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In Bethnal Green in the year 1839 the average age of death in the different social classes was as follows: 'Gentlemen and persons engaged in professions, and their families ... 45 years; tradesmen and their families ... 26 years; Mechanics, servants and labourers, and their families ... 16 years' (Chadwick 1842). The average age of deaths in these social classes was found to vary somewhat from area to area, but similar differences between the classes were found in all areas of Britain.

Chadwick's study provided some of the first evidence that health varies with social class. The population's general level of health has improved dramatically since the first half of the nineteenth century, but subsequent investigations have shown that a relationship between mortality rates and social class remains. This has been repeatedly confirmed and shown to apply equally to morbidity. In 1980, the influential 'Black Report' (DHSS 1980) raised

awareness in the medical profession of the extent to which poor health is associated with social class, and pointed out the ways in which social and health policies might be used to improve population health by reducing health inequality. It is important, therefore, to understand both what is meant by 'social class' and why it should be related to health indicators of many kinds. With this in mind, this chapter starts with details of some modern inequalities and of different ways of accounting for them, the most influential of which draws on concepts of social class. It then goes on to examine the relationship between social class and health.

SOME DIMENSIONS OF INEQUALITY IN THE UK

■ Wealth and income

Wealth, defined in terms of marketable assets, is very unequally distributed. In 2003 the richest 1% of the population aged 18 or over owned 21% of the country's total personal wealth, the richest 10% of the population owned 53% of total wealth and the poorest 50% of the population owned approximately 7%. If the value of housing is omitted from estimates of marketable assets, then the resulting distribution is even more skewed, with the richest 1% owning 34% and the poorest 50% a mere 1% (Office for National Statistics 2007). In 2001–2 one-half of all households in the UK reported having less than £1500 in savings, with 28% reporting no savings at all (Office for National Statistics 2003). It can be argued that the wealth that is owned by the majority of the population is used in an attempt to guarantee the necessities of life, whereas the wealth of the rich also brings with it social power, in the sense of ownership of land and voting rights in the decisions of financial and industrial corporations.

Income, which consists mainly of earnings from employment but also includes investment income and the various state benefits, is more equally distributed than wealth. During the 1970s there was relatively little change in the distribution of income among households, but the 1980s were characterized by a substantial increase in inequality: between 1981 and 1989, whereas average income rose by 27% when adjusted for inflation, the income of the top 10% rose by 38% and that of the bottom 10% by only 7%. Income distribution seemed to stabilize during the first half of the 1990s but in the most recent period for which data are available there appears to have been a further increase in inequality (Office for National Statistics 2001, 2007 i.e. ref above). Access to state facilities such as the education system and health service can also be seen as part of income, as can benefits in kind, which are received on top of earnings from employment. Although those on low incomes derive marginally greater benefit from the former, benefits in kind go disproportionately to those with high incomes and tend to be greatest for those with the highest salaries. Thus, large inequalities in income remain despite the redistribution achieved by mechanisms such as income tax, state benefits and access to state facilities.

■ Working conditions

The term 'social class' is correctly used to refer to an individual worker's employment relations and conditions. Employment relations vary from those typical of people doing higher level professional and managerial jobs, such as medical consultants and managers of large companies, to, at the other extreme, those typical of people doing the most routine and heavily supervised forms of work such as working in a call centre. Many of the most routine jobs also involve less skilled types of 'manual' work, although much manual work done nowadays is highly skilled and well paid (for example the work of plumbers). An individual's income is strongly tied to the nature of his or her work.

For a number of reasons, the difference in total weekly pay is not as great as the difference in the hourly rate. Routine workers are more likely to work overtime: in 1998, 14% of the average gross weekly earnings of £327 paid to routine manual workers came in the form of overtime, compared with 3% of the average gross weekly earnings of £505 paid to non-manual workers (Office for National Statistics 2000). Routine workers are also more likely to work shifts, which attract additional payment, and to be paid some form of production bonus. As these additional sources of income are likely to vary from week to week, it is more difficult for routine workers and their families to make financially sound plans, a disadvantage that is reinforced by routine workers' greater likelihood of being made redundant. Of considerable financial importance after retirement, routine workers are less likely to be members of an occupational pension scheme than workers in professional, managerial or technical occupations.

Routine work, especially in manual occupations, is usually more physically demanding, noisier and more dangerous than professional, managerial or technical work (Hunter 1975), as well as being more likely to involve the physical and social disruption of shift work. Despite its more hazardous nature, routine work lasts longer than professional managerial and technical work. Routine jobs usually do not require specialist qualifications, so that workers enter the workforce at an earlier age and, as has been noted, their basic working week is likely to be longer and they are more likely to work overtime. In addition, their holidays are shorter, with non-routine workers being more likely to receive in excess of 5 weeks holiday per year. By definition, routine work is also more likely to be repetitive than the work of professionals and managers, to offer little autonomy and to be experienced as boring. Routine workers are subject to closer supervision and tighter discipline: most have to clock-in at work, automatically lose money when late for work, face dismissal if continually late, and many need a supervisor's permission to use the lavatory or obtain a drink outside the set work-breaks.

POVERTY

The inequalities so far documented have been illustrated in terms of routine occupations compared with professional, managerial and technical occupations. Such comparisons are useful because they indicate the direction and size of the general trends, but they can create the misleading impression that the workforce is divided into homogeneous blocks whose members share the same income and living and working conditions and that these, in turn, are clearly better or worse than those of the next block. In reality, there is considerable variation in income and conditions within each block and considerable overlap between them. As a result, there is always room for debate about where it is appropriate to draw lines on this continuous distribution to identify specific groups. This problem complicates the definition of poverty and attempts to identify those who are exposed to poverty first need to be clear about the sense in which the term is being used.

The term 'poverty' has been used in two ways. Absolute poverty refers to a standard of living that cannot sustain life. When the term is used in this sense it could describe, for example, destitute people in the drought-stricken areas of the Sahel. One problem with this definition, however, is its failure to specify how long people can live before their standard of living is judged incapable of sustaining life. As the experience of hunger strikers demonstrates, no standard of living is so low as to kill instantaneously, and low-grade malnutrition might influence mortality only after many years. In addition, because very few people in the rich countries of the world are starving, using the term poverty in its absolute sense fails to address the hardships that are endured by many members of these societies.

'Relative poverty' refers to a standard of living below that which is considered normal or acceptable by the members of a particular society: 'The resources [of those in relative poverty] are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities' (Townsend 1979). Using the term in this relative sense allows the concept of poverty to be applied to rich societies such as Britain, although for research purposes it does pose the problem of how to establish empirically what is considered normal or acceptable in a particular society. This relative 'poverty line' can be established by means of surveys. A less expensive method, which is frequently used in research, is to equate relative poverty with an income below the level of eligibility for the various state benefits.

Townsend's classic study of poverty in the UK found that 7% of households, containing 3.3 million people, received an income below the state benefits level, and that a further 24% of households, which contained 11.9 million people, were on the margins of poverty, defined as an income less than 40% above the state benefits level. When those in poverty were analysed according to their labour market, personal and other characteristics, the three largest groups were those employed on low wages or in casual work, the disabled and long-term sick and the elderly retired, with the unemployed and one-parent families being the next largest groups (Townsend 1979).

The threshold now generally adopted to define low income in Britain is 60% of median equivalized household disposable income (equivalization here denotes adjustment for size and composition of the household). In fact, this threshold is one of those used in the government's antipoverty strategy. In 1998-9, 18% of the British population lived in households with incomes below this level. This proportion was fairly static during the 1960s, 1970s and early 1980s, fluctuating between 10 and 15%, but it rose steeply from 1985 to peak at 21% in 1992. Children are disproportionately present in low-income households: in 1998-9, 24% of children, or 3.1 million, were living in such households in Britain. There is a clear relationship between work and income. In 1998-9, only 2% of those living in households where all adults were in full-time work were in low-income households, compared with 64% of those in households where the head or spouse were unemployed; 26% of those in households where the head or spouse was aged 60 or over lived in low-income households (Office for National Statistics 2001).

Low income can lead to material and other forms of deprivation. Compared with that of the better paid, for example, the diet of the low paid contains far less fresh fruit, significantly less fresh vegetables, fresh fish and cheese, and more white bread, potatoes, sugar, lard and margarine (MAFF 1989). The Poverty and Social Exclusion Survey commissioned by the Joseph Rowntree Foundation sought to identify the items that a majority of the public perceive to be 'necessities', that is, which all adults should be able to afford and that they should not have to do without. About 28% of people in 1999 said they were unable to afford two or more of these items: 25% were unable to have 'regular savings of £10 a month for rainy days or retirement'; and nearly one-fifth could not afford a 'holiday away from home once a year not staying with relatives'. Other 'one-off' larger items of expenditure that more than 10% could not afford were 'replace or repair broken electrical goods', 'replace worn-out furniture', and 'money to keep home in a decent state of decoration'.

A potential shortcoming of such cross-sectional data is the extent to which they obscure the association between poverty and certain phases of the lifecycle. In societies where incomes are derived primarily from the labour market and where human reproduction predominantly occurs within nuclear families, there is an in-built tendency for an individual's standard of living to be lowest during childhood, active parenthood and old age, and to be highest during the intervening phases. This longitudinal approach

has certain advantages: it draws attention to the association between poverty and childhood; it reminds us that those who are not currently living in poverty might have experienced it in the past or might realistically expect to experience it in the future; and it enables us to see that it is often the same individuals whose standard of living will dip below the poverty line during the low phases of the lifecycle. Thus, the child reared in poverty is educationally handicapped and is likely to be an early entrant to the unskilled sector of the labour market, where low wages and insecure employment will make family formation financially difficult and where the lack of an occupational pension scheme will predispose to poverty after retirement. Some idea of the proportion of the population that is likely to experience relative poverty at some stage during their lives is given by combining those who were found to be in poverty with those who were on its margins in the study quoted earlier; that is, 31% of households or 15 million people. Rather than being a marginal problem, therefore, poverty, or the realistic fear of it, is a fact of life for a substantial proportion of the population.

There is a considerable overlap between medical problems and poverty or the phases of the lifecycle where the standard of living tends to dip. The size of this overlap is illustrated by the 75% of prescriptions that are exempt from charges, a figure that can rise to 90% in some areas. The medical consequences of poverty start before birth, with poor maternal nutrition contributing to prematurity and low birth weight. During childhood, poor nutrition inhibits normal growth and development; lack of hygienic facilities predisposes to infestations with scabies, head lice and intestinal worms; damp housing increases the incidence of upper-respiratory-tract infections, which can lead to chronic ear disease, partial deafness and a poor educational record; and lack of play facilities hinders psychological development and increases the risk of accidents.

During active parenthood the health hazards stem from attempts to maximize income. Men and women with financial responsibility for children might seek the premiums attached to shift work, or the 'danger money' associated with hazardous jobs, as well as working overtime, taking a second part-time job on top of their main employment or working in the informal economy where poor health-and-safety conditions predominate. Such strategies increase income, but at the cost of physical exhaustion, risk of accidents, disrupted family life and increased vulnerability to depression in the care-taker alone at home with young children. Other, psychological, effects include exhaustion by the ceaseless struggle to 'make ends meet' and low self-esteem because of failure in this struggle, shame because one's children cannot have the same things as other children and fear lest the furniture is repossessed, the gas or electricity is cut off or one is made homeless because of insufficient money to pay hire purchase instalments, energy bills and rent.

During old age, the health effects of poverty reflect both immediate problems and the accumulation of past effects. Malnutrition ('tea and toast syndrome') and hypothermia are obvious examples, although the large increase in mortality during the winter compared with the summer months is probably a more important effect.

In summary, relative poverty affects a sizeable proportion of the British population. Because of the relationship between poverty and ill health, an even larger proportion of the patients whom doctors treat are likely to be affected in some way by its associated problems.

SOCIAL STRATIFICATION

Many other aspects of inequality could have been examined, in addition to those already discussed, including education, career prospects and leisure activities (Reid 1989). These inequalities tend to go together, so that an individual who is disadvantaged in one area of

life is likely to be disadvantaged in others. In the same way, someone who is advantaged in one area of life is likely to be similarly advantaged in others. The term 'social stratification' generally refers to this kind of socially structured inequality, and the concept of social class describes the form that social stratification takes in industrialized societies such as contemporary Britain. Most societies to date have been hierarchically structured in some way. Historical forms of stratification have included, for example, the Hindu caste system and the various estates of feudal society. Some social theorists, drawing on the work of the early German sociologist Max Weber, consider that the stratification of modern industrial societies involves three main dimensions: social class, social status or honour, and the political power of organized groups. Although class, status and power are usually related, so that, for example, unskilled labourers generally have low social status and little political influence, they are analytically distinct and can vary independently of one another. Although it is generally agreed that social class is the most fundamental dimension of stratification, sociologists often differ in their precise definition and treatment of class and there are a number of competing theories.

The theory most widely used in the general population divides society into two stereotyped groups of roughly equal size. The 'middle class' consists of people who earn monthly salaries in non-routine, professional, technical or managerial jobs, borrow money to buy their own homes and encourage their children to get as much formal education as possible. The 'working-class', by contrast, consists of people who earn weekly wages in more routine, often manual jobs, rent their homes, often from housing associations or local councils, and try to get their children started in a secure job as soon as they are allowed to leave school. Most of the population appear to have little difficulty in placing themselves in one or other of these two classes. One study that included an unprompted question about self-rated social class found that 40% of the population spontaneously described themselves as middle class and 48% as working class. The study's subjects were found to have made this distinction chiefly on differences in lifestyle, but they were also influenced by considerations of family background, occupation and wealth (Townsend 1979). Recent social changes might have blurred this distinction somewhat. People from a wide range of occupations now own, or hope to own, their homes, take foreign holidays and drink wine. Likewise, managers and professionals are now no strangers to job insecurity, and must often live in rented accommodation due to the increasing gap between their salaries and house prices. The status of many professional jobs such as teaching has fallen, and the political power of the traditional middle classes in the UK is waning in the face of the growth of a much smaller group of very powerful owners of global financial and industrial companies.

Most academic social scientists tend to favour some version of Weber's class scheme, whereas the lay population, as we have seen, tends to use the working-class-middle-class distinction. Another approach, derived from the work of Karl Marx, is unusual in having advocates in both camps. It divides society into two main social classes on the basis of ownership and control of the land, industry and financial institutions. The 'working class' in Marx's analysis consists of the overwhelming majority of the population, who own only things they can use; and who live by selling their mental or physical labour power. Social changes since Marx's death have required considerable, and often disputed, elaboration of his original analysis. But it is very simple to understand what class you belong to according to Marx. Ask yourself how long you could continue your present lifestyle without a paid job. If the answer is 'not very long', you belong to the working class according to this definition.

For research purposes a more precise and detailed definition of social class is generally necessary. Many scales have been devised to meet this need, although each of these has

its own particular strengths and weaknesses. The Registrar General's classification has been the most widely used in medical research. It divides the population into five social classes, I-V, with social class III being further subdivided into non-manual (IIIN) and manual (IIIM). This system of classification is based on occupation, and it groups occupations into social classes according to their skill level and general social standing in the community. Men are allocated to a social class on the basis of their own occupation, married women on the basis of their husband's occupation, children on that of their father and the retired and unemployed on that of their last significant period of employment. Single women are classified on the basis of their own occupation (OPCS 1980).

Certain characteristics of the Registrar General's classification need to be appreciated. Being based on the general social standing of different occupations, it is primarily a measure of status rather than economic class or living standards. As the earlier comments on Weber indicate, however, the link between social status and economic class is sufficiently strong for the classification to act as a reasonable indicator of lifetime earnings and conditions of life. Second, the Registrar General's social classes are not internally homogeneous. Social class II, for example, contains both tenant farmers working a few dozen acres and farmers who own thousands of acres; similarly, it contains both the corner shopkeeper and the senior manager in a multinational company. Third, the Registrar General's classification deals inadequately with women's employment, which, among other things, weakens its power as an indicator of living standards. Married women are classified by the occupation of their husband, although the standard of living of the family's members can be decisively affected by whether or not she has paid employment. It has been calculated that the number of families living in poverty would double if they were deprived of these earnings. Finally, it is possible to question the relevance of an occupationally based classification to a world of flexible labour markets, job insecurity and high rates of non-employment (long term sickness and early retirement as well as unemployment).

Problems such as these have prompted attempts to devise a more satisfactory classification, resulting in the new National Statistics Socio-economic Classification (NS-SEC) (Rose & O'Reilly 1997). The NS-SEC assigns people to social classes based on clear criteria. These are: the extent to which people in a particular job have job security, a career structure with promotion opportunities, incremental pay increases, autonomy to plan their own work schedule, authority over the work of others, whether they are paid a monthly salary rather than weekly or hourly. The basic divisions are between employers, who employ other people and exercise some degree of control and authority over them; employees, who sell their labour and find themselves under the control of employers in the process; and the self-employed, who experience neither. However, employees are further differentiated according to their 'service relationship' and the 'labour contract'. Managers and professionals have a service relationship with their employer that is characterized by a high degree of trust and delegated authority on the part of their employers. Such occupations are typically long-term and compensate for 'service' to the employer through salaries and salary arrangements (like company cars), together with salary increments, pension rights, job security and opportunities for career advancement. The labour contracts of working-class employees, on the other hand, typically specify discrete amounts of labour under close supervision in return for wages calculated on a 'piece' or time basis. Intermediate occupations are characterized by a mixed form of regulation between the service relationship and the labour contract (Bartley 2003, Chandola 2000). Table 8.1 compares the Registrar General's classification with the NS-SEC.

Because the use of the NS-SEC in official statistics and other studies is relatively new, the examples given below of the relationship between social class and health use the older Registrar-General's social classification.

TABLE 8.1 Registrar General's and SEC classifications of social classes

	Registrar General	NC-SEC
I	Professional	1. Senior professionals/senior managers
II	Intermediate	2. Associate professionals/junior managers
IIIN	Skilled non-manual	3. Other administrative and clerical workers
IIIM	Skilled manual	4. Own account non-professional
IV	Semi-skilled manual	5. Supervisors, technicians and related workers
V	Unskilled manual	6. Intermediate workers
		7. Other workers
		8. Never worked/other inactive

N = non-manual; M = manual.

SOCIAL CLASS AND HEALTH

■ UK data

As the quotation from Chadwick in the opening paragraph of this chapter illustrates, it has long been recognized that the various positions in the social hierarchy are associated with different chances of premature death. Good quality data on the relationship between social class and mortality in England and Wales were published each decade for most of the twentieth century. The data reproduced in Table 8.2 are the most recent available, but the general pattern that they reveal has been a constant feature of all the earlier reports. The mortality rates increase in a step-wise fashion as one moves from the

TABLE 8.2 Social class and deaths due to all causes (England and Wales, 1991-3, 1993-5)

Social class	Still-birth rate ^a	Infant mortality rate ^b	Mortality rate (1-15 years) ^c	Standardized mortality ratio (men, 20-64 years) ^d
I	4	4	18	66
II	4	5	16	72
IIIN	5	5	16	100
IIIM	5	6	26	117
IV	6	7	22	116
V	8	8	42	189

Adapted from Drever & Whitehead (1997)

N = non-manual; M = manual.

^a Number of deaths per 1000 live and dead births; rounded to the nearest integer, 1993-5.

^b Number of deaths in the first year of life per 1000 live births; rounded to the nearest integer, 1993-5.

^c Number of deaths per 100,000 population aged 1-15 years; rounded to the nearest integer, 1991-3.

^d The ratio of the observed mortality rate in a social class to its expected rate from the total population, multiplied by 100, 1991-3.

TABLE 8.3 Social class and major causes of death (England and Wales; 1986-92): age-standardized mortality rates per 100 000

Cause of death	Social class			
	I/II	IIIN	IIIM	IV/V
Males 35-64 years				
Ischaemic heart disease	160	162	231	266
Lung cancer	35	50	77	80
Cerebrovascular disease	29	27	33	40
Respiratory diseases	13	21	36	48
Females 35-64 years				
Ischaemic heart disease	29	39	59	78
Lung cancer	16	17	34	47
Cerebrovascular disease	14	22	18	34
Respiratory diseases	11	12	23	29
Breast cancer	52	49	46	54

Adapted from Drever & Whitehead (1997).

N = non-manual; M = manual.

Registrar General's social class I to social class V, with the mortality rate of the latter being approximately twice that of the former. This social class gradient in total deaths due to all causes is found among both males and females and within all age groups, although the differences tend to narrow with increasing age.

Certain specific, major causes of death are listed in Table 8.3. For most causes the mortality rates increase as one moves from social class I to class V, so showing the same gradient as deaths due to all causes combined. There are exceptions, however, which show little or no social class gradient: breast cancer in women has been the most prevalent of these, although this pattern appears to be changing. As this suggests, unlike the gradient for deaths due to all causes, the social class gradient for some causes of death changed considerably during the 20th century. Coronary heart disease is the most prominent of these; its mortality rate was highest in social class I and lowest in class V for the first half of the century; this gradient flattened out in the third quarter and reversed in the final quarter, so that its mortality rate is now highest in social class V and lowest in class I.

The data presented so far have been mortality rates, and their use as a measure of health has certain advantages. In the vast majority of cases, death is an unambiguous event that can be recorded with high reliability. Death is also one of the few times that an individual is legally obliged to be seen by a doctor, with the result that the recording of death is virtually complete. Mortality rates, therefore, are reliable and complete measures. Nevertheless, they are not perfect measures of health. The term 'health' implies the absence of disease as well as the absence of premature death (see Chapter 18). As a result, attempts to understand the relationship between social class and health have recently begun to examine the way in which morbidity (illness) varies with social class.

For a variety of reasons, the measurement of morbidity is more difficult than that of mortality. Consulting a doctor could be taken as a measure of morbidity. Manual workers consult doctors more frequently than non-manual workers, but it should not be assumed

that this is solely because of differences in health. Differences in consultation rates result from differences in illness behaviour (Chapter 3) as well as differences in morbidity. Indeed, non-manual workers appear to be the more frequent consulters when 'use/need ratios' are used to relate consultation rates to the prevalence of illness in the various social classes. The illnesses that people report when questioned as part of a representative survey appear to avoid this problem with consultation rates, so rates of reported illness could be taken as a second measure of morbidity. Manual workers report more illnesses of all types, especially chronic and limiting long-standing illness, than non-manual workers, with the differences tending to widen in the older age groups (Drever & Whitehead 1997). All measures of self-reported morbidity, however, involve subjective judgements about illness and its severity. The observed class differences on these measures might be due to systematic variation in these judgements. The more physically demanding nature of manual occupations, for example, might mean that illness is less easily tolerated and recognized earlier.

Some studies have used clinical measures of morbidity on samples of the whole population. These studies should provide results that are free from possible contamination by illness behaviour and systematic subjective variation. Among middle-aged men in the British Regional Heart Study, manual workers were more likely to have experienced angina than non-manual workers; similar social class differences were found in obesity and, to a lesser extent, in blood pressure (Pocock et al 1987, Shaper et al 1988, Weatherall & Shaper 1988). Among men and women of working age in the Health and Lifestyle Survey, manual workers were more likely to experience psychological malaise, to have poorer respiratory function and, to a lesser extent, higher blood pressure than non-manual workers (Cox et al 1987). Studies of this type are expensive and therefore rare. An additional disadvantage is that they usually concentrate on one specific disease, so they are unable to provide information about social class differences in overall morbidity. Like all surveys, they also suffer from non-responders, so their results are not based on the complete coverage achieved by mortality data.

In summary, for many decades reliable and complete data in Britain have shown a step-wise gradient in mortality across the social classes, with members of social class V ('non-skilled manual' according to the old Registrar-General's classification) having approximately twice the chance of dying at any particular age as members of social class I ('professionals' according to the Registrar-General's classification). Recently, attention has turned to morbidity, which is a more valid measure of health than mortality, but difficult to measure with comparable reliability and completeness. Social class differences have been found in various measures of morbidity. The size of these differences appears to vary considerably. The lack of a close match between social class differences in mortality and in morbidity is not surprising. Some major causes of death, such as accidents and violence, need not be preceded by illness and disease, and some common serious diseases, such as arthritis and depression, rarely cause death.

■ International data

British data on health inequalities are richer and longer standing than those from elsewhere. In recent years, however, information on socioeconomic differences in health has become available for many other countries. In most cases, these studies have used measures of social position that differ from the Registrar General's occupational social classes. The number of years of formal education and the level of income are the most frequently used. In general, these alternative measures of socioeconomic position show the same relationship to health as the Registrar General's classes in Britain. Mortality and morbidity rates are lowest in the most advantaged group, highest in the least advantaged

group and, in between, increase along a step-wise gradient. Recently, moreover, there has been a discernible tendency for studies yielding cross-country comparisons to show a widening of inequalities in health. The most dramatic widening seems to be occurring in central and eastern Europe, but countries with 'good health profiles', such as the Netherlands, Sweden and Denmark, are also signalling persisting or growing inequalities (Drever & Whitehead 1997).

■ USA

In 1990, death rates at ages 25–64 years, for males and females combined, were 471 per 100 000 for those who had received 8 years or less of formal education and 264 per 100 000 for those who had received 16 years or more (DHHS 1994). In another large-scale study, the death rates of white males showed an inverse gradient with the level of median family income. At the extremes of the income distribution, those with a median family income of less than \$7500 had a death rate of 81 per 10 000 compared with 39 for those with more than \$32 500 (Davey Smith et al 1992).

■ European Union

In the Netherlands in 1981–5, the rate of self-reported chronic illness among people aged 16 years or more was over 50% higher in those who left formal education after primary school than in those who had received a university education (Mackenbach 1993).

In Spain in 1987 the prevalence of chronic illness among women aged 20–44 years was nearly 50% higher in the poorest income group than in the highest income group (Kunst & Mackenbach 1994).

■ Eastern Europe

In Poland in 1988–9 the death rate among men aged 50–64 years was 22 per 1000 among those who left formal education after primary school and 10 per 1000 among those with a university education (Brajczewski & Rogucka 1993).

Among women in Russia who received primary school and university education a similar, although smaller, difference in death rates has been reported (Davis et al 1994).

Socioeconomic differences in health are therefore not confined to Britain. They have been found in every country that has examined the issue and are probably a feature of all industrialized societies. British efforts to understand this phenomenon are now part of an international endeavour.

INTERPRETATION OF THE RELATIONSHIP BETWEEN SOCIAL CLASS AND HEALTH

The association between social class and health shows that death and disease are socially structured, as opposed to randomly distributed throughout the population, and that they vary in line with the differences in living standards that were documented earlier. However, correlation does not imply causation, and the relationship needs to be examined further. Investigations of health inequality tend to use four 'explanatory models' in the search for greater understanding (Bartley 2003). These are: behavioural, material, psychosocial and life-course models.

■ Behavioural model

Behavioural explanations involve class differences in behaviours that are health damaging or health promoting, and which, at least in principle, are subject to individual choice. This type of explanation is sometimes called 'behavioural/cultural' because cultures differ quite widely in the types of behaviours they encourage or forbid (for example, eating meat, drinking alcohol). But whether or not the large social class differences in Western populations in things like smoking and diet can usefully be regarded as 'cultural' is more problematic.

Dietary choices, the consumption of drugs like tobacco and alcohol, active leisure-time pursuits and the use of preventive medical services such as immunization, contraception and antenatal surveillance are examples of behaviours that vary with social class and could partly explain class differences in health. Considerable weight is given to this type of explanation by the evidence that has accumulated as a result of medicine's long interest in such issues. But long-term studies following people's behaviour and changes in their health have shown that behaviour explains only about a third of the class differences in illness and mortality. Perhaps more importantly, intervention studies have rarely produced the clear-cut improvements in health that would be predicted by the behavioural/cultural approach. One reason for this is that it is very difficult to change behaviours once and for all. The other reason is that even when reduction in the hazardous behaviours has been achieved, improvements in health have been rather disappointing.

The social and economic context in which health behaviours occur also needs to be recognized. Diet is influenced by both cultural preferences and disposable income. The ability of nicotine to maintain a constant mood in situations of stress and monotony might predispose towards cigarette smoking in repetitive and highly supervised occupations. Other evidence cautions against a one-sided emphasis on behavioural factors. Early in the twentieth century, cigarette smoking was more prevalent among the middle class than the working class, but class gradients in mortality were similar to the present.

■ Materialist model

Materialist explanations, by contrast, involve hazards that are inherent in the present form of social organization and to which some people have no choice but to be exposed.

The Black Report judged that materialist explanations were the most important in accounting for social class differences in health. The health-damaging effects of air pollution and occupational exposure to physicochemical hazards had already been recognized. More recently, local levels of economic and social deprivation have been identified as powerful predictors of mortality and morbidity. Damp housing has been shown to be associated with worse health, particularly with higher rates of respiratory disease in children. Unemployment has been associated with psychological morbidity and raised mortality among unemployed men and their spouses. Each of these factors could contribute to class differences in health because they are all more likely to be experienced by working class than middle class people.

There is thus a certain amount of evidence to support the materialist type of explanation. But the full importance of material living standards can only be understood over the life course in the longer term. An amount of money that would provide sufficient calories to allow a person to survive for a month is not equivalent to the amount necessary to allow him or her to have a diet that will support health over the long term, or to pay

for a clean, dry and warm home, or to cover the expenses involved in avoiding social isolation. Soap, toothpaste, a TV and the ability to entertain friends and family now and then might appear to be 'luxuries'. Yet according to the best evidence we have on a healthy life-style, social isolation (due to being dirty, or being in total ignorance of what everyone else is talking about) is as harmful as poor diet and lack of exercise for long-term health (Morris et al 2002).

■ Psychosocial model

One of the most widely researched explanations for health inequality is the 'psychosocial model', which argues that explanations for health inequality may need to include what are described as 'psychosocial risk factors'. These include social support, control and autonomy at work, the balance between home and work, the balance between efforts and rewards.

According to this explanatory model, feelings that arise because of inequality, subordination and lack of social support may directly affect biological processes. Rather than laying emphasis on physical hazards, or on behaviour alone, the psychosocial model focuses on the way social inequality makes people feel, and how these feelings may themselves alter body chemistry.

The original ideas behind this line of research were based on the existence of the so called 'fight or flight' response. In the human evolutionary past, the argument goes, violent activity to either counter-attack or flee from a predator or aggressor would follow the arousal of the sympathetic nervous system (Brunner 2000, Steptoe & Willemsen 2002). Adrenaline, fats and sugars are released into the blood to feed muscular effort, and at the same time levels of a clotting factor, fibrinogen, are increased in case of injury. Vigorous physical activity uses up these substances when the individual fights or runs away. If the animal or person survives, the parasympathetic nervous system quickly returns the body to a more normal state. However, under modern conditions, feelings of fear or anger in humans are less often responded to by physical effort, for example when caught in a traffic jam, or being bullied by a superior at work. Even when escape is made, this is done without physical effort. And endurance of prolonged stress over long periods of time is thought by some to lead to an increase in 'allostatic load' (McEwen 1998). The term 'allostasis' means literally 'the ability of the body to keep itself stable' during changes in the external environment. The 'allostatic load' model of psychosocial causes of ill health focuses on what may happen when there are too many changes in too short a period of time, so that the body's attempts to respond produce overload and exhaustion. The idea would lead us to expect, for example, that an objectionable boss would be harder to bear in an environment that was also too hot, cold, or noisy, or when the individual also had a poor diet.

Some evidence can also be found that allostatic overload is more common amongst less socio-economically privileged people. Several studies have shown that people in less advantaged social positions have higher blood pressure, and higher fibrinogen. Social epidemiologists have concluded that there might be a causal pathway by which stressful social circumstances produce emotional responses, which in turn bring about biological changes that increase the risk of heart disease.

LIFE-COURSE MODEL

Until quite recently, research on health inequality tended to ignore the dimension of time, and the accumulation of advantage or disadvantage that is associated with social class. As the earlier sections of this chapter have indicated, inequalities are found in many spheres

of life. Social class is the concept that stresses the likelihood that advantage or disadvantage in one sphere, and at one time, will be associated with advantage or disadvantage in others. Those who experienced poor home conditions are more likely to go on and experience occupational disadvantage. Lower paid jobs mean that these are likely to be the same people who have worse housing in more polluted and unfriendly areas. In other words, disadvantages in their various forms are likely to accumulate through childhood and adulthood and into old age. It will not be possible to make a secure judgement about the relative importance of behavioural/cultural, psychosocial and materialist explanations until the effect on health of such combined and accumulating disadvantages has been established.

CONTEMPORARY DEBATES

■ Which explanatory model is the best?

It is now widely agreed that health behaviours, although important, only explain about 30% of the differences in health between the most and the least advantaged social groups. Health professionals have targeted smoking, drinking, diet and exercise for many years, but while levels of life expectancy have increased rapidly, there has been little sign of any decrease in health inequality. If the health disadvantage of the less privileged social groups is to be lessened, other processes than health behaviours need to be understood. To the present time, there have not been very many systematic attempts to match different explanatory models to the data that exist in order to evaluate them against each other. For example, many authorities think that life has become more stressful since the 1950s, but at the same time heart attacks and cardiovascular mortality have rapidly decreased. In fact, the increase in life expectancy has taken place at a time of rapidly increasing material living standards (even if this has been accompanied by rising income inequality), giving some support to the materialist explanation first put forward in the 1980s. A mixture of the materialist and life-course explanations would allow us to also take into account the improvements in conditions of babies and young children. Homes with access to private kitchens and indoor bathrooms were far more available to middle class than working class families in the 1920s and 1930s, but by the 1960s most working class families had these amenities as well. The child of a manual worker in the 1960s was therefore far less likely to grow up with the long term consequences of repeated and chronic infections. Education became more widely available, and after 1964 all children stayed an extra year at school, up to the age of 16. Working on Saturdays became rare, and the majority of occupations came to include paid holidays. Compared to the 1920s and 1930s, unemployment between 1945 and 1979 remained at a very low level. All of these changes would have contributed to lower amounts of time spent exposed to a range of health hazards.

This is not to dismiss the importance of psychosocial factors. Perhaps their most important role is in the understanding of social inequality in health behaviours. After various Government reports in the USA and UK in the 1960s, the public were made aware of the link between smoking and health, but middle class men were far quicker to abandon the habit than working class men, and smoking in women even increased. Research shows that working class people are no less aware of the dangers than middle class people. Male smokers are equally likely to express a wish to give up in all social classes, while younger women tend to balance the risks of smoking against the perceived risk of gaining weight. But both work and social situations in which the individual feels less valued and less in control of events seem to increase the difficulty of controlling any form of addiction. Younger people must weigh up the relative benefits of a 'pleasure' in the here and now against a longer life

expectancy at some distant and perhaps uncertain future. These are not material considerations, but relate to how people feel about their present and future. Also, as the classical material hazards such as poor housing and dangers of the industrial workplace become less common (in part because there are so few industrial jobs left), psychosocial hazards may increase in relative importance. No one who has ever experienced it could imagine that going to work each day to face bullying or social isolation can be healthy.

■ Is a more unequal economy bad for health?

An influential contributor to debates on inequality and health has maintained that the level of income inequality is a crucial determinant of the health of populations in more affluent societies like Britain (Wilkinson 1996). Wilkinson argued that once certain levels of gross national product (GNP) per capita have been reached, the principal determinant of level of health status within a country is degree of income inequality. Once countries A and B have passed through what he calls the 'epidemiological transition', then the population of country A can be twice as rich as that of country B without being any healthier. In short, the populations of rich 'equal' countries have better health profiles than the populations of rich 'unequal' countries. He went on to claim that social cohesion and trust provide the dominant mechanisms linking a country's degree of income equality with health. He argued that there is evidence that where income inequalities are more marked, social divisions tend to be exacerbated; levels of trust and strength of community life tend to be lower; rates of social anxiety and chronic stress tend to be higher; rates of hostility, violence and murder tend to be higher; and there tends to develop a 'culture of inequality' characterized by a more hostile and less hospitable environment. His research has therefore been based on a form of the 'psychosocial model'. But instead of relating stress levels in groups such as social classes to individual health, he relates income inequality in whole populations to the relationships between members of those populations and thereby to average population health. Even for people in more advantaged socioeconomic situations, a highly unequal society is more dangerous for health (Wilkinson 2000).

Wilkinson's general thesis on the nature of the epidemiological transition has been challenged on statistical grounds, and his notion of a 'psychosocial pathway' linking income inequality to health differences has been criticized by a number of commentators.

Scambler & Higgs (2001) offer a different interpretation of Wilkinson's findings by adopting a concept of class that owes much to Marx's perspective mentioned earlier. According to them, countries with a more unequal distribution of income and wealth are simply those in which the social classes with more wealth have more control over the political process which determines the levels of taxation, and the provision of housing, health and social services to those with lower incomes. In other words, it is the concentration of power and associated changes in economic policies that are basic to understanding the increase in income inequality and, ultimately, the 'widening gap' in health inequalities.

THE OVERALL PICTURE

The work of social researchers such as Chadwick and Farr made the Victorians aware of the vicious circle of 'poverty causes disease which causes poverty'. Despite the subsequent development of the welfare state, disabled people and those with chronic diseases are still

at risk of relative poverty. This side of the Victorians' vicious circle, however, would now appear less important than the side that stresses the effect of material well-being, or the lack of it, on health. The health inequalities of today are primarily due to the combined effect of class differences in exposure to factors that promote health or cause disease.

This was the conclusion reached by the Department of Health Working Group that produced the Black Report. The Report went on to suggest measures for starting to eliminate health inequalities. There are 37 of these recommendations. A few were designed to ensure better information about class differences in health. Most were carefully targeted at a limited number of issues where class differences in health were thought to be widest and most likely to respond to relatively small sums of money. Disability was the subject of six recommendations designed to break its links with poverty. These covered prevention (fetal screening for neural tube defects and Down syndrome), welfare procedures (a comprehensive disablement allowance), housing (more specialist housing for disabled people) and community-care services (resources shifted towards home-help and nursing services for disabled people). This set of recommendations appears designed to prevent disability where this is presently possible (fetal screening) and, where it is not, to ensure that the lives of working-class people with disabilities are not markedly disadvantaged in terms of income (welfare procedures) and living conditions (housing and community services).

In addition to disability, equally detailed recommendations were made concerning infant and child health, cigarette smoking, occupational health and safety and local authority housing. Particular priority was given to the abolition of child poverty by means of a new infant-care allowance, increased child benefit and the provision of free school meals. These recommendations, in common with the rest of the report, were described by the incumbent Conservative government as 'unrealistic' and the report was published 'without any commitment by the Government to its proposals'. Nevertheless, subsequent research has greatly increased our understanding of the relationship between social class and health.

When the Labour government was elected in 1997 it promptly established an 'Independent Inquiry into Inequalities in Health' (Stationery Office 1998). Even before the Acheson Report, as it was known, was published, a Green Paper entitled 'Our Healthier Nation' (DoH 1998) had stated as one of its aims improving the health of the worst off in society and narrowing what it called 'the health gap'. The Acheson Report itself noted that average mortality had fallen over the previous 50 years, but concluded that 'unacceptable inequalities in health persist' and that 'for many measures of health, inequalities have either remained the same or have widened in recent years'. This applied at all stages of the life course. The Report acknowledged that income, education and employment were fundamental determinants of ill health, as well as the material environment and life-style. Its recommendations went well beyond the remit of the Department of Health, calling for policy development in relation to poverty, income, tax and benefits, education, employment, housing and environment, mobility, transport and pollution, and nutrition. The three main areas defined as crucial are listed in Box 8.1.

BOX 8.1 Crucial areas identified by the Acheson report

1. All policies likely to have an impact on health should be evaluated in terms of their impact on health inequalities.
2. A high priority should be given to the health of families with children.
3. Further steps should be taken to reduce income inequalities and improve the living standards of poor households.

The authors of the Black Report welcomed its successor, drawing attention in particular to the recommendation relating to material factors, which specified the urgent need to reduce income inequalities and improve the living standards of households in receipt of social security benefits (Black et al 1999). However, the Acheson Report has been criticized for not prioritizing its recommendations, for being overly vague and for not costing its suggested policies, and early audits of government responses have been cautious, even pessimistic (Shaw et al 1999). It remains to be seen whether there will be a willingness to act effectively against factors, such as income inequality, which continue to underpin health inequalities in Britain.

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This chapter presents a broad sweep of health differences between the genders, starting with life expectancy and mortality data, and moving on to a general discussion of morbidity differences before detailing some issues of health of especial significance to women. A consideration of issues of masculinity and femininity and of mental health connects with material on embodiment, body hatred and eating disorders in young women, and child-birth provides a forum for further consideration of the medicalization and control of

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