cannot remain absolutely free, and must give up some of our liberty to preserve the rest."¹⁴ Less than complete freedom may fall short of existential utopia, yet it may be best for our health and wellbeing.

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Commentary: Understanding it all—health, meta-theories, and mortality trends

George Davey Smith, Matthias Egger

Investigations into the determinants of health within and between countries contribute to a generally slow, but incremental process. Leaping forward to the big picture of how it all fits together represents an attractive alternative to merely continuing with this laborious spadework. Bunker and colleagues advance the idea of bounded freedom as being the key to health and wellbeing, a viewpoint which shares some characteristics with others who consider embeddedness within strong social networks as being the important determinant of population health.¹ The positive benefits of strong social ties seem self evident, but "the plausible role of biological pathways leading from social disconnection to disease" that Bunker and colleagues evoke has not been satisfactorily elucidated. Indeed, degree of social support may be influenced by health rather than the reverse. The supposedly protective influence of social support has been shown among the majority populations of the United States, United Kingdom, and Scandinavia, but in groups that have different connotations for such networks social ties can appear detrimental, rather than beneficial, to health.²

One theory of population health that has received considerable attention is the income inequality perspective of Richard Wilkinson, recently elegantly summarised in his book *Unhealthy Societies*.³ This view, which incorporates explanations relating to social networks, considers that the psychological consequences of living in an unequal society are the primary determinants of overall state of health. Several alternative models of the important determinants of population health to these essentially psychosocial accounts exist. The high profile of the human genome project has certainly led to the revival of primarily genetic accounts of the distribution of sickness. Conversely, the importance of lifestyle factors and their concomitants—for example, smoking, alcohol consumption, cholesterol concentrations, and blood pressure—may have been underestimated because only one measurement is used in epidemiological studies. Thus some contend that if proper account is taken of their importance there might be little left to explain,^{4,5} within developed countries at least. An almost diametrically opposed view took its lead from the failure of such lifestyle factors to account for the geographical and social distribution of many diseases.^{6,7} The hypothesis that influences from early life, particularly intrauterine and infant growth, influence long term health was advanced and has now been tested in an impressive

array of ecological and prospective studies.⁸ The arrival of a new paradigm of the determinants of adult health was announced.⁹

These, then, are some of the meta-theories of population health: social cohesion and the psychological consequences of inequality; genes; lifestyle factors; and long term effects of suboptimal early development. It would be worth considering how they fare in accounting for the important population differences in health: the large time trends in life expectancy and the unequal distribution of mortality risk between and within countries. Let us briefly consider one issue that has generated a great deal of interest—the relative (and in some cases absolute) deterioration in state of health in eastern Europe.¹⁰⁻¹²

The data seem to provide strong support for the income inequality hypothesis since life expectancy and income inequality (measured by the Gini coefficient) are inversely correlated¹³ (fig 1). Changes in income inequality and changes in life expectancy between 1987 and 1993 also show a sizeable correlation ($r = -0.62$). These countries have undergone a transformation from Stalinist pseudosocialism to the vagaries of the free market, and even the chief cheerleader for unfettered free market capitalism, the World Bank, was forced to ask: "Is transition a killer?"¹³ The growth of capitalism in Britain after the industrial revolution was associated with unfavourable mortality trends¹⁴ and a growth in inequalities in health,¹⁵ and the same now seems to be happening as capitalism penetrates the final frontier.

With the exception of genetic accounts, the various explanatory categories have been proposed as major contributors to the unfavourable mortality trends in eastern Europe. Thus in discussing the potential contribution of psychosocial stress Bobak and Marmot suggest that 30% of the excess mortality can be accounted for by a sense of pessimism.¹¹ The unfavourable mortality trends in Russia have been attributed to alcohol misuse, with the improvements in mortality during Gorbachev's antialcohol campaign being cited in support of this.¹³ Smoking and nutritional factors have also been considered important.¹² Much of Eastern Europe suffered greatly during the second world war, and unfavourable mortality trends have been attributed to the long term effects of people living through these times.¹⁶ Indeed, mortality rates of men and women who were born or were children in the most affected parts of the former Soviet Union during the war show just

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Fig 1—Life expectancy and income inequality in post-transition eastern Europe

such an effect,¹⁷ although the overall contribution to changing life expectancy seems to be comparatively small.

Taken together, the mechanisms that have been advanced could account for greater mortality changes than have actually happened. This is probably because we are in some cases double counting—for example, the psychosocial effects of social disintegration will be expressed in increased alcohol and tobacco consumption and decreased self care. Direct psychological mechanisms, are, indeed, unlikely causes of mortality trends: the reduction in mortality in Britain since the late 19th century has hardly been accompanied by improved social support and social networks. Happiness, life satisfaction, and job satisfaction in Britain have changed little over the past 30 years, while death rates have continued to plummet.^{18, 19} The causes of death responsible for rising mortality in eastern Europe—coronary heart disease, lung cancer, and accidents¹⁴—are those that increased during a period of generally declining mortality in western Europe and the United States. As these diseases can increase while overall mortality is falling and economic progress is being made their accompaniment by a general worsening of health or increasing social disintegration is not inevitable. A mainly psychological attribution may be as one sided as earlier attempts to consider these conditions, which affect poor people, as diseases of affluence. At that time coronary heart disease was considered by many to be caused by type A behaviour—the rushed, time pressured businessman was the paradigmatic coronary case. This association, which soon stopped being apparent, was generated by socially conditioned perceptions of associations, which were then reified into pathophysiological mechanisms. As many plausible biological

pathways between type A behaviour and coronary heart disease were produced as is now the case for the currently fashionable psychosocial factors.

The problems psychosocial explanations have with accounting for trends and geographical differences in mortality are also seen with respect to the other categories of explanation. Consider (among many others) these paradoxes: low overall and cardiovascular disease mortality in Japan, a country with high smoking rates; the decreasing overall death rates during increases in smoking and dietary fat intake that occurred in many countries; and the low international correlations between past infant mortality rates or current birth weight and mortality from coronary heart disease. For different causes of death, and in different temporal and geographical situations, the determinants of mortality patterns will be distinct. Extrapolating from the past to the present and from one place to another is necessary for broad theorising on the underlying determinants of mortality trends but, in the end, this can only be the start of the more difficult empirical task of understanding the particular factors which act together to produce the patterns seen in any one specific instance.²⁰

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And God will fill the bullet holes with candy

Barbara J Genovese

Do not weep for them, madre.
They are gone forever, the little ones,
straight to heaven to the saints,
and God will fill the bullet-holes with candy.

NORMAN ROSTEN, *In Guernica* from *The Fourth Decade and Other Poems*, 1943

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I wish I could be very far from here—pretty much. I am secretly afraid of a lot of things—very much. I feel alone even when there are people around me—pretty much. I worry most of the time—very much. I worry about what my parents will say to me—very much. Often I have trouble getting my breath—very much. I have trouble swallowing—very much. My feelings are easily hurt—

very much. It is hard for me to go to sleep at night—very much. I feel someone will tell me I do things the wrong way—very much. I often feel sick in my stomach—very much. I worry when I go to bed at night—very much. I often worry about what could happen to my parents—very much. I get tired easily—very much. I am nervous—very much.