

Socioeconomic inequalities in health and health care access in central and eastern Europe and the CIS: a review of the recent literature

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ABSTRACT: Since 1989 countries in eastern Europe and the former Soviet Union have experienced a period of rising income inequality and structural change in health and social security systems. Concerns have arisen that inequalities in health may have accompanied these reforms. In light of this, the main purpose of this report is to assess socioeconomic inequalities in health and health care access in the region. We review studies published between 2001-2005 that examined the association between socioeconomic status and health and health care access over the period of transition across the region. We focus primarily on morbidity and mortality from noncommunicable disease because this has become the main burden of ill-health in the region. The studies present overwhelming evidence that socioeconomic inequalities in health exist in the region and that the poor are disadvantaged in terms of self-rated health status, mortality, noncommunicable disease, health behaviours and access to health care. Where data are available there is also evidence that the trend in inequality in health and in health care access rose over the course of economic transition. There are significant gaps in the literature and in the data sources for research on this topic in central and eastern Europe and the CIS. These include a shortage of longitudinal data that would facilitate monitoring of trends and a shortage of standardized data collection instruments that would facilitate cross-country comparative research.

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Keywords

Socioeconomic inequalities, social determinants, noncommunicable disease, central Europe, eastern Europe, CIS

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Acronyms

AMI	Acute myocardial infarction
BMI	Body mass index
CARK	Central Asian Republics and Kazakhstan
CCEE	Countries of central and eastern Europe ¹
CHD	Coronary Heart Disease
CIS	Commonwealth of Independent States ²
CMI	Compulsory Medical Insurance (Russia)
CVD	Cardio-vascular disease
FSU	former Soviet Union
HAPIEE	Health, Alcohol and Psychosocial factors in eastern Europe
HBS	Household Budget Survey
HES	Health Examination Survey
HiT	Health in Transition country profile
IHD	Ischemic heart disease
LLH	Living conditions Lifestyles and Health survey
MDGs	Millennium Development Goals
NCD	Noncommunicable disease
PHC	Primary health care
RLMS	Russian Longitudinal Monitoring Survey
SES	Socioeconomic status
TLSS	Tajikistan Living Standards Survey
WHO	World Health Organization

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¹ The CCEE comprises 16 countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Serbia and Montenegro, Slovakia, Slovenia, TFYR Macedonia.

² The CIS comprises 12 countries: Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan and Ukraine.

1. Introduction

This study is an overview of the recent research on socioeconomic inequalities in health and healthcare access in central and eastern Europe and the CIS (CCEE-CIS).³ It addresses particularly socioeconomic inequalities in noncommunicable disease (NCD) because NCD has been the driving force in the rise in mortality experienced across the region (Bobak and Powles 2001; World Bank 2004). This topic is closely linked to discussion surrounding the health related Millennium Development Goals. The health related goals have been criticised for being formulated as national averages that could in principle be achieved by 2015 without benefiting the poor, and for not including NCD which is a major concern for countries in the CCEE-CIS region (Rechel et al. 2005, World Bank 2004, Lock et al. 2002). We attempt here to identify the literature that goes beyond national averages to address the socioeconomic distribution of health. This is particularly relevant for the CCEE-CIS region, where the recent sharp increase in income inequality (UNICEF 2001) leads us to expect there has been a widening health gap between rich and poor within in these countries.

Our study approaches the literature from a threefold perspective, adapting a framework for analysis from existing knowledge about how to measure equity in health (Hutton 2002). Firstly, it seeks to document socioeconomic inequalities in health outcomes including all-cause mortality, subjective measures of health, and NCD-specific outcomes. Secondly, it looks beyond the death rates to explore the distribution of NCD risk factors. Thirdly, it addresses access to health care as one potential driver of health inequalities. In the CCEE-CIS context, where unemployment and falling wages have coincided with increasingly privatised health systems, understanding how health service restructuring has affected equity in access is a key policy concern. It is not our intention to imply that access is the only or even major factor in creating a relationship between socioeconomic status and health in the region; but we felt it important to reflect the orientation of much of the literature and in particular the rising concerns over the impact of out-of-pocket payments on equity in access to health services.

Definitions and the scope of the paper

The meanings of the terms “equity” and “inequality” have been much discussed. The consensus is that “inequality” does not refer generically to just *any* inequalities between *any* population groups, but very specifically to disparities between groups of people categorised a priori according to some important features of their underlying “social position” (Braveman 2003). There are many ways in which “social position” could be defined. This study focuses on socioeconomic status (SES) as measured by indicators of material well-being (either income, expenditure or self-assessed financial status) or by education. It does not address extensively the very important inequalities in health that exist in the region between different socio-demographic groups, such as people of different ages, gender or ethnicity, nor does it provide a comprehensive discussion

³ Our definition of CCEE-CIS comprises the following set of countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Poland, Republic of Moldova, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Slovenia, Tajikistan, The FYROM, Turkmenistan, Ukraine, Uzbekistan.

about regional (urban/rural) disparities. In some senses these are false distinctions as there is interaction between different socioeconomic/demographic determinants of health. It has been found for example that gender influences the way in which SES affects health and that it would be nonsensical to discuss the impact of SES on health in some regions without pointing out the vast ethnic divides in health seeking behaviours or the impact of religion on lifestyle and risk factors. Therefore the focus here is on SES but the interconnections with other socioeconomic and demographic variables are noted.

The scope of this paper is partly defined by the scope of the studies under review and there are several key issues that should be mentioned here. Most of the studies we identified approached the measurement of socioeconomic inequality in health using cross-sectional data. There is a shortage of longitudinal data sources with which to address this question. In the absence of longitudinal data the existence and direction of causality in the relationship between socioeconomic status and health is unclear. Although we frequently encountered the assertion that low SES led to poorer health outcomes, it is not possible on the basis of the associations found in cross-sectional sources to make this assumption. If there is a causal relationship between the two it is likely the direction of causation works in both directions: that poverty not only leads to poor health but that poorer health keeps people in poverty (Wagstaff 2002). Although the role of ill-health in generating and sustaining poverty has recently been the focus of much research (CMH 2001; Suhrcke, et al. 2005), the studies reviewed here typically do not address this direction of the causation. This unfortunate neglect makes it harder to argue that NCDs should be included in the MDGs for poverty reduction objectives, because it is not shown that NCDs do matter (in a causal sense) for poverty reduction.

Wilkinson and others have shown that as well as considering the relationship between socioeconomic status and health for individuals, it is important also to consider the association at a societal level. Higher levels of income inequality at a national level are associated with poorer health across the society as a whole. With few exceptions (e.g. Carlson 2005) the studies in the CCEE-CIS countries have focussed on the relationship between inequality and health at an individual level. Given the transformations that have occurred in the region over the past two decades, it is perhaps surprising that more work has not been focussed on addressing the relationship at a societal level.

This study is restricted by its wide geographical scope and its broad approach to health outcomes. This breadth has precluded the use of meta-analysis or systematic review. The biases inherent in any non-systematic literature review therefore inevitably apply in this case. The approach has been to describe the state of existing knowledge rather than to provide a cross-country analysis. The majority of country-level research is not directly comparable as different explanatory and outcome variables are measured, and the ratios are adjusted to different degrees for confounding factors. Furthermore, it is not our aim to provide policy recommendations for reducing inequalities in health (see Mackenbach and Bakker 2003). Rather, we intend to provide a bibliographical summary of the main findings relating to socioeconomic inequalities in the recent literature that will be useful both to those seeking evidence and to those seeking research gaps.

Methods

Approximately 100 epidemiological studies published between 2001-2005 were identified via a systematic literature search. The publication dates were selected in order to restrict the study to recent research and to avoid overlap with a previous review (Bobak and Powles 2001). However, the reference period for many of the studies, in particular the longitudinal research was earlier, stretching back through the 1990s. No other reviews of the topic were found through the Cochrane Library using the mesh terms “socioeconomic factors” and “Europe, Eastern” or “Asia, Central”. Medline and Embase were searched for relevant material. The search strategy was to use exploded mesh terms “socioeconomic factors” or “health accessibility” (Medline) or “health care access /distribution/availability” (Embase) and “Europe, Eastern” or “Asia, Central”. The Medline search was limited to English language articles about human health and using major mesh terms only. Articles relating to the period 1999-2005 were retrieved although those from 2001 to 2005 formed the basis for the review. Relevant references in the articles were traced and literature from the World Bank and the WHO was accessed as were documents from the European Observatory on Health Care Systems and from various surveys conducted in the region such as the Russian Longitudinal Monitoring Survey and the Living Conditions, Lifestyles and Health Survey of eight former Soviet Union (FSU) countries.

Studies covered the whole region of central and eastern Europe and the CIS. All types of study were included. The majority were population-based cross-sectional or ecological utilising survey and routine data. Some case-control and cohort studies were also located. Outcomes ranged from all-cause mortality to specific diseases and self-assessed health status. The majority of studies were peer-reviewed, they were excluded if selection or information bias was apparent (particularly in the case of low response rates). Unless stated, the odds ratios presented here are adjusted for other explanatory variables, controlling for age and sex as well as other socioeconomic risk factors.⁴ The confidence intervals represent the 95% level of confidence unless otherwise stated.

Structure of the report

The paper is divided into two main sections. In section 2 we review studies which have addressed socioeconomic differences in health status and behaviour; including all-cause mortality, self-rated health, NCD outcomes and NCD risk factors as well as discussing studies which have addressed the question of socioeconomic inequality, psychosocial well-being and the distribution of health. In section 3 we consider studies that have examined socioeconomic differentials in access to health care.

⁴ An odds ratio of 1 means that the odds of the outcome are equal in both groups, an OR >1 indicates increased odds of the outcome relative to the reference group whilst <1 suggests a protective effect relative to the reference group.

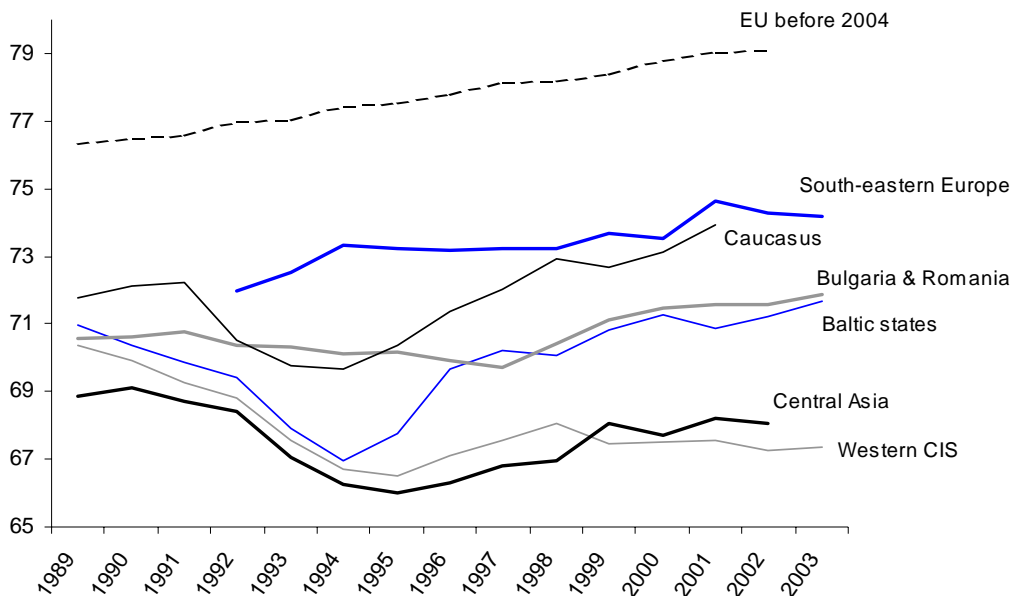
2. Socioeconomic inequalities in health

This section explores socioeconomic inequalities in health first by focusing on all-cause mortality and self-rated health status, second by examining incidence of NCD in relation to socioeconomic status and third by reviewing the literature on the social epidemiology of risk factors for NCD.

2.1 Evidence for socioeconomic differentials in all-cause mortality

The dramatic mortality increase across the region in the first half of the 1990s has been widely documented. Figure 1 summarises the evolution of life expectancy between 1989 and 2003 by sub-region. It shows that variation in life expectancy across the region has increased over this period and also that the gap between life expectancy in most of these states and the EU has widened. Between 1991 and 1994 in the former Soviet Republics life expectancy at birth for males fell by 4 years and for females by 2.3 years. In **Russia** in the same period males experienced a decline in life expectancy at birth of more than 6 years, and females of more than 3 years (ECOHOST 2004a,b). Disaggregating these figures to understand the dynamics of the mortality crisis has been approached from a variety of angles. Both population and individual level studies have provided evidence of socioeconomic inequalities, highlighting that the main burden of the mortality crisis was borne by males of lower socioeconomic groups. The majority of the studies take education as a proxy for socioeconomic status. They find that the mortality crisis was largely driven by increased risk of CVD amongst men of lower economic status, coupled with rising levels of external causes of death such as injuries and accidents.

Figure 1. Life expectancy at birth, selected countries



Source: European Health for All Database

Russia

Population level studies in Russia have identified an association between socioeconomic status (measured by education) and decreased life expectancy across the period in question. Ivaschenko (2004) analysed the effects of public health spending and socioeconomic disadvantage on mortality at a regional level in Russia using panel data constructed from the Household Budget Surveys 1994-2000. The regional life expectancy data he collected shows a widening in the life expectancy gap between 1990 and 2000 between the best and the worst performing oblasts (from 10.5 years in 1990 to 17.9 years in 2000). He found that the incidence of poverty across regions was more strongly related to male than to female life expectancy – a finding that reflects some socioeconomic inequalities between regions. Public health spending, in turn, had a larger impact on female than male life expectancy.

The impact of public health spending on life expectancy was greater in regions with higher levels of poverty. Those regions, which had experienced the largest declines in life expectancy, were also those where transition had had the biggest negative impact on employment and standard of living. Worse levels of life expectancy were found in the North, the Urals, Siberia and the Far East and more favourable rates were found in the Volga-Vyatka and the Northern Caucasus (Ivaschenko, 2004). Between 1990 and 1994, the fall in life expectancy in the former regions was higher than that in the latter (7.0 years in the Northern Region compared to 3.1 in the North Caucasus for example).

Several studies recently have gone beyond population level analysis, to provide individual level associations between socioeconomic status and mortality. Bobak et al. (2002) applied indirect estimation to widowhood data and revealed that male mortality was inversely related to the educational status of their wives. The adjusted hazards ratios for all-cause mortality compared to those with primary education were 0.77 for those with secondary education and 0.57 for those with higher education. A similar finding was reported in another Russian study using indirect mortality estimates from sibling data (Bobak et al. 2003).

Plavinski et al. (2003) describe a prospective cohort study of two male cohorts in St Petersburg. The first cohort (from the St Petersburg branch of the Russian Lipid Research Clinics Study) was followed up for 18 years from 1974 and the second for 11.2 years from 1985. Comparing the two cohorts they found that for men with the lowest level of education a significant increase in premature mortality risk was recorded between the two periods (RR 1.75: 1.44-2.12) but that there was no recorded increase in mortality in university graduates, the relative risk in the second cohort compared to the first being 0.92 (0.67-1.24), suggesting that the “mortality crisis” in the region is being driven by rising mortality in lower educational groups.

Another individual level study compared two cohorts from the Russian Lipid Research Clinics Study (1975-1997) from Moscow and St Petersburg with similar cohorts from Oslo and Helsinki. It found larger socioeconomic inequalities in male mortality in Russia (measured by educational status) compared to Finland and Norway. The low/high education ratios of standardised mortality rates were 2.2, 2.0 and 1.9 in the three countries respectively. The mortality rate ratios increased from 1978-82 (baseline) to 1993-7 for those with low and middle levels of education, but did not increase for those with higher education. These trends were not statistically significant. The study found that the differentials were the result of especially high

mortality rates from cerebrovascular diseases amongst men with low education, as well as their increased risk of death by external causes (Shkolnikov et al. 2004a).

A prospective cohort study by Malyutina et al. (2004) based on the MONICA Novosibirsk study in Russia found that both sexes had an increased risk of all-cause mortality with lower educational status. The age-adjusted risk ratio comparing those with university education to those with primary education was 0.57 (0.47-0.71) in men and 0.48 (0.28-0.82) in women.

Estonia

In Estonia, Leinsalu et al. (2003) compared two census-based analyses of individual cause-specific death data from 1987-1990 and 1999-2000. Echoing the findings of Plavinski et al. (2003) in Russia, they noted that educational differentials in all-cause mortality increased over the 1990s, as life expectancy improved for graduates but worsened for those with the lowest educational status. By 2000 male graduates had a life expectancy 13.1 years longer than the most uneducated, and amongst females the gap was 8.6 years. Kunst et al. (2002a,b) in their analysis of census, mortality registration and survey data found that the rate ratio for males comparing those with only lower secondary education to university educated increased from 1.73 (1.65-1.81) in the first period to 2.38 (2.25-2.53) in 1999-2000. The most important contributor to the widening gap was circulatory disease with mortality from alcohol-related causes also playing an important role.

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This study provided important insights into the impact of socio-demographic factors and region of residence. It found that the gender difference in mortality rates increased by 21% and that age-standardised mortality rates increased for men but not for women (Kunst et al. 2002a). Estonians had lower mortality than people of Russian ethnicity: the age-standardised mortality rate for all ages was 31% higher for Russian men and 17% higher for Russian women in Estonia. The difference for men was greatest in the age-group 15-39 years and the difference in mortality rates from alcohol poisoning and homicide was especially high. A further report showed that these ethnic differentials increased over the 1990s. The ethnic difference in life expectancy rose from 0.4 years to 6.1 years for men and from 0.6 years to 3.5 years for women between 1989 and 2000 (Leinsalu et al. 2004).

Hungary

Skrabski et al. (2004) in their analysis of the Hungarostudy 2004 survey looked at sub-regional variation in mortality rates in Hungary. They found that among men socioeconomic status, collective efficacy, social distrust, competitive attitude, reciprocity, and membership of civic organisations explained 68% of the sub-regional variation in mortality rates. Among women the same factors explained only 29% of the difference, and official income was found to be the most significant determinant of sub-regional mortality rates.

Summary

There is a clear inverse association between socioeconomic status, as measured by education, and life expectancy. The limited evidence suggests fairly consistently that educational gradients have widened over the 1990s, and that whilst university graduates have been sheltered from worsening mortality, those of lower educational status have experienced rising death rates.

Despite the intensity of work conducted on this topic in Russia, and the efforts of Kunst et al. (2002a,b) in Estonia, information on the trend in socioeconomic inequalities in mortality for much of the region remain scarce. It is perhaps surprising that more use has not been made of vital registration and census data to investigate the association between socioeconomic status and life expectancy given that, excepting parts of the FSU, many countries in the region have reasonably good death registration, and some measure of SES, often education, is usually recorded on death certificates. As Bobak et al. (2002 and 2003) indicated in relation to Russia, more use could be made of indirect techniques in the region to more fully explore inequities in mortality. This is especially true in relation to the central Asian Republics where routine data are relatively poor.

Socioeconomic differentials in mortality

- **Clear inverse association between education and mortality**
- **Educational gradients widened over the 1990s**
- **Trend data comes mainly from Russia and little is known about the trend in socioeconomic differentials in mortality elsewhere in the region**

2.2 Self-rated health

As noted above, the main burden of the mortality crisis in CCEE-CIS during the 1990s was born by men of working ages and the gender gap in life expectancy increased over the period to become the largest in the world. Despite this male mortality disadvantage, women have consistently reported their health as worse than men. Why women should have better life expectancy but worse self-reported health raises questions about both the nature of the mortality crisis and about how to measure the epidemiological impact of transition. Recently analysts have pointed to the need broaden the scope of research in the region not only to focus on mortality but also to collect and consider data on morbidity and healthy life expectancy (Andreev et al. 2003).

Self-reported health has been analysed as an outcome measure in several studies, partly because of ease of data-collection, but also because it has been found to be a robust health indicator and prospective studies have shown it to be a strong predictor of mortality (Idler and Benyamini 1997). This section draws on the studies that took self-rated health as their outcome measure and highlights the key findings. The studies focus on **central Europe, Russia** and the **Baltic Republics**.

Education

Education was considered as an explanatory variable in all of the studies and it was significantly positively associated with self-reported health in all but the **Ukraine** and in Taganrog, **Russia** (Carlson 2001). In **Estonia** it was found that education was the most important predictor of self-assessed health (Leinsalu 2002). The risk of poor self-reported health amongst women with less than secondary education was 3.88 (2.30-6.53) times higher than those educated to university level, and for men the odds ratio was 2.32 (1.42-3.79). Education was statistically significantly related to self-assessed health in **Poland, the Czech Republic, Hungary, Lithuania** and **Bulgaria** (Pikhart et al. 2001; Balabanova and McKee 2002c). A 1995-6 survey of workers in the first four of these countries found little variability by country and so pooled the results yielding an odds ratio which demonstrated the protective effect of education: those with tertiary education had a far lower risk of poor self-rated health than those with only primary education (OR: 0.29: 0.17-0.50) and there was a statistically significant linear trend with education level ($P < 0.001$) (Pikhart et al. 2001). In **Latvia** education was found to be a less important determining factor than income and, after adjusting for income, was statistically significant only for women (Monden 2004). Calculating the Population Attributable Risk for education and income showed that for men and women income differentials played a larger role in explaining risk of poor self-reported health than did education. In the **Ukraine** no significant relationship between education and self-assessed health was found in a cross-sectional household survey conducted in 2000. The authors suggested that the relationship between education and health in the FSU could be less clear than in Western Europe because of a traditionally weaker link between education and material status (Gilmore et al. 2002). Carlson, analyzing the Tanagerog Household Survey of 1998 (**Russia**) also did not find a statistically significant association between self-assessed health and education (Carlson 2001).

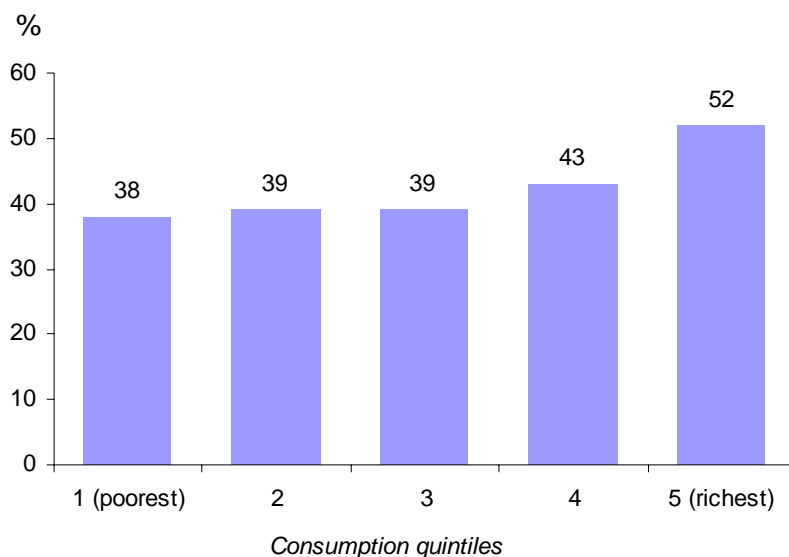
Material wealth and self-assessed SES

Various measures were used as indicators of economic well-being. In **Estonia** and **Latvia** income was found to be an important correlate of self-assessed health. In Latvia the odds ratio comparing the lowest to the highest earning quintiles was, for men 4.43 and for women 2.67 (1.56-4.57) (Monden 2004). The increased odds were slightly lower in **Estonia** but the comparison was between the highest and lowest quartiles. The gender difference was also less marked, the odds ratio for men being 1.65 (1.07-2.55) and women 1.66 (1.13-2.44) (Leinsalu 2002). A 1997 population survey in **Bulgaria** measured both income and self-assessed financial status and found that self-assessed financial status was much more strongly correlated with self-reported health than income (Balabanova and McKee 2002c). The cross-sectional Ukrainian survey of 2000 similarly found self-assessed material situation to be a much stronger predictor of health status than income, indeed income was not significantly associated with health whereas those stating their material situation to be very bad were at significantly higher risk of poor health than those reporting a good material situation (OR 1.64, 1.01-2.67) (Gilmore et al. 2002). A 1996 survey of adolescents in **Hungary** also found that self-assessed SES was a more important correlate with self-reported health than “classical” SES factors such as occupational category of the parents (Piko and Fitzpatrick 2001). Gilmore et al. (2002) suggested that the stronger predictive value of self-assessed financial situation than income could arise from the extent of the informal economy in many of these countries which means that official “income” is not a true indicator of material wealth.

A 1995-6 survey of workers in **Poland**, the **Czech Republic**, **Hungary** and **Lithuania** found a statistically significant relationship between self-perceived “deprivation” and self-assessed health (OR for a one unit increase in deprivation 1.51: 1.29-1.76) (Pikhart et al. 2001). Similarly, a 1996 survey of women in **Poland** found that self-reported financial status was an important correlate of self-assessed health although it varied by age. The poorest women aged 45-59 had four times the risk of ill-health than those reporting a good financial position (Wroblewska 2002).

In **Russia**, analysis of the Taganrog Household Survey of 1998 suggested that there was a statistically significant association between both reported economic difficulties and self-rated health ($P < 0.001$), and between reported economic difficulties in childhood and current self-rated health ($P < 0.001$) after adjusting for all potential confounders (Carlson 2001). Figure 2 shows the (unadjusted) percentage of respondents considering themselves in good or very good health in **Russia** by consumption quintile as reported in the World Bank Poverty Assessment 2004. Although there is little difference among the lowest 3 quintiles, the highest shows a clear advantage in their self-reported health.

Figure 2. Share of respondents considering themselves in good or very good health in Russia (2003)



Source: World Bank Russia Poverty Assessment 2004

In contrast one survey, the 2001 Household Budget Survey (HBS) in **Azerbaijan**, did not find any obvious (unadjusted) effect of economic status on self-rated health; indeed a slightly higher proportion of the poorest quintile (based on expenditure) reported their health as very good than did the richest (86.1% compared to 80.7%). The World Bank hypothesized that this surprising finding could be because the poor are less likely to complain about their health, emphasizing the limitations of using self-rated health to measure inequities in health status (World Bank 2003a).

Employment

Of all of the studies in which unemployment was considered as an explanatory variable for self-reported ill-health a significant correlation was found only in **Latvia**, and only for males (OR 2.48, 1.3-4.74) (Monden 2004). Economic inactivity (defined as people who are unable to work, looking after a home, or retired) was however significantly associated with increased risk of ill health in several studies with adjusted odds ratios in the region of 1.5-2.5 for countries from **Poland** to the **Czech Republic** and **Latvia** (Monden 2004; Pikhart et al. 2001; Wroblewska 2002).

Not all studies distinguished between economically inactive and unemployed people, such as in the **Ukraine** and **Estonia** where unemployment was not significantly associated with poor self-assessed health (Leinsalu 2002, Gilmore et al. 2002). The lack of association could however be a reflection of the extent of the informal economy; the official 40% unemployment rate in the **Ukraine** is unlikely to be a true reflection of the realities in the labour market (Gilmore et al. 2002).

Occupation

Of the five studies that measured occupational status, four found no significant impact on self-reported health whilst one, in a survey of adolescent health in **Slovakia**, found that father's occupation had a significant inverse relationship with self-reported health

(Geckova et al. 2003). This last, however did not control for income/material status, as did the other studies. However, as noted with regard to employment, official occupational categories do not take into consideration the informal economy, and furthermore the classification employed in most of these studies may not have been sufficient to reflect differences in health by occupational status.

Ethnicity

In certain countries and provinces any analysis of socioeconomic status and self-rated health would be incomplete without drawing attention to the very great ethnic distinctions. In **Kosovo**, Serbs systematically report worse health status than Albanians. Crude, unstandardised figures suggest that Serbs are three times more likely to report their health as poor or very poor than Albanians. The World Bank suggested this could be partly due to the effect of the emigration of healthy Serbs (World Bank 2001). In **Estonia** and **Latvia** a significant disadvantage in self-assessed health was found amongst minority groups. In **Estonia** Russian people had higher odds of ill-health, and in **Latvia** non-Latvian women (the majority of whom were Russians) were at higher risk of ill-health than Latvian women (OR 1.35, 1.01-1.79) (Leinsalu 2002; Monden 2004).

The serious relative and absolute disadvantage in the health of Roma living in the region has been documented although there have been few rigorous epidemiological studies published in the international literature. A review of the published Czech and Slovak literature in 2001 for example noted that the poorer health status of this population was widely acknowledged but that because of the lack of research and advocacy rather few sources of empirical evidence could be found (Koupilova et al. 2001; Gyorgy et al. 2005; Kosa et al. 2002; Kovac et al. 2002). Roma communities in the region have difficulties accessing health care/insurance because of discrimination, poor literacy rates and a lack of identity documents. It has been shown that in some countries they suffer disproportionately from expenditure on out-of-pocket fees at health centres. Of those epidemiological studies that have addressed the health disadvantage of the Roma the focus has been on sexual health and infectious disease. It has been suggested that increasing the evidence base with regard to noncommunicable disease should become a priority (Bozicevic 2005; Ivanov 2004; Hajioff and McKee 2000).

Gender

Most studies addressing self-assessed health in the various countries recorded large gender differences with women reporting significantly worse health than men. In the **Ukraine** the adjusted odds of women reporting their health as poor was 3.58 (2.50-5.14) (Gilmore et al. 2002). Only in **Estonia** was no gender differential found in self-assessed health (Leinsalu 2002). Significantly, the evidence for socioeconomic inequalities in self-assessed health status varied by gender: different indicators were more or less powerful predictors of health for men and women. The 1997 survey of **Bulgaria** found self-reported health in women to be more sensitive to change in self-assessed material situation than in men whilst in both **Estonia** and **Latvia** education remained a more significant determinant of health after adjusting for income than it did in men (Balabanova and McKee 2002c; Leinsalu 2002; Monden 2004). The impact of place of residence (urban/rural) on health varied by gender. In the **Ukraine** for example, living in a village increased the risk of ill-health in women (3.24, 1.3-8.07) but was not significantly associated with ill-health in men (Gilmore et al. 2002),

whilst in **Latvia** rural men had a higher risk of ill-health (OR 1.42, 1.07-1.89) but place of residence was not a significant explanatory variable for women (Monden 2004).

Summary

In comparing these studies several points arise for discussion. The first is the difficulty that was encountered in measuring material status. The extent of the informal economy in the region means that official income, and official occupation, may not capture the true material status of households and individuals. Studies that compared the significance of income with self-assessed financial situation as explanatory variables of poor self-assessed health found the subjective measure of wealth to be a more powerful predictor. All studies which considered only the latter measure found significant inverse relationship between material status and health. Studies differed in the extent to which education was a more or less important explanatory variable than material status, but only in the **Ukraine** was the relationship with education not found to be significant. There were large gender differences in the impact of determining factors such as education, income and place of residence on health in the various studies.

Socioeconomic status and self-rated health

- **Cross-sectional studies show a strong association between SES and health**
- **Little is known about the trend over time in socioeconomic inequalities of self-reported health in the surveyed countries**
- **Women report worse health than men**
- **The association between SES and health is affected by the choice of SES variable**
- **Different SES variables may be more or less strongly associated with health according to gender**

2.3 Socioeconomic inequalities in health and mortality from noncommunicable disease

In order to explore the dynamics of the mortality crisis in the region and to interrogate the inequities in health generated through transition it is necessary to go beyond all-cause mortality and self-reported health and to question what inequities exist with regard to specific conditions (McKee 2003). It has long been acknowledged that much of the East-West gap in mortality is due to the rising levels of noncommunicable disease in CCEE-CIS countries (Marmot 1996). In 2001 deaths from cardiovascular disease were higher in every country in the region than they were in the EU. Mortality rates from cardiovascular disease reached 807/100000 in the Russian Federation in 2001 compared to 258/100000 in the EU (World Bank 2004). It has recently been suggested that given the great contribution NCD makes to overall mortality, and to the rising mortality trend in the region, development goals ought to be restructured to reflect these realities (Rechel et al. 2005; World Bank 2004; Lock 2002).

Understanding socioeconomic differentials in NCD is not straightforward given the multi-causal, and long-term, pathways to illness. Certain conditions for which mortality rates rose in the early 1990s, such as several cancers, would have had their roots in the pre-transition period. Furthermore, the impact of life-course events on socioeconomic inequalities in health is crucial and very little understood. Studies on risky health behaviours such as smoking in **Russia** have found associations with economic deprivation in childhood (Carlson 2001), and others have suggested that the current vulnerability of the elderly could be associated with their experience of severe economic deprivation in the interwar and immediate post-war period. Research in **Russia** has suggested that cohort effects have contributed significantly to the changes in cancer mortality as those who were teenagers in the years 1945-53 are less likely to have begun smoking because of the unavailability of cigarettes in the postwar period (Shkolnikov et al. 1999; Gilmore et al. 2004).

A prospective cohort study by Malyutina et al. (2004) based on the Novosibirsk MONICA project in **Russia** analysed associations between socioeconomic status and cardiovascular mortality. They found that the age-adjusted relative risk from cardiovascular disease for university against primary educated males was 0.6 (0.4-0.8) and for females was 0.4 (0.2-0.8). For CHD the corresponding risk ratios were 0.55 (0.35-0.84) for men and 0.11 (0.01-0.80) for women. A greater proportion of this increased risk amongst lesser-educated people was explained by standard coronary risk factors and marital status in men than in women. There was no clear relationship between educational status and stroke.

A case-control study based on the WHO collaborative study of cardiovascular disease and Steroid Hormone Contraception examined how much of the association between lower levels of education and CVD in women of reproductive age in eastern Europe could be “explained” by standard risk factors (Chang et al. 2002). Before adjusting for risk factors there was a significant trend between educational status and risk of acute myocardial infarction (AMI). The odds ratio comparing the least to the most educated was 2.23 (1.31-3.80). Practically all of this excess risk (92%) was explained by adjusting for standard risk factors. The excess risk of stroke amongst the least educated group was 1.90 (1.27-2.84) and only 62% of this was explained by adjusting for standard risk factors. The authors of this study pointed out that the finding that so much of the excess risk in AMI in eastern Europe was explained by risk factors was

contrary to the well-known findings in Western Europe where Whitehall and other studies have shown that even after controlling for smoking, alcohol consumption and other risk factors, SES continued to exert a strong influence on mortality from CHD. The higher level of unexplained excess risk in stroke could be due to the relationship between psychosocial factors and blood pressure.

Kunst et al. (2002b) found an association between education and age-standardised mortality from circulatory diseases in **Estonia**. The rate ratio comparing lower secondary to university educated was 2.23 (2.06-2.43) in men in 1999-2000, compared to 1.44 (1.36-1.53) in 1987-1990. In women the ratios were 2.42 (2.18-2.68) in 1999-2000 and 1.51 (1.39-1.65) in the earlier period. Similarly significant trends were found between education and incidence of cerebrovascular disease, IHD and injuries and poisonings (see Table 1). For both IHD and cerebrovascular disease the relative risk compared to those with university education increased over the period. Although age-standardised, these rates were not adjusted for other explanatory variables. This study also pointed to the importance of area of residence in relation to cause-specific mortality rates in **Estonia**. The age-standardised mortality rate for men and women of all-age groups was found to be nearly 10% higher in rural areas than in Talinn and rural residents had higher age-standardised mortality rates from ischaemic heart disease, chronic respiratory disease, transport accidents and suicide than people in Talinn who experienced higher mortality rates from stomach and breast cancer, alcohol poisoning and homicide. Women in Talinn had higher rates of lung cancer than in the countryside, whilst the reverse was true for men.

Analysis of individual death records from the Udmurt Republic in **Russia** found that the risk of death from circulatory diseases was significantly higher in people with lower levels of education and that for men there was an especially strong educational gradient for external causes of death. A case-control study in the same region using verbal autopsy reports also indicated that the risk of CVD death was elevated for unemployed and unmarried men. The adjusted OR comparing unemployed to employed was 2.52 (1.43-4.43). (Shkolnikov et al. 2002; Shkolnikov et al. 2004b).

Overall, the recent studies investigating NCD have found significant socioeconomic inequalities in incidence and mortality from these conditions. The studies have however been limited to Russia, eastern Europe and the Baltic Republics and more research needs to be conducted on this question in central Asia.

Socioeconomic inequalities in health and mortality from NCD

- **A strong inverse relationship has been found between education and NCD in case-control, cohort and cross-sectional studies in the region**
- **The focus has been on Russia and the Baltic States and few studies have investigated the relationship between NCD and SES in central Asia or other former Soviet states**
- **There is little data on the trend in this relationship over time and few studies assess the association from a life-course perspective**

Table 1: Mortality rate ratios from selected causes in Estonia (1987-1990) adapted from Kunst et al. (2002b)

	Circulatory disease		IHD		Cerebrovascular disease		Injuries and poisonings	
	Male	Female	Male	Female	Male	Female	Male	Female
Place of Residence								
Talinn	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other urban	1.04 (1.00-1.08)	1.00 (0.97-1.03)	1.18 (1.12-1.23)	1.22 (1.17-1.27)	0.84 (0.78-0.91)	0.74 (0.70-0.78)	1.04 (0.97-1.12)	0.87 (0.78-0.97)
Rural	1.22 (1.18-1.27)	1.19 (1.15-1.22)	1.37 (1.31-1.44)	1.44 (1.38-1.50)	1.02 (0.95-1.10)	0.92 (0.87-0.96)	1.38 (1.29-1.49)	1.08 (0.96-1.20)
Ethnicity								
Estonian	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Russian	0.95 (0.91-0.98)	1.02 (0.99-1.05)	0.93 (0.88-0.97)	0.98 (0.95-1.02)	1.00 (0.93-1.07)	1.05 (1.00-1.11)	1.08 (1.02-1.15)	1.06 (0.96-1.18)
Other	0.93 (0.88-0.99)	1.05 (1.00-1.10)	0.92 (0.86-0.99)	1.00 (0.93-1.07)	0.93 (0.83-1.04)	1.11 (1.02-1.20)	1.17 (1.06-1.28)	1.00 (0.84-1.19)
Education								
University	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upper secondary	1.13 (1.06-1.21)	1.12 (1.03-1.23)	1.07 (0.99-1.16)	1.05 (0.93-1.18)	1.20 (1.05-1.36)	1.17 (1.01-1.369)	1.75 (1.54-1.99)	1.24 (1.01-1.51)
Lower secondary	1.44 (1.36-1.53)	1.51 (1.39-1.65)	1.39 (1.30-1.50)	1.50 (1.34-1.68)	1.45 (1.28-1.63)	1.45 (1.26-1.67)	3.22 (2.83-3.66)	1.61 (1.32-1.98)

Mortality rate ratios from selected causes in Estonia (1999-2000) adapted from Kunst et al. (2002b)

	Circulatory disease		IHD		Cerebrovascular disease		Injuries and poisonings	
	Male	Female	Male	Female	Male	Female	Male	Female
Place of Residence								
Talinn	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other urban	1.13 (1.07-1.19)	1.03 (0.98-1.08)	1.38 (1.28-1.48)	1.29 (1.21-1.38)	0.75 (0.68-0.83)	0.71 (0.65-0.77)	1.23 (1.13-1.34)	1.28 (1.09-1.50)
Rural	1.16 (1.10-1.22)	1.24 (1.18-1.30)	1.37 (1.27-1.47)	1.49 (1.40-1.59)	0.91 (0.82-1.00)	0.96 (0.89-1.04)	1.10 (1.00-1.21)	1.16 (0.98-1.50)
Ethnicity								
Estonian	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Russian	1.29 (1.23-1.36)	1.06 (1.02-1.12)	1.31 (1.23-1.39)	1.03 (0.97-1.09)	1.24 (1.12-1.36)	1.08 (1.00-1.16)	1.69 (1.57-1.83)	1.79 (1.56-2.05)
Other	1.15 (1.07-1.24)	0.99 (0.91-1.07)	1.16 (1.05-1.28)	0.98 (0.88-1.09)	1.13 (0.97-1.31)	1.00 (0.87-1.15)	1.44 (1.27-1.64)	1.44 (1.13-1.85)
Education								
University	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upper secondary	1.85 (1.70-2.02)	1.79 (1.61-1.99)	1.84 (1.65-2.06)	1.67 (1.45-1.93)	1.88 (1.59-2.23)	1.80 (1.51-2.16)	2.22 (1.91-2.58)	2.03 (1.54-2.69)
Lower secondary	2.23 (2.06-2.43)	2.42 (2.18-2.68)	2.25 (2.02-2.50)	2.36 (2.06-2.70)	2.07 (1.76-2.44)	2.22 (1.86-2.64)	2.95 (2.53-3.44)	3.59 (2.70-4.78)

2.4 Socioeconomic status and risk factors for noncommunicable disease

Several studies have attempted to document socioeconomic inequalities in health by measuring determinants of risk behaviours. Alcohol, smoking, obesity/ nutrition/ physical activity and hypertension and other physiological risk factors are considered here.

Smoking

The majority of studies have identified an inverse association between socioeconomic status and smoking amongst males in this region. This is true taking several different indicators of socioeconomic status but the relationship with educational level is particularly strong. Amongst women the trend is not so clear. Women have a much lower prevalence of smoking overall and the key determining factors seem to be age and residence, with young women in urban areas at greatly increased risk. It has been suggested that this could be partly because of the greater exposure to tobacco marketing in urban centers (Pomerleau et al. 2004).

The Living Conditions, Lifestyles and Health Study (LLH) was a multi-stage nationally representative survey across eight countries of the FSU (**Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine**) conducted in 2001. It used standardized methods making the results comparable between countries. Analysing the results, Pomerleau et al. (2004) found that looking at all the countries together socioeconomic factors (education and economic position) were especially strongly inversely associated with smoking in men. The fully adjusted odds ratio of smoking (taking secondary or less education as the index group) for men with vocational or some higher education was 0.69 (99% CI: 0.60-0.80), and for men who had completed higher education 0.47 (99% CI: 0.39-0.56). In women the fully adjusted odds ratios were 0.87 (99% CI: 0.69-1.09) for those with vocational/some higher education, and for those who had completed higher education 0.86 (99% CI: 0.66-1.12), suggesting no statistically significant association. The fully adjusted odds ratios for smoking by self-reported family economic position (taking “bad/very bad” as the index group) were 0.77 (99% CI: 0.66-0.88) in men reporting “average” economic situation, and 0.70 (99% CI: 0.56-0.89) in those reporting “good/very good” position. Among women the odds ratios were 0.87 (99% CI: 0.64-0.98) for average and 0.85 (99% CI: 0.59-1.22) for “good”. As in most studies conducted in CCEE-CIS female smoking was strongly correlated with residence, with an odds ratio of 0.31 (99% CI: 0.23-0.40) comparing women in villages to those in cities.

A study of risk behaviours in Taganrog in Russia between 1993/4 and 1998 was conducted based on a household survey of a random sample of 1009 households. It found that there were significant associations between smoking and socioeconomic status as judged by education and material wealth. In 1998, compared to those with higher education the adjusted odds of smoking in those with specialised secondary education were 1.66 (1.12-2.45), with common secondary education 1.61 (1.06-2.44), with vocational education 2.50 (1.42-4.42), and with less than compulsory education 2.02 (1.21-3.35). Comparing those who had experienced economic difficulties 3-12 times and those never experiencing economic difficulty the odds of smoking was 1.59 (1.06-2.39) and for those who had experienced economic difficulty more than 12 times the odds were 2.18 (1.30-3.65) (Carlson 2001).

A nationally representative household survey conducted in **Ukraine** in 2000 suggested that smoking was associated with material hardship and especially unemployment. The fully adjusted odds ratio comparing unemployed men in last year to employed was 1.61 (1.08-2.38) and for women it was 1.96 (1.07-3.60). It was found that education and income had no significant impact on the probability of smoking (Gilmore et al. 2001a). Men whose social position had deteriorated over the last five years were more likely to smoke (OR: 1.52, 1.03-2.24). Women living in cities were 7 times more likely to smoke.

A similar survey was conducted in **Belarus** in 2000. The response rate was low, at 53.4%. It found that men who were socioeconomically disadvantaged had a higher risk of being smokers and that amongst women the odds of smoking were 13 times higher in cities than in villages (Gilmore et al. 2001b).

In the Baltic Republics (**Estonia, Latvia and Lithuania**) a representative survey was conducted in 1997 on approximately 3000 adults in each country. The primary focus was nutrition but questions were also included on smoking. An analysis of the survey in 1999 suggested that income was statistically significantly inversely associated with smoking among men but the correlation was much weaker among women. The combined dataset yielded fully adjusted odds ratios for smoking among males taking lowest income quartile as the index of 0.72 (0.59-0.87) for the second lowest, 0.69 (0.54-0.87) for the second highest and 0.55 (0.43-0.71) for the highest. There was also an association with education in the combined dataset: comparing university educated to primary the odds ratio of smoking was 0.67 (0.54-0.82) and comparing secondary to primary educated 0.85 (0.68-1.06). Amongst women in **Lithuania and Latvia** smoking rates were much lower in rural than urban areas whilst for men and Estonian women place of residence had little or not effect. For men ethnicity was an important determinant, with Russian men more likely to smoke than Estonian, Latvian and Lithuanian males in each country (Pudule et al. 1999).

Earlier research based on the Russia Barometer Survey of 1996 found that smoking was associated with material deprivation in men and women in **Russia**, but that there was no independent statistically significant association with education (McKee et al. 1998). The adjusted odds for men of being a current smoker taking primary education as the index group were 1.41 (0.38-1.65) for vocational, 1.09 (0.57- 2.12) for secondary and 0.63 (0.30-1.34) for higher. Comparing most to least deprived quartiles, the odds ratio was 1.69 (1.06-2.70), for women it was 2.00 (1.03-3.89).

In Tirana, **Albania**, Shapo et al. (2003b) found that smoking in men was inversely associated with education level, but found no consistent association with either employment or income. Amongst women (amongst whom the prevalence of smoking was 21.2%) there was no significant association with any of these socioeconomic factors. This reflected earlier findings in **Bulgaria** where in the first representative survey to address the question of socioeconomic determinants of smoking in **Bulgaria**, which took place in 1997, no significant association with income, education or self-assessed financial situation was found (Balabanova et al. 1998).

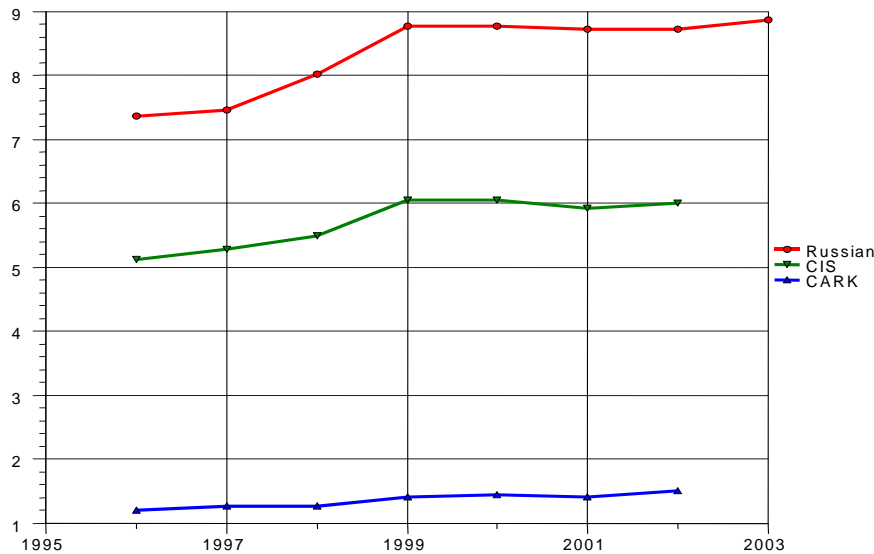
Overall, therefore, the studies concur that in the majority of countries there is a significant relationship between smoking and some measure of SES. The explanatory variables that were strongly associated were not the same in all of the studies: education was not found to be a significant correlate in the **Ukraine** for example

(Gilmore et al. 2001), whilst it was an important factor in **Russia** (Carlson 2001). It is clearly not possible to make cross-country comparisons with any degree of confidence when the criteria for measurement are different. Not all of the multi-country studies present pooled data in calculating the adjusted rates. The Pudule et al. (1999) study does cite comparable adjusted odds ratios for three Baltic Republics and indicates there are not large differences in the level of effect of either education or income.

Alcohol

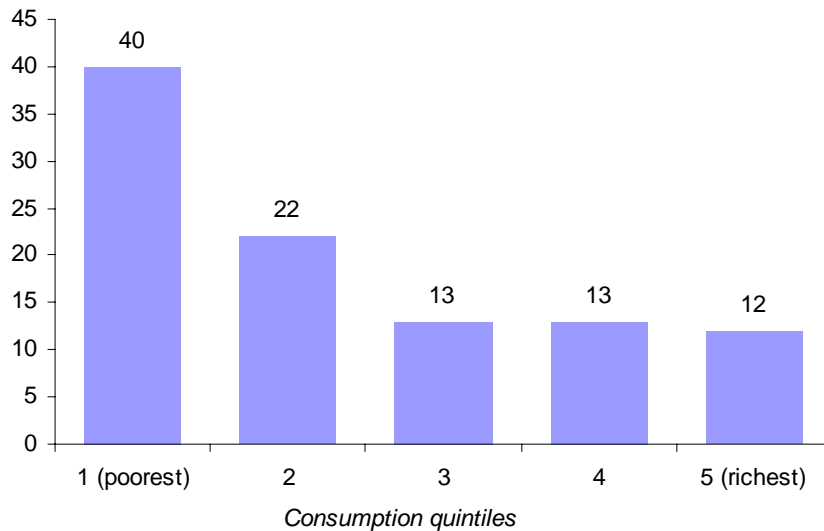
Alcohol has been identified as a key factor in prompting the decline in life expectancy in the region (Leon et al. 1997; Cockerham 2000). It has been particularly important in generating the gender gap in mortality rates as it contributed chiefly to the rise in mortality amongst middle-aged men. The nature of drinking in the region, with high levels of consumption of very highly concentrated spirits and unregulated home-brewing, has been blamed for the rising death rates as this type of binge-drinking has a greater association with heart disease (Malyutina et al. 2002). Alcohol has also been associated with the rise in deaths from injuries and homicides. It is highly probable that alcohol is not only a key factor in the average mortality trends but also plays a role in the socioeconomic inequalities in mortality and health outlined above: not only do the socially disadvantaged appear to drink more (see Figure 4), but in addition they tend to suffer more serious health consequences from a given level of alcohol consumption. There has been a rising trend in alcohol consumption in **Russia** and the CIS in the late-1990s (Figure 3) and Figure 4 illustrates that there is a disproportionately higher level of daily consumption of spirits amongst the poorest two quintiles in **Russia**.

Figure 3. Trend in per capita pure alcohol consumption (litres) Russian Federation, CIS and CARK



Source: WHO European HFA Database

Figure 4. Percentage of respondents who consume spirits "practically every day" in Russia (2003)



Source: World Bank Russia Poverty Assessment 2004

Note: Spirits are defined as "vodka, cognac, liqueurs, and other spirits".

Studies that have sought evidence for socioeconomic differentials in drinking have found a significant inverse relationship with socioeconomic status but the pathways explaining this association are difficult to quantify. The evidence so far suggests that psychosocial factors played a crucial role in generating inequities in health over the course of the 1990s. Alcohol may be one of the major conduits through which psychosocial stress is translated into poorer health, and higher mortality.

The Living Conditions, Lifestyles and Health Project surveyed 18,428 adults in **Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine** in 2001. This cross-sectional data was used to examine the pattern of hazardous drinking behaviours in the region. It found that frequent (at least once every 2-3 weeks) heavy drinking (>2 litres of beer or 750g bottle of wine or >300g spirits) was more common amongst those reporting a worse economic situation in their household. It was more prevalent in men (14.5%) than women (1.1%) and there were variations across countries with the highest prevalence rates for male binge drinking found in **Belarus, Kazakhstan and Russia**. Amongst women heavy episodic drinking was less common amongst the better off. In contrast to the findings by Bobak et al. (1999) in **Russia**, unemployment was not a significant correlate (Pomerleau and McKee 2003).

Similarly, in Taganrog, **Russia**, in 1998 Carlson (2001) found that the odds of high alcohol consumption (defined as weekly intake of >0.5 litres at 40% concentrate, approximating 160g pure alcohol) were higher amongst those reporting more frequent economic difficulties. Those reporting having experienced economic difficulty 1-2 times had 3.10 (1.44-6.70) times the adjusted odds of drinking heavily than those never experiencing economic difficulty. The odds of drinking heavily also decreased the higher the level of education, but this trend was not statistically significant in the crude or adjusted analysis. The strongest correlate with heavy drinking was family relations, with those reporting quarrels or conflicts having than 20.60 (8.76-48.42) times the odds of those in calmer households. The direction of causation is of course unclear.

As a warning against simplistic interpretations of the relationship between SES and heavy drinking, a study based on the World Mental Health Survey in the **Ukraine** found no effect of financial status on the odds of heavy alcohol use, and in the unadjusted model found the odds of use to be doubled for men with a high school education compared to those of lower educational status (this result disappeared in the adjusted model) (Webb et al. 2005).

Similarly, a study of three surveys conducted as part of the MONICA project in Novosibirsk in **Russia** in 1985/6, 1988/9 and 1994/5 which examined four measures of alcohol consumption⁵ in relation to education found that although men with university education had the lowest levels of all measures, these measures increased over time most extremely in men with higher educational status, leading to a narrowing gap over time in education related differences (Malyutina 2004).

Evidence of the relationship between psychosocial factors at work and levels of alcohol intake has been found in several studies in Western Europe. In a recent study of the pilot HAPIEE (Health, Alcohol and Psychosocial factors in eastern Europe) project Bobak et al. (2005) found a significant inverse relationship between the effort/reward balance at work and all indicators of alcohol consumption and problem drinking in Novosibirsk (**Russia**), Krakow (**Poland**) and Karvina (**Czech Republic**).

⁵ The four measures were: prevalence of drinking at least once a week; the mean intake per drinking occasion; mean intake in the last week; the prevalence of binge drinking (>80g ethanol for men and >60g for women) at least once a month.

Obesity, nutrition and physical activity

Recent studies have begun to focus on the question of nutrition in relation to socioeconomic differentials in NCD in the region. The Russian Longitudinal Monitoring Survey (for which nine cross-sectional samples were collected between 1992-2000) administered 24-hour diet recall sheets and measured height and weight, providing a longitudinal data series with which to monitor trends in nutrition since 1992. This was a period of great change in dietary habits, which saw both a reduction in the share of the household budget on foodstuffs in **Russia**, and a change in the food market through the impact of liberalisation. Studies have suggested rising incidence of both undernutrition and obesity, with obesity being associated with both poverty and higher economic status, and trends in undernutrition especially worrying amongst the very young and old.

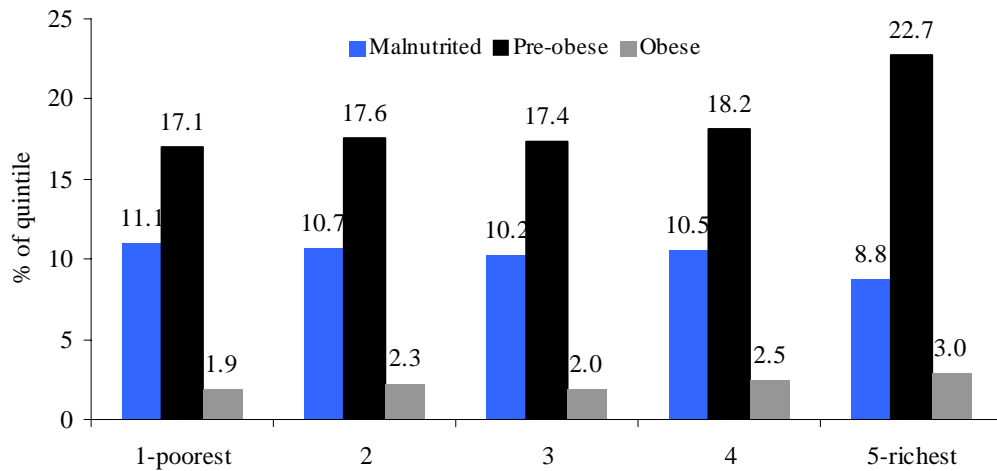
Between 1992 and 2003 there was a steady increase in obesity amongst the middle-aged and the elderly. Amongst the elderly obesity increased by 55% during this period and the prevalence is now 35.4%. Two studies based on the RLMS data have tested the association between socioeconomic status and the obesity trend. Both found that there were significant variations in obesity by income. Jahns et al. (2003) found that women had a higher prevalence of overweight and obesity, but that the income effect was stronger in men, with men of lower incomes consuming less calories. Wang (2001) analysed the 1992 data on childhood obesity and found that both the high and the low income groups had a higher risk of obesity compared to the middle income group (low OR 1.4, 1.2-1.7 and high OR 1.2, 1.0-1.4).

The converse has been seen amongst the younger age groups. The prevalence of stunting among 2 to 6 year olds increased up until 2000 before declining and amongst young adults there was a 77% increase in those measuring underweight between 1992 and 2003. These trends could reflect the higher purchasing power of older adults in **Russia**, in the context of economic insecurity. Whilst income levels had risen back up to the 1992 level by 2003, and total household expenditure has risen by 32% since 1998, real expenditures on food in 2003 remained at just 61% of the level they were at in 1994. On the other hand amongst pensioners, studies in the 1990s documented rising levels of malnutrition during transition ([Rush and Welch 1992] and [Toole 1996] cited in Carlson 2001).

In **Poland**, the associations between education and female BMI were examined using a sample of 2045 women aged between 35 and 50 in Wroclaw city. It was found that education was inversely associated with BMI, the mean BMI of women who has attended university or completed secondary school was lower than that of women who had attended basic vocational school or less (Szkłarska and Jankowska 2003).

In **Azerbaijan** the HBS (2001) showed that there were important socioeconomic distinctions in nutrition. The unadjusted figures indicate that a higher proportion of the richest (consumption) quintile is classed as obese or pre-obese than in the poorer groups, and that there is a higher level of malnutrition amongst the poorest.

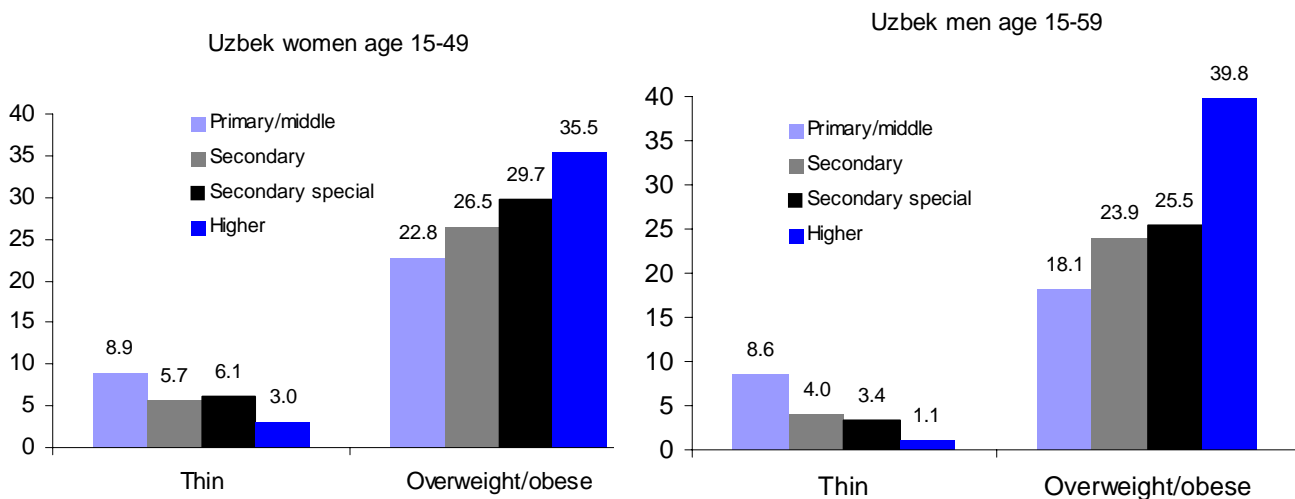
Figure 5. Nutritional status among adults by consumption quintile in Azerbaijan, 2001



Source: Azerbaijan HBS, 2001. Reported in the World Bank Poverty Assessment, 2003

Figure 6 shows that according to the **Uzbekistan 2002 Health Examination Survey** the (unadjusted) proportion of overweight/obese increases (linearly) for both men and women of higher educational levels, whilst higher proportions of the lowest educational status are classed as “thin”.

Figure 6. Share of thin and overweight/obese people living in Uzbekistan, by educational attainment



Source: Uzbekistan HES 2002

In their cross-sectional study on the epidemiology of cardio-vascular risk factors in Tirana, **Albania**, Shapo et al. (2004) found that whilst overall there was a worrying trend in low-levels of physical exercise in leisure time, this did not seem to vary by socioeconomic status as measured by either education or income.

A recent study which analysed sociodemographic variation in the prevalence of obesity in **Estonia**, Lithuania and Finland on the basis of three cross-sectional surveys in 1994, 1996 and 1998 found that over the course of this period obesity increased only to Estonian males and that a significant socioeconomic gradient was found only for women across the three countries and for men only in Finland. Women with lower educational levels were statistically significantly more likely to be obese. In **Estonia** the adjusted odds ratio comparing high to low education group was 0.44 (0.31-0.64) for women (Klumbiene et al. 2004).

A study of the obesity of school children in the **Czech Republic** found that children of parents with lower educational status were twice as likely to be obese (7%) as children of parents with a higher educational status (3.3%) whilst the opposite was true for overweight children who were more likely to come from highly educated families. In the logistic model there was no significant association between the educational level of parents and overweight children because the categories overweight and obese were combined. Also, the BMI of parents was included in the model and the obesity of parents was highly negatively correlated with their own educational level (Vignerová et al. 2004).

Another study that complicates the picture of SES and nutrition is the recent comparative work conducted on socioeconomic status (educational level of parents) and insulin resistance amongst children in **Estonia**, Denmark and Portugal. This study found that whilst lower socioeconomic status was strongly associated with insulin resistance in Denmark (consistent with findings from Britain and elsewhere in north western Europe) in both **Estonia** and Portugal children of higher social status were significantly more likely to be resistant. The authors suggested that this could be because “Western” style processed foods represent a luxury in the poorer countries and the children of the better off are more able to afford such goods. They also hypothesise that children are more likely to adopt “western style” values and tastes than adults amongst whom the relationship between CVD and education is negative (the fall in CHD over the 1990s has occurred disproportionately to people of higher educational groups) (Lawlor et al. 2005; see also Vågerö and Leinsalu 2005).

The picture of obesity is therefore not straightforward; with reports of a clear positive association with wealth in some countries (the better off are more likely to be obese) and in others there is either an inverse or U-shaped relationship with both the poor and the rich at higher risk. There are also distinctions between the association of socioeconomic variables and obesity and with less extreme measures of overweight. This diverse picture is unsurprising given that it has been shown that the burden of obesity tends to shift towards the poorer parts of the population as a country’s gross national product increases. Of the studies we reviewed, those on the poorer countries in the region (Azerbaijan and Uzbekistan) found obesity to be a disease of affluence, whereas in the richer countries (Czech Republic, Poland, Estonia) the burden of obesity had shifted to the poor. For the old in Russia the obesity affected the rich, whilst for the young it seems the situation is more transitional with a U-shaped relationship. How far the direction of the relationship between obesity and SES can be predicted to shift towards disadvantaging the poor as countries increase in GNP remains an open question, but such a scenario is certainly possible for the central Asian countries (Monteiro et al. 2004; Mackenbach et al. 2002; Vågerö and Leinsalu 2005). The picture relating to malnutrition is clearer, with poor and vulnerable groups

at greater risk. Longitudinal data from **Russia** suggests that the trend in both obesity and malnutrition is rising.

Hypertension and other CVD risk factors

A study based on the CINDI (Countrywide Integrated Noncommunicable Diseases Intervention) Programme for the WHO Regional Office for Europe questionnaire in Lodz in **Poland** (2001-2) is interesting because it compared the strength of association between educational status and CVD risk factors and material wealth and risk factors amongst the elderly in the region. Whilst it found that low levels of education were positively associated with cumulative (three or more) CVD risk factors (hypertension, obesity, elevated cholesterol, elevated blood sugar and smoking) the opposite was true of material status where lower status was associated with lower risk of CVD risk factors (Stelmach et al. 2004; see also Stelmach et al. 2005). Whilst higher education level decreased risk factors for CVD amongst the elderly, higher income level increased the risk of such factors for both males and females.

Another study that investigated the epidemiology of hypertension was a cross-sectional survey of 1120 adults in Tirana City, **Albania**. Contrary to expectations it found no significant association between hypertension and income or education in men or women, after controlling for other variables (Shapo et al. 2003a). These findings are clear evidence of the complicated effect of SES on exposure to NCD, the need to be careful in the selection of SES indicators in epidemiological studies and the need for more empirical research.

Summary

Men across the region are more likely to engage in risk behaviours such as smoking and drinking if they are of lower SES. This has significant implications for the epidemiology of NCD. The pathways by which SES, risk behaviours and NCD are interconnected are not clearly explicated. This is suggested by studies that have controlled for the “confounding” effect of psychosocial stress in examining the impact of tobacco or alcohol, and which have attempted to quantify how much excess risk due to psychosocial factors is “explained” by risk factors. Portioning the blame does not fully permit exploration of the causal networks (Marmot 1996). It is possible that improved qualitative research would enhance the state of the debate on psychosocial stress, NCD risk factors and SES in the context of economic transition.

NCD risk factors and SES

- **A lower SES is associated with a higher likelihood of smoking across the region although there was variation in the strength of association with alternative measures of SES and evidence that the relationship may be different for men and women**
- **For women, place of residence was an important correlate with smoking with much higher risk of smoking in the urban areas**
- **Poor economic situation was strongly associated with higher levels of alcohol intake and more risky drinking behaviour**
- **For richer countries in the region there appears to be an inverse relationship between SES and obesity, for poorer countries the reverse is true, with people of lower SES at great risk**
- **Across the region, the burden of malnutrition is borne by the poor and malnutrition has increased in the post-Soviet era**

For women, SES is a less important predictor of risk behaviour than residence. The increasing incidence of smoking amongst young urban women is a cause for concern. Much of the research on socioeconomic inequalities and health has focused on men because they were more affected by the decline in life-expectancy over the 1990s, have a higher incidence of NCD and risk behaviour, and utilize health services less. However, women are experiencing rising rates of smoking across the region, and they have significantly higher levels of poor self-reported health than men.

2.5 Psychosocial and social capital factors in explaining the association between SES and health

The nature of the mortality crisis in the region, which has been driven by rising mortality amongst males of lower educational status and in which alcohol consumption and rising rates of injuries and accidents have played a vital role, clearly indicates that psychosocial factors are important. The pathways through which psychosocial factors impact on health and how to quantify and analyse such factors is still little understood in the West where their importance has been acknowledged since the late 1970s. Even less is understood in the CCEE-CIS context. There is some suggestion that there may be differences in the importance of psychosocial factors between the East and the West. Chang et al. (2002) argued that whilst psychosocial factors accounted for much of the unexplained effect of SES on acute myocardial infarction once material status and risk factors had been controlled for in the West, in eastern Europe it has been suggested that risk factors themselves may account for much of the effect leaving little to be explained by psychosocial factors. However, as Michael Marmot pointed out in 1996 “explaining” the socioeconomic effect through distribution of risk factors does not reveal why there are socioeconomic differences in risk factors. It is necessary to understand the causal networks in full, considering both material and psychosocial, as well as the intermediate variables such as smoking and drinking, in order to understand the true level of effect that socioeconomic status might be having on health in the context of economic transition.

Several studies have gone beyond interpreting SES as a purely material phenomenon and have sought to measure and describe the psychosocial pathways through which socioeconomic status is inversely associated with health in the region. The majority of such studies have been focused on eastern Europe where surveys have been conducted asking questions about psychosocial factors. Pikhart et al. (2002) used ownership of particular “socially oriented” and “luxury” household items as a proxy for psychosocial well being and found significant inverse associations between ownership and poor health in multivariate models in both **Poland** and **Hungary**. Other studies have questioned respondents about their perceived “control” over life and have used this as a measure of psychosocial well-being. They have consistently found significant inverse associations between perceived control and self-reported health and mortality. Bobak et al. (2000) analysed data from seven countries in eastern Europe, **Russia** and the Baltic Republics and showed that perceived control did mediate some of the effect of material deprivation on self-reported health.

Several studies conducted in **Hungary** have been focused on the issue of social capital and health. Kopp et al. (2000) showed that “depressive symptoms” including perceived life control, hopelessness, hostility, lack of social support etc. mediate

between socioeconomic status and self-reported morbidity. Work-related studies have shown that the effort/reward balance at work is significantly inversely associated with self-reported health and depression as well as alcohol consumption in eastern European countries (Pikhart et al. 2001, 2004; Bobak et al. 2005). Similar findings have arisen in relation to mortality. In cross-sectional analysis of both the Hungarostudy II survey of 1995 and the Hungarostudy 2002 mortality rates were significantly associated with various measures of social capital including lack of social support, collective efficacy, reciprocity and competitive attitude (Skrabski et al. 2003, 2004).

An alternative approach to survey based measures of psychosocial well-being and levels of social capital has been to capture the “contextual effect” of rising levels of income inequality on self-rated health in **Russia** using regional inequality levels from the Russian Longitudinal Monitoring Survey. This study showed that at low levels of income inequality there was no contextual effect on male self-reported health in **Russia**, but that at higher levels of regional income inequality male self-reported health was lower than could be explained by individual level factors alone. For women the effect was different and no significant difference was observed relating to levels of regional inequality. Individual characteristics such as education and age were more important in explaining female self-reported health (Carlson 2005).

Per Carlson’s recent work on the European health divide has been to disaggregate the impact of economic versus social capital factors on self-rated health in Western Europe, the CEE and the FSU. He found that economic satisfaction was the strongest predictor of good health and the most important factor in explaining the difference between regions, although some aspects of social capital (organizational activity (men), trust in people, and confidence in the legal system) also reduced the odds of less than good health and were of importance in describing the differences between areas (Carlson 2004).

Some progress has therefore been made towards understanding the psychosocial, social capital as well as the material impact of low SES on health and mortality in eastern Europe but very little has been done in central Asia or the Baltic Republics to address the issue. It is perhaps surprising that more research has not been conducted on the psychosocial pathways to health considering that the extent of social and economic change undergone in the 1990s represents in some ways a natural laboratory through which to address these issues. Suggestions that there are significant differences between the countries of the FSU and other states in the region could be investigated further (Carlson 2004). More could be done also to understand the relationship between SES, psychosocial factors, social capital and alcohol abuse in the context of economic liberalisation.

Psychosocial factors and inequalities in health

- **Much recent research worldwide has shown that psychosocial and social capital factors mediate the association between SES and health outcomes**
- **Few studies exist that shed light on the relevance of psychosocial and social capital factors in affecting the link between SES and health in CCEE-CIS**
- **Where studies do exist, mainly in central Europe and in Russia, the importance of these factors is generally acknowledged**

This section highlights recent research on socioeconomic inequalities in access to health services within countries and compares the extent of country-level inequalities across the region. This is closely linked to the previous section in that inequalities in health care access may be one determinant of inequalities in health. Quantifying how much of the observed relationship between socioeconomic status and health is “explained” by inequality in access to services is however not possible and it is not our intention to suggest that accessibility is a major explanatory factor in the observed relationship.

Geographical location and socioeconomic status are important in accessibility to health services and both are considered here. Overall, the principal conclusion to draw from the existing data is that financial barriers are the most important limiting factor in health care accessibility and that inequalities in access have become more significant in most countries in the region since transition. This trend has been exacerbated by falling state expenditure on health and low-salaries of medical workers, which has led to the growth of out-of-pocket payments in many areas, disproportionately affecting the poor. As well as considering overall levels of health care utilisation and the extent of informal payments, this section highlights the extent to which insurance systems cover the socioeconomically disadvantaged. Socioeconomic status has been shown to determine differential usage of health services with rural and poorer individuals less frequently able to progress through the medical system beyond primary care. The priorities of public health spending remain oriented towards the secondary and tertiary sectors, raising questions about its redistributive effect.

The problem with examining access to health care at a population level is obviously the lack of knowledge about the baseline health status of individuals seeking care. Apparent differentials in access could reflect differentials in health, or alternatively apparent equity could disguise substantial inequalities amongst those with similar levels of ill-health. Studies have sought to minimise this ecological bias as far as possible by examining both the characteristics of populations seeking care as well as the distribution of those reporting ill-health but refraining from health service utilisation.

3.1 Access

A recent paper by Balabanova and Mckee et al. (2004) reported the findings of a survey on health service utilisation conducted in 2001 as part of the Living conditions Lifestyles and Health study on eight of the fifteen newly independent states of the former Soviet Union (**Armenia, Belarus, Georgia, Kazakhstan, Kyrgystan, Moldova, Russia and Ukraine**). This survey used standardized tools across the countries. Pooling the data, it was found that the most important reason for not seeking treatment across the region was the problem of affordability, 45.2% of people who reported an illness but did not seek care cited financial difficulty as their reason. Affordability was especially problematic in **Armenia, Georgia and Moldova** where 33%, 23% and 13% of people reporting illness were unable to obtain medical help for this reason. In contrast, very few people reporting illness in **Russia and Belarus** were unable to visit a health specialist. In the countries where affordability was a substantial barrier to access to services, the proportion reporting that they had to go without drugs because of financial reasons was also high. In the univariate analysis of the characteristics of people reporting illness but not seeking treatment they found evidence of substantial inequalities. The extreme cases were **Georgia and Armenia**

where two-thirds of those with the fewest household assets did not seek medical attention when needed because of affordability. A multivariate analysis of the pooled data demonstrated that the likelihood of consulting increased with educational status and with material well-being on a regional level.

The study also examined the probability of seeking care in hypothetical scenarios. A cross-country comparison showed that there were important national differences in the likelihood of people seeking care for particular conditions. For example the proportion that would consult a medical specialist in the case of a three-day fever varied from 56% in **Belarus** to 16% in **Armenia**. No figures are given reflecting the characteristics of health-care seekers in each country, but the national statistics caution against generalising about the region. Indeed the principal conclusion of the study was that not only the financial resources of individuals but also differential levels of psychosocial support play a major role in determining access.

Jane Falkingham (2004) used the **Tajikistan** Living Standards Survey of 1999 to look at the issue of informal payments and access. She found that people in the poorest fifth of the population were twice as likely to cite affordability as a reason for not seeking care than the richest, and that 70% of the poorest who received a prescription were unable to afford the drugs, compared to 24% of the richest. In **Uzbekistan** and **Kazakhstan** a survey of three Primary Health Care (PHC) sites in 1998 found that there was a strong gender bias in PHC utilisation, with women of reproductive age using 1.5 times the average per capita PHC resources, with men in the same age group consuming half the average (Cashin et al. 2002). This bias was stronger in the rural areas than the urban probably because of the higher fertility rate.

Pathways to Care

Restricting analysis to reported levels of utilisation of health services in general can conceal important distinctions in how socioeconomic factors determine the way in which the health system is used. This is both in relation to the extent to which different socioeconomic groups are able to rely on influential contacts in receiving care, in how far they must rely on the help and provision of relatives and friends even once in the health care system, the extent to which they are able to follow-up treatment regimen (for example fulfilling prescriptions) and perhaps most importantly, in the route they take through the health system. This last has been examined in a number of studies which have suggested that the socioeconomically disadvantaged and those living in rural areas are more likely to restrict treatment-seeking to primary health care posts and to avoid the expense of hospital stays and specialist consultations.

In **Bulgaria**, Balanbanova and McKee (2002a) drew on a nationally representative survey from 1997, supplemented with qualitative data from service users and providers, to seek evidence of inequalities in access to services. They found that after adjusting for ill-health, rates of consultation were fairly even across income levels. However, qualitative analysis, as well as data from the survey on the level of care sought by those who had recently used health services, revealed that the way in which individuals negotiated the health system was strongly influenced by both income and gender. Poorer people, and women, were less likely to progress beyond the primary sector than the better off and men, and were less able to exploit contacts and unofficial channels in progressing through the referral system. They found that the

better off were also more likely to make their first contact with the health system at the secondary level.

In **Tajikistan** the socioeconomic distinctions in treatment seeking were more pronounced. Falkingham (2004) found that poorer individuals were more likely to exclusively utilise primary health care rather than seeking admittance to hospital and were more likely to be administered to by relatives whilst in hospital if they did seek admittance.

3.2 Out-of-pocket payments

Out-of-pocket payments have become a serious concern across most of central and eastern Europe and the CIS. They include three main sources of financing: official user fees charged by health services, payments for drugs or medical supplies and under-the-table payments to service providers (McKee, Healy and Falkingham 2002: 186). The distinctions between official and unofficial payments are often blurred, and in many cases what began as informal payments have been transformed into semi-official user fees. The fraction of health expenditure coming from out-of-pocket payments has been rising. This has been particularly associated with over-capacity crises in health systems in the region and the very low wages paid (or not paid) to medical staff. Out-of-pocket payments are a regressive form of health financing and data suggest that in those countries with very high levels of such payments, higher proportions of people report not seeking health care when needed because of the associated cost. They have become central to the debate about equity in access to health care in the region, and are considered here in that regard. The multi-country study of states of the FSU by Balabanova et al. (2004) found that overall 31.2% of recent consultations had involved some level of out-of-pocket payment but there is great variation both across the region and within countries. Different practices are prevalent in various sectors of the health services (with out-of-pocket charges often especially high for inpatients in hospitals for example) and to a greater or lesser extent in urban and rural regions.

The extent of out-of-pocket payments

Considering informal (unofficial) out-of-pocket payments is especially difficult because by definition they are not measured by any official body. Their frequency has been estimated by surveys to be over 60% in parts of the Commonwealth of Independent States (CIS), and as high as 78% in **Azerbaijan** and 91% in **Armenia** (Lewis 2000: 18). The increasing frequency in recent years has been charted for some states, in **Albania** for example the World Bank found in 2000 that 89% of inpatients and 80% of outpatients made informal payments compared to just 20% in 1996 (World Bank, 1997). The RLMS has been monitoring the extent of out-of-pocket payments in **Russia** since 2000 and has found that there was an increase between 2000 and 2003 in the proportion of those seeking help who had to pay for it either “officially” or under the table (from 8.5% to 12.9%). Of those paying for services the proportion who paid informally rather than at the cashiers desk rose slightly from 51% in 2000 to 54.3% in 2003 (Zohoori et al. 2004). An analysis of the Kyrgyz Household Health Finance Summary suggested that the proportion of patients paying for consultations was in fact lower in 2001 than in 1994. Nonetheless, out of pocket payments remained a significant barrier to access (Falkingham 2001) and the percentage of people with acute illness in the previous four weeks seeking health care had dropped over the period from 50% to 40%.

Table 2. Out-of-pocket payments as proportion of health expenditure in selected countries

Country	Out-of-pocket payments	Reference
Albania	Official out-of-pocket payments account for 24.6% of total health expenditures.	HiT 2002
Armenia	Official user fees 10-12% of income of medical facilities. Informal payments 3.5-4 times this.	HiT 2001
Bulgaria	Out-of-pocket accounts for 20% of health care revenue.	HiT 2003
Georgia	Formal and informal out-of-pocket payments accounted for 87% of expenditure on health (1997).	HiT 2002
Kyrgyzstan	Official user fees equal 30% of total health spending. Unofficial payments increase this to over 50%.	HiT 2000
Lithuania	Out-of-pocket payments constitute 23% of total health expenditure.	HiT 2000
Tajikistan	Out-of-pocket payments (official and unofficial) account for two-thirds of all health spending.	TLSS (Falkingham, 2004)
Uzbekistan	Informal and formal out-of-pocket payment account for almost all health expenditure.	HiT 2001

The impact of out-of-pocket payments on access to health care

In the late 1990s the aggregate average expenditure on informal payments for health care and drugs as a percentage of monthly income was as high as 53.7% in the Kyrgyz Republic and 20.4% in **Georgia**, whilst in **Romania** and **Russia** it was 4.1% and 3.8% respectively (Lewis, 2000: 22). Considering that this aggregate proportion distributes per capita income and conceals the impact of serious illness episodes the actual burden to poor households experiencing illness was clearly much higher. The aggregate figures for inpatients alone indicated that expenditure was as high as 266.6% of monthly income in **Armenia** and 571.1% in the Republic of **Moldova** (Lewis, 2000: 22). Disaggregating by socioeconomic group it was found that in **Kazakhstan** among those who sought care the poor spent 252% of their monthly income on inpatient care compared to 54% for the better off ([Sari, Langenbrunner and Lewis 2000] cited in Lewis, 2000: 23). In **Albania**, out-of-pocket payments were shown to amount to higher a proportion of average per capita expenditure in rural areas than urban (8% compared to 4%) (World Bank 1997).

Table 3. Average per capita income and percentage of monthly income spent informally on drugs and health care

Country	Year of Survey	Average per capita income (\$)	Average expenditure as % of income	Outpatient's expenditure as % of income	Inpatient's expenditure as % of income	Drug expenditure as % of income
Moldova	1999	129			571.11	
Tajikistan	1999	61		60.56	534.53	41.39
Armenia	1999	139		7.55	266.6	
Kazakhstan	1996	373		5.86	52.34	11.18
Georgia	1997	251	20.43	10.29	44.27	12.26
Albania	1996	205	9.13	4.52	29.47	4.82
Poland	1994	765		0.95	23.97	9.67
Romania	1997	491	4.11	3.6	11.67	
Bulgaria	1997	328	4.39	2.87	10.99	5.8
Russian Federation	1997	472	3.78	0.59	6.87	2.61
Kyrgyz Republic	1997	127	53.72			28.64

Source: Lewis (2000)

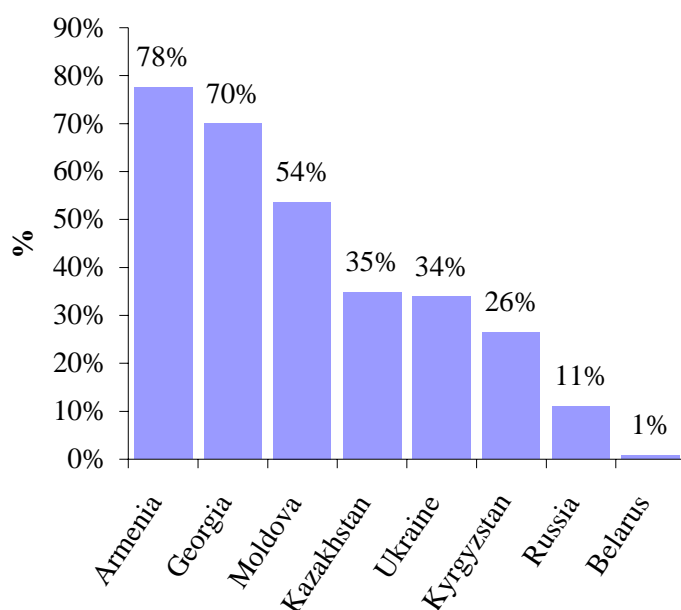
In order to understand the implications of these figures for equality in access, studies have analysed the proportions of people either not seeking care or not purchasing prescribed drugs because of prohibitive costs. Figure 7 based on LLH data shows that the proportion of respondents reporting not seeking care when ill because of inability to pay was over 50% in three FSU countries (**Armenia, Georgia and Moldova**). These aggregate figures conceal considerable socioeconomic inequality in the ability to pay for health care when sick. In the Kyrgyz Republic for example another study found that whilst 36% of the population as a whole could not afford to purchase the prescribed drugs, over 70% of the poorest group could not ([Abel Smith and Falkingham, 1996] cited in Lewis, 2000: 24). Table 4 shows unadjusted data from the LLH survey in eight countries of the FSU which indicates that the poorest quintile in all of these countries are more likely than the rich to report prohibitive costs as a reason for not seeking medical treatment when ill. In **Tajikistan** analysis of the Tajikistan Living Standards Survey showed that women are increasingly giving birth at home rather than in a medical facility because of affordability and that those in the poorest quintile were twice as likely to report cost as the reason for not seeking health care (Falkingham 2004). In Kosovo, over 40% of individuals in the bottom two quintiles who did not seek treatment when needed refrained because of inability to pay compared to 10% of those not seeking in the top two quintiles (World Bank 2001). Similarly in Bulgaria it was found that those in the bottom two quintiles and ethnic minorities most often avoided care because of cost (World Bank 2002b). Even in relatively wealthy countries in the region like **Poland** out-of-pocket payments have been shown to be prohibitive to some segments of the population (Lewis, 2000: 25). The Russian Longitudinal Monitoring Survey found that between 1994 and 2004 lack of money has been the principal reason people cite for their inability to obtain prescribed medicines (since 2000 there has been a slight improvement) (Zohoori et al. 2004). Overall, direct costs experienced through out-of-pocket payments have been cited a major reason for the decline health care utilisation in parts of the region.

Table 4. Respondents who did not visit a doctor if ill, because they did not have enough money in the FSU by asset quintile, 2001

	Poorest quintile	Richest quintile	Poorest divided by richest
Armenia	92.5	36.6	2.53
Georgia	78.9	38.1	2.07
Moldova	66.7	33.3	2.00
Kazakhstan	63.0	10.3	6.12
Ukraine	54.1	3.1	17.45
Kyrgyzstan	52.0	9.5	5.47
Russia	13.1	2.2	5.95
Belarus	0.0	0.0	-

Calculations based on Lifestyles, Living conditions and Health Survey data

Figure 7. Proportion of respondents reporting not seeking care when ill because of inability to pay.



Source: based on LLH data published in Pomerleau et al. 2004

It is not only the extent of out-of-pocket payments that varies across the region, there has been some research suggesting that whilst out-of-pocket payment is the most inequitable form of health financing, it may be so to a greater or lesser extent in different contexts. It was found in **Bulgaria** (Balabanova and McKee 2002b), **Tajikistan** (Falkingham 2004) and in qualitative data from **Azerbaijan** and the **Ukraine** (Lewis 2000: 24) that service providers do adjust charges according to their judgment of people's ability to pay. This was not found to be true in other states such as Armenia or Kosovo and does not detract from the fact that out-of-pocket payments are the most regressive form of financing and are having a major impact on equity in health care access across the region (Lewis 2000; World Bank 2001; McKee 2003).

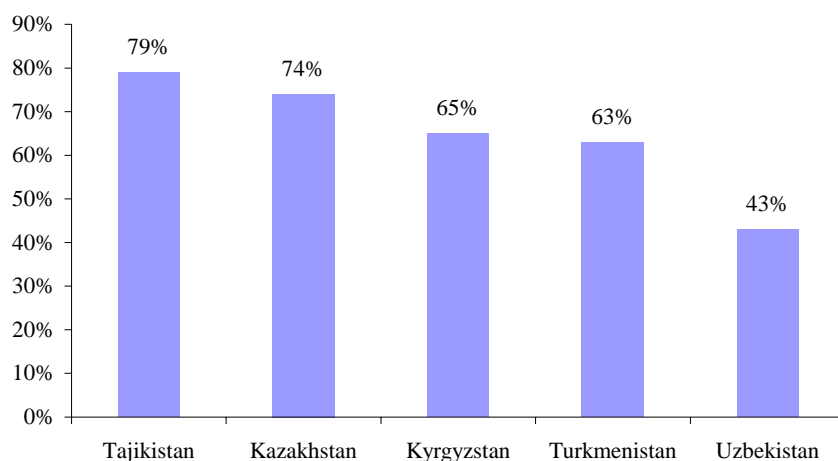
3.3 Health care resource allocation: sectoral and geographical sources of health inequities

Inequities in health have been generated in the region through unequal allocation of public resources between various regions and between different sectors of the health system. Differential regional allocation of scarce public resources has been noted in several studies. In **Kyrgyzstan** the distribution of therapists varies between 5.5/10,000 in Bishkek to 1.9/10,000 in the oblast of Jalal-Abad ([Sargaldakova 2000] cited in Hutton, 2002). In **Azerbaijan** where public spending on health was just 1.4% of GDP in 1998 there are significant differences in the distribution of these resources, with regions that obtain \$2-3 per capita receiving twice as much as Masalli and Ismalyilli which got just \$1.2 per capita (World Bank 2003a).

In addition to the generation of inequalities through differential investment in the regions, the prioritisation of different sectors of the health systems in the various countries may also have had a negative impact on equity in health. With the erosion of free at the point of delivery services across the region during the 1990s and the rise of out-of-pocket financing, there is evidence to suggest that the poor tend to utilise health services that are consonant with their budgetary constraints. This effectively means a reluctance to move beyond the primary level of the health system.

Government spending however has continued to be strongly biased across much of the region toward the secondary sector. Figures from central Asia reflect the degree to which public health spending has remained oriented away from primary care, in **Tajikistan** and **Kazakhstan** over 70% of the public health budget is channelled into hospitals (Figure 8). The analysis of the Tajikistan Living Standards Survey (1999) by Falkingham (2004) showed that whilst the rich had double the rate of hospital utilisation of the poor (7.8% compared to 3.5%) and similar figures were recorded in **Kyrgyzstan** where utilization rates were nearly two times as high for the richest quintile (9%) than for the poorest (5%) (Falkingham 2001). The pattern of utilisation effectively renders this financing regressive.

Figure 8. Hospital expenditure as percentage of total health budget in central Asia (latest available year)



Source: McKee et al. (2002)

In **Armenia** also, in the context of reduced public spending on health, the poor have favoured the cheapest service providers (polyclinics), which have also benefited least from Government spending. Even within polyclinics because of higher utilisation rates by the rich (51.4% of those in the top quintile went to see a doctor compared to 25.9% of the poorest) the rich were able to capture more of the public spending than did the poor (1.41 billion drams compared to 0.772 billion). In hospitals and diagnostic centers the concentration index (a measure of inequality which varies from -1 to +1 with 0 representing perfect equality) was even higher than for polyclinics (0.276 compared to 0.114). Overall people in the poorest quintile benefited from only about 13% of the total public expenditure on health compared to nearly 40% in the richest (World Bank 2002a).

As well as regional inequalities in public spending on health a study of the Compulsory Medical Insurance scheme in **Russia** found that there were high levels of regional inequality in coverage. In 1999 the ratio of CMI payroll income per worker between the highest and lowest regions was 20.3 (between 122.9 rubles and 2489.5) and Davis has argued that the regional variation in health financing over the 1990s in the Russian Federation led to deepening regional inequalities in regional medical resources (Davis, 2001). In **Romania** a Living Conditions Survey (ACOV) conducted by the National Institute of Statistics generated similar results. It was found that there were socioeconomic inequalities in coverage by the insurance system. The probability of coverage increased with urban residence (84% against 64% in rural areas) and fell for ethnic minorities with just 34% of Roma surveyed covered compared to 75% of the whole sample. The strongest correlate of enrolment was the educational status of the household head: 91% of those with tertiary education were likely to be covered compared to just 57% of those with no schooling. The main reason given (61% of respondents) for not being covered was lack of money, and this increased as a proportion amongst the less wealthy (World Bank 2003b). The issue of coverage of the Roma population has also emerged as a major concern in **Bulgaria** (World Bank 2002b).

3.4 Geographical inequities in access to health care

Besides the problem of unequal regional resource allocation, inequalities in access to health care have also been generated between regions, particularly between rural and urban areas, through the poorer state of infrastructure and transport in rural areas. Rural/urban disparities reflect socioeconomic inequalities because rural populations in the region are poorer than their urban counterparts. Transport costs in **Russia** have risen through liberalisation and the cuts in state subsidies, increasing the costs associated with seeking health care in the countryside (Davis 2001: 68). According to the RLMS people in the countryside are also finding it harder to obtain drugs; between 2002-2003 there was a rise from 17% to 27.2% citing unavailability of drugs as the main reason for not obtaining prescribed medicines (Zohoori et al. 2004).

In **Albania** the transport costs associated with seeking health care have been shown to be much higher in rural areas (World Bank 1997), compounding the existing problem of the lower socioeconomic profile of the rural population and the higher proportion of expenditure on out-of-pocket payments (9% of average per capita expenditure compared to 4% in urban areas). The World Bank suggested that regional inequalities in infrastructure and transport could go some way to explain the highly divergent levels of health care utilisation in Albania. In the north of the country rates of visits to

primary health care centers are lower than in the south (7447/10000 population compared to 10692) and rates of home delivery of births are higher (23.9% compared to 10.8%) (World Bank 1997). In Kosovo it was found that the distance to the health facility is a larger problem for residents in rural areas than urban (World Bank 2001) and in **Bulgaria** the residents of rural areas were less likely to receive hospital care when reporting chronic illness (World Bank 2002b). In relation to noncommunicable disease, a study conducted in 2001 in the **Czech Republic** found that there was better access to intensive care beds and to angiography for acute stroke patients in districts with higher population density (Herzig 2003). However, despite generally better access in urban/populous areas, the urban poor and ethnic minorities in urban areas have been shown to be disadvantaged in accessing health care, in particular those who are unable to provide fixed addresses or employment details (Ford et al. 2003).

In the central Asian Republics the downsizing of the hospital sector has been largely achieved through the closure of small rural hospitals. In **Kazakhstan** the number of acute care beds fell by 40% between 1990 and 1997 and this was in large part due to the fall in the number of small rural hospitals from 684 in 1994 to 208 in 1997. Although restructuring of the hospital system was necessary in this region in the climate of severe public spending cutbacks and the widely acknowledged necessity of improving primary health and general practice, the closure of rural hospitals in the absence of alternative health provision is likely to have increased inequities in access to care (McKee et al. 2002).

A **Lithuanian** study of rural-urban differentials in mortality over the period 1990-2000 found that inequality between rural and urban areas increased during this time mainly because of improving health of the urban population. Mortality from all major causes of death except cancers in females was higher in the rural population and the major factors in the unequal distribution of mortality were cardiovascular disease and external causes (Kalediene and Petrauskiene 2004).

Inequalities in access to health care

- **The poor are less likely to seek health care when needed and are more likely to report prohibitive costs as the reason for not obtaining treatment**
- **The rise in out-of-pocket payments in the region has disproportionately affected the poor and it is likely that this factor amongst others has led to rising inequalities in access to care**

4. Conclusions

The objective of this study was to review the current literature on the size and recent trend in socioeconomic inequalities in health outcomes, behaviours and access to health care in the eastern European and central Asian region. To reflect current trends in mortality in the region the focus of the study was on noncommunicable disease. We found approximately 100 studies published in the past five years of direct relevance to this issue. These studies concur that socioeconomic inequalities in self-reported health, NCD outcomes, mortality, NCD risk factors and health behaviours, and access to health care are a substantial reality in the CCEE-CIS region and that the trend over the course of the 1990s was towards a rising level of inequality in health. In particular rising levels of out-of-pocket financing for health care have had a negative impact on the equitable distribution of health care access. In reviewing these data several points have arisen for discussion.

Cross-country comparability

Whilst the studies we examined agreed that there are important associations between socioeconomic status and health in central and eastern Europe and the CIS, it has been difficult to compare this effect across the region because there are few datasets that enable multi-country comparisons. This is despite indications from some studies that there are important distinctions between the FSU and the rest of the region (Carlson 2004). Equally, comparing trends in the socioeconomic distribution of health in the region with those in Western Europe could prove illuminating in understanding the underlying patterns in terms of epidemiological development and transition (Lawlor et al. 2005; Vågerö and Leinsalu 2005). Recently there has been some attempt to rectify this deficit and it is to be hoped that cross-country studies such as the LLH survey conducted in eight FSU countries, or the HAPIEE study piloted in **Russia, Poland** and the **Czech Republic** will be replicated and expanded (Pomerleau et al. 2004; Bobak et al. 2005).

Longitudinal data

Data that would allow us to examine trends in socioeconomic inequalities over time in the region are also lacking, particularly in central Asia. This is of great significance given that the evidence that is available, such as the RLMS, points to widening socioeconomic gaps and severe disruption to health during the course of the transition period. Furthermore, the recent emphasis on the need for a life-course perspective in understanding the epidemiology of NCD calls for longitudinal monitoring.

Measures of SES

There were differences in the studies in the extent to which various measures of socioeconomic status were correlated with health outcomes. There is no clear trend that suggests education or material status is a more useful measure of SES. On the one hand education could be a more reliable measure of SES in regions where there is a large informal economy, which implies that employment status or “earned income” might not reflect the true status of households and individuals. On the other hand, it has been argued that education is a less reliable indicator of social status than in the West because the traditionally Western link between education and material status is weaker in countries with a Communist past (Gilmore et al. 2002). On this score the only recommendation may be for studies to consider a range of SES variables in their analyses and to recognize that the absence of association with one set of SES

variables may not preclude the possibility that other indicators could be more sensitive predictors of health outcome or behaviour.⁶

Direction of relationship between SES and NCD

Although there is broad evidence that socioeconomic status is inversely related to NCD, mortality, self-reported health and health care access, the direction of the relationship was more complicated in some of the studies, particularly with regard to NCD risk factors where various examples were found of positive association between risk behaviour and socioeconomic status. Rather than interpreting such results as anomalous it is important to recognise the diversity within the broader picture and to assess how these relationships might develop over the course of transition (Vågerö and Leinsalu 2005).

Gender

The way in which gender affects the relationship between SES and health in relation to NCD is an issue that arises in most studies but there has been no comprehensive attempt to address the issue. The most obvious example is in the case of risk factors for NCD. It has been shown in many studies that place of residence is a more important explanatory factor for smoking and drinking than material status or education for women in the region but that it is much less important for men. Less understood questions relate to the relative importance of material status, employment and education for women. Certainly, many of the studies included in this review found the pathways to differ by gender, but these differences have not been fully explored. Given that women have consistently reported poorer self-rated health in the region, it is important that tools for capturing socioeconomic inequalities in health are sensitive to gender differences in response to different SES variables.

Further Research

Considering the extent to which socioeconomic differentials matter in the creation of inequities in health in this region and considering that the global health agenda has prioritized the health of the poor, it is surprising that more studies have not included socioeconomic status in their analyses. Some sources of data have been underutilized. Leinsalu et al. (2003) showed what could be done with census-based analysis in their work on educational status and mortality in **Estonia**. Routine data from death registers could also be more effectively used. These data are of reasonable quality in much of the region excepting parts of the FSU, and some measure of SES as well as the causes of death is routinely recorded on death certificates (Bobak and Powles 2001).

Bobak et al. (2002, 2003) have illustrated that indirect techniques of mortality estimation could also be used to investigate socioeconomic inequalities. The application of widowhood and sibling-based techniques to countries in the region where the availability of mortality data is worse than it is in Russia is a potentially interesting source of information. More too could be done to bridge between surveys focusing on socioeconomic issues, and those focusing on health. Of those surveys focusing on health more could be invested in documenting the patterns of NCD. At a country level, a lot more needs to be understood about the social epidemiology of NCD. The scope of qualitative research in tracing the pathways through which psychosocial factors are interrelated with material well-being and risk factors could be extended. One of the most worrying findings to emerge from the collected studies is

⁶ There is a growing literature on the suitability of various measures of SES. See Wagstaff and Watanabe 2002; Wagstaff *et al.* 1991; Kakwani *et al.* 1997; Mackenbach and Kunst 1997.

the extent to which material status has arisen as a key barrier to health service access in the context of rising levels of out-of-pocket payments. This trend clearly needs to be monitored. The potential of exit surveys at health centers could be more fully explored.

A limitation of the current research on health inequality in central and eastern Europe and the CIS is that it has implicitly or explicitly assumed the direction of causation runs from socioeconomic disadvantage to poorer health. It would be of great policy relevance, if evidence could be gathered also to reflect how poverty is reinforced and generated by poor health (see Suhrcke et al. 2005). This would justify even more the inclusion of NCDs into the MDGs.

Information gaps

- Not enough is known about socioeconomic differentials in the incidence of noncommunicable disease and mortality in the central Asian Republics and other parts of the FSU.
- There is a need to examine the relationship between SES and NCD from a life-course perspective. There is however a lack of longitudinal data in the region. The few surveys that have included questions about economic suffering/material conditions in childhood have found past experience of deprivation to be significantly associated with current experience of poor health.
- The lack of standardized data collection instruments makes drawing cross-country comparisons in the region difficult. The recent important contribution of the LLH surveys in the FSU illustrates the utility of such datasets. There are clearly great disparities within the region and enabling cross-country monitoring would improve information and experience sharing in understanding how socioeconomic inequalities in health are generated.
- It is important to ensure that in designing instruments to monitor the relationship between SES and health in the region attention is paid to gender specificity given that there is evidence of differences in the sensitivity of variables to SES effects in men and in women.
- Very little is known about the health status and behaviours of various marginalized communities across the region, for example the Roma. More should be done to build up the evidence base for health among these groups.

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