodological one: what can be learned from area-level data in countries with limited data at the individual-level? The second issue is a comparative one: are inequalities in health outcomes in CEE countries different and perhaps larger than in the western part of Europe? The third issue focuses on health care: how did the rapid transitions and persistent problems in health care systems impinge on inequalities in access and utilization of health care?

The contribution of area-level analysis

For many CEE countries, studies on health inequalities have to cope with serious limitations in the available data sources. This is illustrated with the case of mortality. While in many western European countries inequalities in mortality can be analyzed using nationally representative longitudinal data sets, studies in most CEE countries have to recur to “unlinked” cross-sectional mortality data (Mackenbach et al. 2008; Leinsalu et al. 2009). This type of data has a number of drawbacks, especially the “numerator-denominator bias” (Jasilionis et al. 2009). In this situation, area-level analysis may provide additional evidence on the association between mortality and socioeconomic indicators at the individual level.

Area-level data had been used previously for the Czech Republic. In the paper by Slachtova et al. (2009), the methodol-

ogy of ecological studies is further improved by the construction of different 'deprivation indices', and the application of these indices to the 77 districts that make up Czech Republic. The authors observed that the new indices were strongly associated with district mortality rates of both men and women, and for several causes of death. Interestingly, the strongest associations were observed with the "social" index that directly measured the composition of the district population according to key socioeconomic indicators such as education level and employment status. These results underlined that area-level analyses can be used to obtain timely, detailed and nationally representative estimates of the association between mortality and socioeconomic indicators.

This use of area-level data assumes that area-level associations between health and socioeconomic indicators reflect to a large extent similar associations at the individual level. Support for this assumption comes from the many multi-level studies that show that area-level associations between socioeconomic factors and health outcomes can largely, although not entirely, be attributed to the corresponding individual-level associations (Diez Roux 2008). The paper of Pikhartova et al. (2009) provides evidence to support this assumption in the Czech case. The authors studied the large differences between deprived and non-deprived areas in the prevalence of depressive symptoms. In a multi-level analysis, these differences could almost completely be explained by controlling for individual-level socioeconomic factors. This result implies that, for mental health, it is much more important who you are than where you live. In addition, it implies that the area-level associations observed in ecological studies could be taken as evidence to suggest similar associations at the individual level.

Starting from such an assumption, another ecological mortality study was performed by Rosicova et al. (2009) for the Slovak Republic. In this country, until recently, hardly any evidence was available on differences in mortality according to the socioeconomic position of people. Therefore, an ecological study would be among the first to provide evidence for such a relationship. The authors assessed the relationship between all-cause mortality and four socioeconomic indicators among the 79 districts that constitute Slovak territory. For men, as expected, higher district mortality rates were associated with lower average educational levels and with higher unemployment rates. Surprisingly, for women, district mortality rates had very weak and inconsistent associations with socioeconomic indicators. This lack of associations contrasts with evidence from other CEE countries on strong associations between women's mortality and socioeconomic indica-

tors at both area level and individual levels (Mackenbach et al. 2008; Slachetová et al. 2009). The authors suggest that the analyses may have been affected by problems with the measurement of district socioeconomic indicators, including gender-specific indicators such as female unemployment rates.

To conclude, area-level studies can play an important role in documenting socioeconomic inequalities in health in CEE countries like elsewhere in Europe (Leyland et al. 2007). The Slovak experience however warns to be careful with the interpretation of area-level analyses. Special attention need to be given to constructing valid deprivation indices, and to controlling for regional variations in potential confounders (Kunst 2005).

Health inequalities in East compared to West

Inequalities in mortality are much larger in CEE countries as compared to western European countries, especially when these inequalities are expressed in absolute terms (Mackenbach et al. 2008). These larger inequalities are likely to be related to the communist past and the rapid social transitions since the early 1990's (Leinsalu et al. 2009). This history had resulted in less developed welfare states, lower levels of social integration, and higher levels of poverty. At the level of specific risk factors, greater inequalities have been suggested with regards to factors such as alcohol abuse or vegetable consumption (Mackenbach et al. 2008; Prättälä et al. 2009). However, direct evidence on many of these factors is yet fragmentary. Further evidence with regards to east-west differences in health inequalities is therefore particularly welcome. Some of the papers in this special issue provide such evidence.

In the paper of Pikhartova et al. (2009) mentioned above, the prevalence of depressive symptoms was unrelated to educational level, whereas strong associations were observed with two indicators of material wealth. A similar result was obtained in the study of Skodova et al. (2009) on psychological well being among cardiac patients in the Slovak Republic. Although psychological well being was found to be related to both educational level and household income, the prevalence of poor mental health was especially high among patients with an income below minimum wage. These findings suggest that, at least in the countries studied, material wealth and especially the experience of poverty were the strongest predictors of mental health. One might hypothesize that in the East, more than in West, current living conditions and the experience of financial strain may affect people's psychological well being in particular.

The paper of Richter et al. (2009) is the only paper that provides directly comparable estimates of health inequalities in CEE countries and in other European countries. In this study, data of the HBSC survey were used to estimate, for a wide range of countries, socioeconomic inequalities in the health behavior of 13–15 years old boys and girls. Family affluence and high parental occupation were consistently associated with higher vegetable consumption and less television viewing. Less consistent associations were observed for tobacco smoking and alcohol use, two behaviors for which peer influence and teenage cultures may have greater influence than family background. This pattern of inequalities was found in CEE countries as well as in other parts of Europe. The only consistent east-west difference is that a low parental occupation was associated with lower vegetable consumption in all regions except for CEE. Further analyses is needed to explore whether this result may be due to differences between countries with regards to nutritional policies and dietary cultures (Prättälä et al. 2009), or with regards to occupational class as a predictor of parents' behavior.

Despite such possible variations, the analysis of Richter et al. (2009) above all illustrates that CEE countries and other European countries may have more similarities than dissimilarities. Likewise, a recent study found a large degree of similarity with regards to the magnitude and pattern of health differences according to occupational class (Eikemo et al. 2008). Nonetheless, as the case of health care will illustrate below, there is no doubt that the unique recent history of CEE countries impinge on the current pattern of health inequalities.

Inequalities in health care utilization

The larger inequalities in mortality in CEE countries is likely to be partly due to larger socioeconomic inequalities in accessibility, utilization and quality of health care services. This is suggested by international overviews that documented for CEE countries large educational inequalities in mortality from avoidable causes of death (Ezendam et al. 2008; Stirbu et al. 2009) as well as large socioeconomic inequalities in health care utilization (Balabanova et al. 2004). Further evidence is given in this special issue by three in-depth studies on different parts of the region.

In their comparative study of the three Baltic countries, Habicht et al. (2009) document socioeconomic and geographic inequalities in the utilization of primary care, out-patient specialist care and hospital care in 1999, after eight years of

health care reform. Health care utilization was found to be more strongly related to household income than to educational level. This suggested that, in Baltic countries, structural and material factors played a greater role in the access to health care than knowledge and attitudes. Moreover, the largest inequalities were generally observed for Latvia, the only country where many low income respondents reported facing important financial barriers to health care use. The Latvian situation was likely to be due to structural features of the health care system, such as the fact that 41 percent of Latvian health care was financed in 1999 through out-of-pocket payments. Thus, the different ways in which health systems were organized and financed in the Baltic region appeared to have a significant impact on access to health care services by lower socioeconomic groups.

Similar conclusions were drawn in the paper of Todorova et al. (2009) on inequalities in cervical cancer screening in Bulgaria and Romania. For both countries, the authors observed large socioeconomic and geographical inequalities in the screening history of women. In a multivariate analysis, the authors assessed the role of different explanatory factors, including women's own attitudes and their experience with barriers in the health care system. In both countries, inequalities in women's screening history could be explained to a large extent by structural barriers such as long waiting lists, refusal by providers to screen healthy women, and perceived costs. The authors conclude that, even when women from lower socioeconomic groups have a positive attitude towards prevention, this is not translated into behavior if they face an inaccessible, disorganized and cure-oriented health care system.

The paper of Habibov (2009) relates to Tajikistan, a low-income country where the health care sector suffered considerable breakdown since the early 1990's. By the year 2000, about 60 percent of the health care expenditures came from private sources. In his paper, the author therefore gives special attention to out-of-pocket payments. Analysis of a national interview survey of 2003 showed that people with higher educational level or higher "ability to pay" more often used health care services. These inequalities were likely to be related to the high share of private financing. People with higher "ability to pay" had substantially higher expenditure for out-of-pocket payments. Interestingly, affluent people paid more money not only because they used more health care services, but also because they were charged higher fees per service delivered. Providers charged lower fees to patients who were identified as being poor on the basis of their profession, their place of residence, and the quality of their clothing.

To readers from high-income European countries, the paper of Habibov (2009) reminds of a situation that existed long ago, before health care systems with universal coverage were introduced. More generally, the three papers all illustrate that the structure, financing and functioning of health care systems

significantly impinge on the utilization of health care services by lower socioeconomic groups. Further in-depth analysis of the situation in different CEE countries will help to better understand and predict how changes in health care policies will impact on health care inequalities.

References

1. Balabanova D, McKee M, Pomerleau J, Rose R, Haerpfer C (2004) Health service utilization in the former soviet union: evidence from eight countries. *Health Serv Res* 39:1927–50.
2. Diez Roux AV (2008). Next steps in understanding the multilevel determinants of health. *J Epidemiol Community Health* 62:957–9.
3. Eikemo TA, Kunst AE, Judge K, Mackenbach JP (2008) Class related health inequalities are not larger in the East: A comparison of 4 European regions using the new European Socio-Economic Classification. *J Epidemiol Community Health* 62:1072–8.
4. Ezendam NP, Stirbu I, Leinsalu M et al (2008) Educational inequalities in cancer mortality differ greatly between countries around the Baltic Sea. *Eur J Cancer* 44:454–64.
5. Jasilionis D, Shkolnikov VM, Andreev EM (2009) Commentary: the study by Leinsalu et al. on mortality differentials in Eastern Europe highlights the need for better data. *Int J Epidemiol* 38:525–7.
6. Habibov NN (2009) What determines health-care utilization and related out-of-pocket expenditures in Tajikistan? Lessons from a national survey. *Int J Public Health* 54:260–6.
7. Habicht J, Kiivet RA, Habicht T et al. (2009) Social inequalities in the use of health care services after 8 years of health care reforms – a comparative study of the Baltic countries. *Int J Public Health* 54:250–9.
8. Kunst AE (2005) Commentary: Using geographical data to monitor socioeconomic inequalities in mortality: experiences from Japanese studies. *Int J Epidemiol* 34:110–2.
9. Leinsalu M, Stirbu I, Vägerö D, et al (2009) Educational inequalities in mortality in four Eastern European countries: divergence in trends during the post-communist transition from 1990 to 2000. *Int J Epidemiol*. 38:512–25.
10. Leyland AH, Dundas R, McLoone P, Boddy FA (2007) Cause-specific inequalities in mortality in Scotland: two decades of change. A population-based study. *BMC Public Health* 24:172.
11. Mackenbach JP, Stirbu I, Roskam AJ et al (2008) Socioeconomic inequalities in health in 22 European countries. *N Engl J Med* 358:2468–81.
12. Pikhartova J, Chandola T, Kubinova R et al. (2009). Neighbourhood socioeconomic indicators and depressive symptoms in the Czech Republic: a population based study. *Int J Public Health* 54:283–93.
13. Prättälä R, Hakala S, Roskam AJ et al (2009) Association between educational level and vegetable use in nine European countries. *Public Health Nutr* (in press).
14. Richter M, Vereecken CA, Boyce W et al. (2009) Parental occupation, family affluence and adolescent health behaviour in 28 countries. *Int J Public Health* 54:203–12.
15. Rosicova K, Madarasova-Geckova A, van Dijk JP et al. (2009) Socioeconomic indicators and ethnicity as determinants of regional mortality rates in Slovakia. *Int J Public Health* 54:274–82.
16. Skodova Z, Nagyova I, van Dijk JP et al. (2009) Socioeconomic inequalities in quality of life and psychological outcomes among cardiac patients. *Int J Public Health* 54:233–40.
17. Slachtová H, Tomaskova H, Splichalova A et al. (2009) Czech socio-economic deprivation index and its correlation with mortality data. *Int J Public Health* 54:267–73.
18. Stirbu I., Kunst AE, Bopp M et al (2009) Educational inequalities in avoidable mortality in Europe. *J Epidemiol Community Health* (in press).
19. Todorova I, Baban A, Alexandrova-Karmanova A et al. (2009) Inequalities in cervical cancer screening in Eastern Europe: perspectives from Bulgaria and Romania. *Int J Public Health* 54:222–32.
20. Whitehead M, Townsend P, Davidson N (eds) (1988) *Inequalities in Health: The Black Report and the Health Divide* (Penguin Social Sciences). Pelican Books, London.

Address for correspondence

Anton E. Kunst
Department of Public Health
Academic Medical Centre (AMC)
University of Amsterdam
PO Box 22660
1100 DD Amsterdam
The Netherlands
E-mail: a.kunst@amc.uva.nl