

Poverty across the lifecourse and health

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Introduction: Poverty, inequality and health

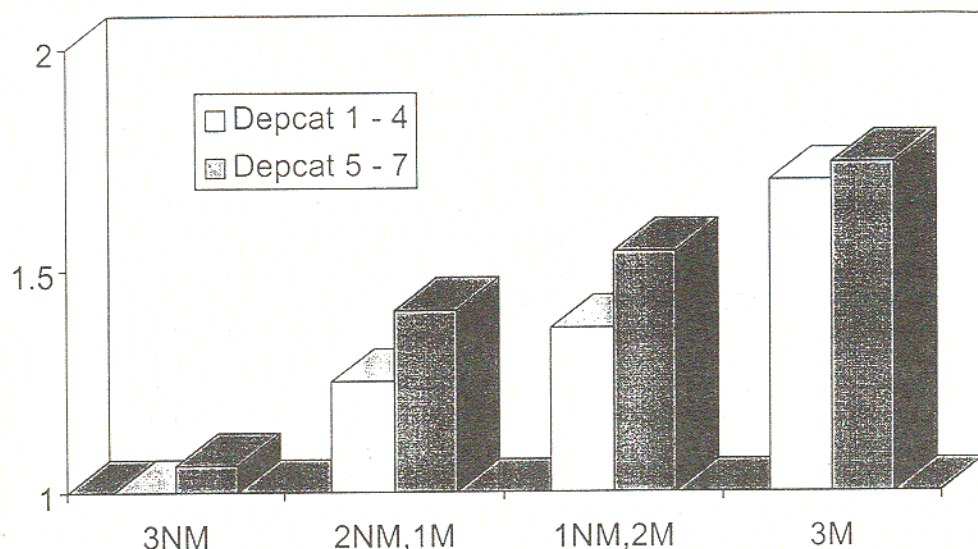
The Black Report is, justly, celebrated for the attention it drew to the persistence of health inequalities after the introduction of the National Health Service and for the framework of explanations for health inequalities it advanced (Davey Smith, Bartley and Blane, 1994). Since the appearance of the Black Report much of the focus of research into socio-economic differentials in health has related to the continuous gradient of improving health from the bottom to the top of the socio-economic hierarchy (Davey Smith, Bartley and Blane, 1990; Macintyre, 1994; Marmot, 1994). This focus on inequality and health represents a move from an earlier focus on poverty and health (M'Gonigle and Kirby, 1936; Titmuss, 1943), in which the poor health status of the most socially disadvantaged was the major concern. In terms of explanations for inequalities in health, the Black Report's categorisation of statistical artefact, selection, behavioural/cultural and material factors has been developed into a set of considerations regarding the accumulation of exposures acting across the lifecourse and how, together, they produce the sizeable differentials in health status which are seen.

Deprivation at different stages of the lifecourse and health: Aetiological considerations

Several studies have demonstrated that lifetime social circumstances are strongly related to morbidity and mortality in adulthood (Mare, 1990; Davey Smith, Hart, Blane, Gillis and Hawthorne, 1997; Lynch, Kaplan and Shema, 1997; Power, Matthews and Manor, 1998). For example, Figure 1 demonstrates that cumulative social class (indexed by the number of occasions from childhood to adulthood an individual was in a manual social class location) together with the deprivation level of current area of residence are powerful predictors of mortality risk. Childhood and adult social circumstances make independent contributions to the risk of dying. Cumulative experience during adult

life is also important. Individuals with average or higher income who experience fluctuating reductions to low income levels have higher mortality rates than those who remain on average or high incomes (UNDP, 1997). The highest mortality rates by a considerable degree are seen among those with persistently low incomes.

Figure 1: All cause mortality by cumulative social class and deprivation category.



Note: 3M represents men with fathers in manual occupations, whose first job on labour market entry was manual and whose job in middle age was manual; 3NM represents men whose fathers were in a non-manual job, whose first job at labour market entry was non-manual and who were in a non-manual job in middle age. The intermediate categories fall between these. 'Depcat' refers to deprivation category of current area of residence.

Source: Davey Smith, Hart, Blane, Gillis, and Hawthorne, 1997.

Socio-economic inequalities in health should be considered against the background of broad secular changes and international differences in health status and mortality risk. Over the twentieth century there have been very sizeable declines in mortality in most industrialised countries, with infant mortality rates in the 1990s being only 5% of those at the turn of the century in England and Wales, for example. For 1-4 year olds the reduction is even more dramatic; mortality rates for the 1990s are 2% of those at the turn of the century. Even among the middle aged there have been substantial reductions, with end of the twentieth century mortality rates being around 1/5th to 1/3rd the rates seen at the beginning of the century (Charlton and Murphy, 1997). It is likely that the factors which have contributed to the sizeable reductions in mortality are also those which contribute to the current differentials in mortality between socio-economic groups.

If our understanding of the factors generating socio-economic differentials in health is to be advanced, we need to consider the particular factors that contribute to international differences, secular trends and socio-economic differentials in particular causes of ill health. Some illustrative cases are given here. Internationally, stomach cancer is a major cause of mortality, being one of the most common cancers seen in developing countries and in earlier times in developed countries. Stroke mortality shows a similar geographical and temporal distribution to stomach cancer mortality and also has declined dramatically over this century. Among middle aged men and women in England and Wales stroke mortality at the beginning of the twentieth century was up to seven times higher than at the end of the century (Charlton and Murphy, 1997). The declines in stroke and stomach cancer in England and Wales contributed to the declines in mortality amongst post-childhood age groups. The risk of these diseases seems to be established mainly in childhood. People migrating from high to low stomach cancer areas after childhood take with them the risk of stomach cancer of the place they have migrated from (Coggon, Osmond and Barker, 1990). Cohort effects can be seen in the mortality trends, in support of this conclusion (Hansson, Bergstrom, Sparen and Adami, 1991). Data from a large prospective study in Scotland (Davey Smith, Hart, Blane, Gillis and Hawthorne, 1997; Davey Smith, Hart, Blane and Hole, 1998) demonstrates that stomach cancer and stroke risk are associated with parental socio-economic position - and hence socio-economic circumstances in childhood - more strongly than to socio-economic position in adult life. It is suggested that the material conditions of existence at the time people who are currently dying of stomach cancer and stroke were born are important factors underlying current risk for these

conditions. Adverse socio-economic circumstances in childhood favour *Helicobacter pylori* (Mendall, Goggin and Molineaux, 1992) acquisition and *Helicobacter pylori* infection appears to be an important cause of stomach cancer (Forman, Newell and Fullerton, 1991). Declining rates of *Helicobacter pylori* infection have accompanied improving social conditions over the century (Banatvala, Mayo, Megraud, Jennings, Deeks and Feldman, 1993) and thus may underlie the falling rates of stomach cancer mortality. Infections acquired in childhood may also be important factors in the production of risk of stroke in adult life. Thus current morbidity and mortality patterns for these conditions are related directly to poverty-associated factors such as overcrowding and hygiene practices acting in early life.

For other important causes of morbidity and mortality in adulthood, socially patterned exposures acting in early life appear to interact with, or accumulate with, later life exposures. Thus morbidity and mortality from respiratory disease in adulthood is related to housing conditions and infections acquired in childhood. Smoking and occupational exposures in later life then influence disease risk, in association with these earlier life factors (Mann, Wasworth and Colley, 1992). In the case of diabetes, hypertension and coronary heart disease, low birthweight - which is strongly socially patterned and related to intergenerational experiences as well as maternal nutrition - interacts with obesity in later life (increasingly prevalent amongst people in unfavourable social circumstances) to produce elevated disease risk (Phillips, Barker, Hales, Hirst and Osmond, 1994; Leon, Koupilova and Lithell, 1996; Frankel, Elwood, Sweetmap, Yarnell and Davey Smith, 1996; Lithell, McKeigue, Berlund, Mohsen and Lithell, 1996). Large differences in relative and absolute risk for various forms of morbidity can be demonstrated when groups are defined by clusters of socially patterned adverse exposures acting throughout life. These exposures include health-related behaviours and the effects of psychosocial exposures such as job insecurity.

Poverty can influence health through a broad range of factors acting over the lifecourse. This includes such embodied features as low birthweight, height, obesity and lung function. There is increasing evidence of intergenerational influences on these attributes and the influence of nutrition (Gunnell, Davey Smith, Frankel, Nanchahal, Braddon and Peters, 1998) and infection in early life should be given more attention. The extent to which health-related behaviours, such as dietary patterns and smoking, are constrained by structural factors should be acknowledged when considering the underlying determinants (rather than proximal mechanisms) of health inequalities

(Graham, 1998; Davey Smith and Brunner, 1997). Parsimonious explanations would consider broad secular changes in biologically plausible aspects of the material conditions of peoples' existences to underlie the broad secular changes in health, the substantial differences in health status between countries and the socio-economic differentials in health within countries. Alternative explanations should be sought when it is apparent that such material conditions of existence fail to account for health differentials. It is clear that biologically plausible mechanisms linking the experience of poverty to many particular health problems exist (of which only illustrative examples are given above, due to space limitations) and that the proportion of disease and ill-health in a population which may be attributable to poverty-related exposures is likely to be considerable.

Poverty across the lifecourse in Britain

Any consideration of how the cumulative experience of poverty across the lifecourse can influence health requires an operational definition of poverty. It is sometimes stated that poverty no longer exists in Britain, generally on the grounds that consumer durable ownership is now high even among the lowest income groups (see Table 1) (Goodman, Johnson and Webb, 1997). This fails to acknowledge that technological change and innovation can both generate the availability of such durables and lead to them becoming necessities for meaningful participation in society (Gordon and Pantazis, 1997). If video ownership is taken to refute the existence of poverty (as, famously, it was by Peter Lilley) then we are forced to consider whether 100% of the population was in poverty in the 1930s. As overall communication and personal transport facilities improve, then the need to have access to them for social participation, for being able to compete in the labour market, and for fulfilling domestic obligations, is increased. The notion that an inability to meet the material and social needs, which are recognised as essential within a society, is a meaningful definition of poverty allows for the distinction between poverty and inequality to be made. The EC has produced a definition of poverty (see box) which is broadly in line with this reasoning.

Table 1 - Access to consumer durables of the bottom decile income group

Percentage of individuals in household with access to a:	1962-63	1972-73	1982-83	1992-93
Telephone	8%	20%	58%	78%
Washing machine	-	54%	79%	89%
Fridge or fridge-freezer	-	52%	95%	99%
Car	-	26%	44%	56%
Video cassette recorder	-	-	-	68%
Central heating	-	20%	46%	73%

Source: Goodman, Johnson and Webb, 1997.

BOX: EC Definition of Poverty

"the poor shall be taken to mean persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member State in which they live" (EEC, 1995).

In the UK, the pioneering Breadline Britain surveys of 1983 and 1990 (Gordon and Pantazis, 1997) obtained data on the perception of a sample of the general public of social necessities. Being unable, through lack of resources, to afford three or more of the items which over 50% of the public consider to be social necessities was taken to indicate being in poverty. By this definition the Breadline Britain survey estimated that 20% of households (approximately 11 million people) fell below the poverty line in 1990. Attempts to make similar estimates for previous periods suggested that there was a continuing decline in relative poverty between the 1930s and 1970s, which then reversed and was followed by substantial increases over the 1980s and 1990s. This accords with research examining trends in low-income families (defined by those falling below the supplementary benefit or income support level) between 1961 and 1993 (Goodman, Johnson, and Webb, 1997). The Breadline Britain estimates of the prevalence of poverty in 1990 closely approximates to estimates based upon the numbers on or below the supplementary benefit and income support level and proportion of the population having below 50% of the national average income. All three methods give estimates of between 11 and 14 million people falling below these cut-offs.

Poverty is, of course, distributed very unevenly across the population. The highest prevalence is seen amongst lone parents, of whom 41% fall below the poverty line. For other families with children, 23% fall below the line, whereas for other non-pensioner households the equivalent figure is 14%. Similar figures are seen when percentage of family types with incomes below half the national average is examined (Table 2). Furthermore, it is families with children who are most likely to remain in the lowest income category over time and experience persistent poverty (Table 3). Women are over-represented amongst those experiencing poverty, with 24% falling below the threshold in the Breadline Britain survey in contrast to 17% of men (Gordon and Pantazis, 1997). Examining lifecourse experiences of poverty demonstrates that women are particularly likely to be in poverty when they are responsible for bringing up children. Because of this unequal distribution of poverty between household types and across the lifecourse, 33% of children in Britain were living in households below the poverty line in 1993-94. This has increased from 10% in 1979. The British situation with respect to child poverty and income inequality is particularly poor (Tables 4 and 5) (Lynch and Kaplan, 1997). If we consider that the concomitants of poverty - poor nutrition, over-crowded, damp or inadequately heated housing, an increased risk of infections, lack of appropriate psychosocial stimulation and inability to maintain cleanliness - are of particular importance during prenatal, infant and childhood life, then the current distribution and trends in poverty bode ill for health trends in the future.

Table 2- Percentages of family types with incomes below half the contemporary mean

	Before housing costs		After housing costs	
	1979	1992-93	1979	1992-93
Pensioner couple	16	25	21	26
Single pensioner	16	25	12	36
Couple with children	7	20	8	24
Couple without children	4	10	5	12
Single with children	16	43	19	58
Single without children	6	18	7	22
All family types	8	20	9	25

Source: Goodman, Johnson and Webb, 1997.

Table 3 - Characteristics of individuals remaining in the bottom income quintile over 3 years and of individuals escaping from the bottom income quintile at some point over 3 years

Wave 1 family type	Of those permanently in bottom quintile (%)	Of those who escaped at some point (%)
Couple pensioner	11	10
Single pensioner	14	14
Couple with children	40	38
Couple, no children	4	13
Single with children	24	12
Single, no children	6	13
Total	100	100

Source: Goodman, Johnson and Webb, 1997.

Table 4 - Increases in child poverty rate, 1967 - 1992

More than 30%	U.K, USA
10 - 15%	Norway
5 - 10%	Netherlands, Belgium, Germany
around 0%	Australia, Spain, France
Decreases	Sweden, Denmark, Finland, Canada, Italy

Source: Goodman, Johnson, Webb; 1997.

Table 5 - Increases in income inequality, 1967 - 1992

More than 30%	U.K
16 - 29%	USA, Sweden
10 - 15%	Australia, Denmark
5 - 10%	Norway, Netherlands, Belgium
around 0%	Spain, France, Finland, Canada, Germany
Decreases	Italy

Source: Goodman, Johnson and Webb, 1997.

Another dramatic change in the distribution of poverty has been the rapid growth of the long-term sick and disabled among those receiving income support (Goodman and Webb, 1991). It is probable that this reflects a disguised form of unemployment, where individuals are encouraged to acquire this category as it allows for more reasonable treatment by the benefit system. The effects of such self-labelling have not been investigated, but could clearly be detrimental to the psychosocial functioning of individuals. This hidden unemployment

also draws attention to the influence of insecurity at work on health, where a wide range of subjective and objective health measures are seen to deteriorate during periods of job insecurity (Ferrie, Shipley, Marmot, Stansfield and Smith, 1995). Incomes are also becoming subject to considerably greater uncertainty than was previously the case and income, as well as job, insecurity may be detrimental to health (McDonough, Duncan, Williams and House, 1997).

Which policies could reduce the burden of ill-health attributable to poverty?

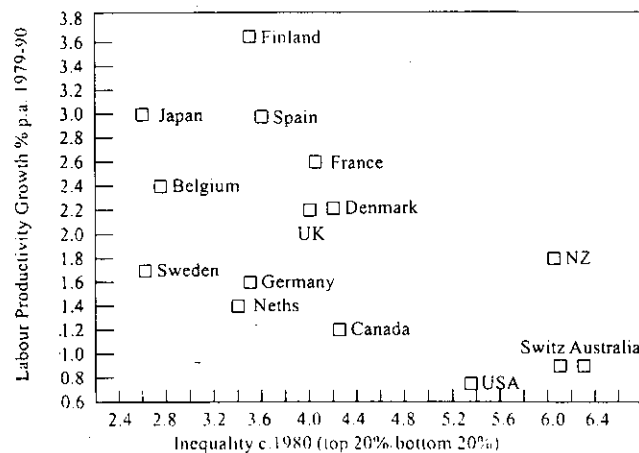
The current fashion in policy making in the health arena is for "evidence based" recommendations. While these are highly appropriate for clinical interventions targeting individuals, with regard to population health a demand for randomised or experimental evidence leads to an over-emphasis on changing individuals' health-related behaviour (Frankel and Davey Smith, 1997). Thus the research review commissioned for the "Variations in health" subgroup of the Chief Medical Officer's Health of the Nation Working Group in 1995 (Arblaster, Entwistle, Lambert, Froster, Sheldon and Watt, 1995) applied evidence-based medicine principles to the issue of socio-economic inequalities in health and therefore failed to recognise that inequalities in health are determined by economic and social conditions and not by the inadequate implementation of results from randomised controlled trials.

In this regard consider the major indicators of mortality and morbidity risk in industrialised countries: gender, poverty, smoking and constitution (including genetic profile). Life expectancy differences between men and women are 5.6 years; between social class I and social class V 5.2 years in men and 3.4 years in women (differences would be greater if more refined socio-economic categories were used (Davey Smith, Shipley and Rose, 1990); and between smokers and never smokers around 5 years. Life expectancy differences generated by genetic and other constitutional factors have not been formally estimated, but are likely to be substantial (Sorenson, Nielson, Andersen and Teasdale, 1988). In none of these cases have Randomised Controlled Trials (RCTs) demonstrated their importance with respect to life expectancy (and in the case of gender and genetic factors this would not be possible). The only unifactorial randomised controlled trial of smoking cessation strategies found no significant effect on mortality (Rose and Colwell, 1992), yet the response to the lack of RCT evidence in this case has, rightly, not been to abandon

serious efforts to reduce smoking. The same should be the case with efforts to reduce the health burdens of poverty and inequality.

There are two legitimate responses to the evidence on socio-economic inequality, poverty and health differentials. The first is to accept that widening income inequalities and increasing proportions of (especially) children living in poverty generate increasing socio-economic health differentials and threaten to arrest future secular improvements in health, but to argue that large income inequalities are necessary for economic growth - through, for example, the incentives of large increases in income for those already on high incomes leading to improved productivity and overall economic performance. In this case the health effects of widening disparities in income and the increasing prevalence of poverty may be considered an unfortunate - but necessary - price to pay for national prosperity, which itself will ultimately lead to an improved health profile. While the evidence suggests that inequality is not necessary for economic growth - indeed it points the other way (see Figure 2) (Glynn and Miliband, 1994; Hutton, 1996) - this position can be advanced and the economic evidence disputed.

Figure 2: Income inequality around 1980 and labour productivity growth between 1979 and 1990.



Source: Glynn and Miliband, 1994

The second legitimate response is to implement a fiscal programme aimed at arresting and reversing the increasing trend in income inequalities, in order to decrease socio-economic health differentials and remove the threat of future cessation in secular improvements in health. A third option - to intimate that there is serious concern with inequalities in health and that concerted efforts will be made to reduce such inequalities, without being willing to implement necessary fiscal and other reforms - is not a legitimate response.

Policy options which could influence inequalities in health need to be focused at reducing the proportion of children born into and living in poverty (which will have short term as well as long term effects) and reducing inequalities in income within the population more generally. Such policies would involve protection of child benefit and income support levels, an increase in the rent limit on housing benefit, the introduction and enforcement of nutritional standards for school meals and the introduction of subsidised child care and after-school places to enable parents to take up paid work. Various measures should be implemented to reverse the increasing inequalities in income and to reduce wealth differentials. These would help reduce levels of poverty by releasing resources for the anti-poverty measures above. They include continuing reductions in MIRAS; reducing the tax-free savings threshold; removing charitable status from private education and private health care; blocking the tax loopholes inherent in company car provision; extending windfall profit taxation; ensuring the collection of inheritance tax (and increasing the rate of such taxation); abolishing the upper earnings limit for National Insurance. Reversing legislation relating to trade unions and wages councils (which have precipitated increasing income inequalities) and introducing a national minimum wage at a reasonable level would directly increase the incomes of the lowest paid.

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