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## Health and Social Stratification

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It is a basic assumption in medical sociology that social divisions shape people's health and illness. That poor health emerges from poor living conditions has been known for a long time. However, such views are not necessarily shared by lay people. There is, in fact, a paradox between the lay and expert conceptions of the reasons for poor health. While lay people may not recognize the bearing of adverse conditions for poor health, it is clear to medical sociologists and epidemiologists that health, illness, and death are profoundly determined by the social conditions in which people live (Blaxter 1997).

This chapter will draw on medical sociological research on the social patterning of health, illness, and death. The particular focus is on the associations between social stratification and health. It has become habitual to speak about *health inequalities* when examining morbidity and mortality differentials across various dimensions of social stratification, such as social class, education, or income (Townsend and Davidson 1982).

A broad, comparative perspective is used and evidence is drawn from different countries and, where possible, from international comparisons. For lack of comparable data, the scope is restricted to the (post-)industrialized or western countries. However, it should be borne in mind that the broadest health divide is found between the developed and the developing world. This has been emphasized, for example, in the *Health for All by the Year 2000* strategy by the WHO (1985) and is apparent from other contributions to this book as well. Being restricted to western countries one should also remember the dramatic decline in the health situation of the postsocialist countries, particularly Russia, due to the turbulent sociopolitical development (Cockerham 1997; Bobak et al. 1998; Palosuo 1998).

## THE CHALLENGE

If health is divided very unequally between the rich and the poor countries one can ask what kind of health divisions can be found within and between the developed countries. Although social inequalities in health in the western countries are widely recognized they have also been challenged. In the 1960s it was predicted by an American scholar Charles Kadushin (1964) that health inequalities would be disappearing. According to his conclusion “in modern western countries the relationship between social class and the prevalence of illness is certainly decreasing and most probably no longer exists.” Kadushin’s view was a limited one since he contended that the reasons for equality in health were primarily related to lack of absolute subsistence problems and physical want in the western countries. Although he presented evidence to support the conclusions, other scholars did not share his views and subsequent research has not been able to confirm a predicted egalitarian health development.

Again in the 1990s, sociological debate on the late or postmodern changes has emerged on the “death of class.” This would imply that class inequalities give way to new divisions in society (Lee and Turner 1996; Scambler and Higgs 1999). The dominant view is that hierarchical socioeconomic divisions in general are losing their significance for a deconstructed social structure, whereas a weaker position suggests that new social divisions, such as those related to employment status, consumption patterns, and identity, have emerged which are more salient than social class for understanding social inequalities including health.

It is a reasonable argument that social structures are changing and this will affect the social patterning of the determinants of health as well. As a result, theories, concepts, and empirical approaches to health inequalities are in constant need to be rethought (Scambler and Higgs 1999). However, it would be a very profound transformation of the western societies if universal social hierarchies had become non-existent, and consequently health inequalities had disappeared as we turn to the third Millennium. In fact, health provides an interesting case study for an examination of the challenge of whether and what kind of universal social structural inequalities continue to exist in the contemporary western societies.

## THE TRADITION

Examining health inequalities has a long history which has particularly deep roots in Britain. This tradition has examined a variety of social conditions producing ill health and premature death. Analyses have included – in addition to the overall level of health – health among the worst off and the distribution of health across social classes and other social divisions.

The documenting and monitoring of social divisions in the population’s health can be traced back to such scholars as John Graunt and William Petty in the

mid-seventeenth century. In one of the first studies on health inequalities from 1662, based on London Bills of Mortality, Graunt reported that those living in London had a shorter life than those living in the countryside, due to poor living conditions such as pollution in the city (see Whitehead 1997).

In the 1830s there was a breakthrough in British public health policies and documenting health divisions in the population. The New Poor Law Act of 1834 and Public Health Act of 1848 aimed to tackle the serious health problems related to industrial poverty. The authorities had as their task to monitor the health situation and the *General Report on the Sanitary Conditions of the Labouring Population of Great Britain* was published by Edwin Chadwick in 1842. This report showed that in Liverpool the average age at death was 35 years for the gentry and professionals, whereas it was 22 years for tradesmen and their families and 15 years for laborers, mechanics, and servants. Chadwick's report was a seminal work for the subsequent examination of health inequalities (see Macintyre 1997).

In addition to Chadwick, William Farr from the British Registrar General's office strongly influenced the monitoring of health inequalities by providing further documents, such as the *Decennial Supplement*, reporting on the associations of the social position with health and mortality. A debate between Chadwick and Farr illuminates different emphasizes in the early health inequalities scholarship (Hamlin 1995). While Chadwick's view was a more medical one emphasizing the prevention of infectious diseases by hygienic measures, Farr's view was a broader one including also social and economic determinants of health. This debate bears significance to a subsequent division of approaches. Medical sociology and social epidemiology usually examine a variety of social determinants shaping health, illness, and death in the population at large, whereas the medical model examines specific programs directed toward the treatment of those already affected by diseases. This division is related to the "prevention paradox," which implies that a large population has to be approached in order to prevent a small number of people from falling ill (Rose 1992).

Significant public health developments and documentation can be found in many other western countries as well. In the Nordic countries a special feature was early development of population statistics. In the Swedish empire the world's oldest population statistics were established in 1748. These nationwide statistics were immediately utilized in research (Lahelma et al. 1996). For example, Abraham Bäck, a chief medical officer, reported in 1765 that "Many types of pestilence rage deeply among the lower classes, whereas only few among the richer people fall ill... As I search for the reasons for illnesses and unfair mortality among the peasantry and lower classes in towns, in the first place come poverty, squalor, lack of subsistence, anxiety and distress" (see Lundberg 1998). Thus health inequalities were identified early as an issue for the Swedish public health policy.

In Germany the founder of modern cellular pathology, Rudolf Virchow, writing in the revolutionary months of 1848, drew a connection between a typhoid epidemic and living conditions among the mining population in Upper Silesia. This signified a new relationship between medicine and sociology which

Virchow himself encapsulated by stating that “Medicine is social science and politics nothing but medicine on a grand scale.” In other words, medicine was also social science and its task was to contribute to the health and well-being of the population at large, not only those already hit by diseases. According to Virchow health must be a democratic right of each citizen rather than a privilege of the well-positioned few. This has had far-reaching consequences for modern medical sociology examining health inequalities within broad populations (Gerhardt 1989: 271–2).

The new socio-medical ideas spread all over Europe and northern America in the nineteenth century. For example, in Finland, a small country in the northern European periphery, a wave of socio-medical research burst out in the 1840s. A strong emphasis was put on the social disadvantages contributing to serious public health problems among the worst off and leading to sharp inequalities in health and death. Carl Qvist, a medical doctor, examined in the 1870s social class inequalities in mortality caused by a cholera epidemic and drew a methodological conclusion: “The division of the population into classes according to either estate and living conditions or occupations and work is one of the most difficult tasks of population statistics.” This conclusion, still valid today, provided a challenge for further research until World War I. In 1916 the chief medical officer of Finland, Akseli Koskimies, crystallized the research program for health inequalities stating that the task of such research “was to examine a person as member of a particular class, economic group; as such a person is susceptible to the health hazards common and characteristic to one’s own class” (see Lahelma et al. 1996).

However, the wave of health inequalities research in the nineteenth century in many European countries and the USA showed a relative decline in the early twentieth century as medicine adopted a new biomedical paradigm and differentiated into subspecialties (Claus 1983; Rosen 1993; Krieger and Fee 1996). Gradually, modern social sciences emerged and research on health inequalities adopted new approaches.

The British Registrar General, T. H. C. Stevenson, developed an occupational class scheme in the early twentieth century. This was first used in a study which showed a clear social class gradient in infant mortality. What was debated, however, was what were the reasons for such inequalities. First of all, the hereditarians and eugenists applied Darwin’s ideas of natural selection to social inequalities in health. They claimed that social class expressed genetic endowment. This was seen in the poorer health among the lower classes which contained high proportions of men and women from “tainted stock.” Secondly, in contrast, Stevenson and other environmentalists suggested the importance of poor living conditions as reasons for poor health and premature death. Thirdly, it was also emphasized that unhealthy or feckless behaviours contribute to the observed health inequalities. These three explanations – hereditarian, environmental, and behavioural – prefigured the types of explanation to be further discussed much later in the twentieth century (Macintyre 1997).

One of Stevenson’s successors was Richard Titmuss. His studies on trends in infant mortality using census data added significantly to previous work as

evidence was obtained on changes over time (Titmuss 1943). Although infant mortality had declined over the early twentieth century in all classes measured by the father's occupation, the decline was slowest in the lowest class. As a result, inequalities in infant mortality had not decreased, but widened.

The emergence of the welfare state in Britain and in Scandinavia was based on broad social policies to combat the "Five giants of Want, Disease, Ignorance, Squalor, and Idleness" as put by William Beveridge (1942). In Scandinavian research on the welfare state, an emphasis has been on citizens' possibilities to lead a good life. Living conditions are studied looking at avoidable inequalities among population subgroups, such as social classes (Erikson and Uusitalo 1987). To be in good health and to be able to perform one's daily activities is a basic prerequisite for leading a good life. Therefore, social inequalities in morbidity and mortality provide essential information on people's living conditions. All the more so as health has a high priority among the subareas of welfare. This high priority is linked to the fact that good health is needed within most subareas of life, such as employment or housework (Allardt 1975; Johansson 1979).

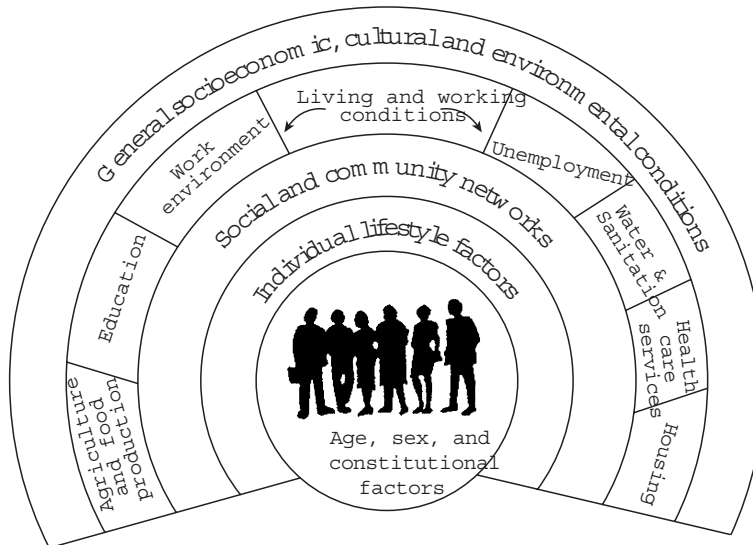
More recent documentations of health inequalities include the *Black Report on Health Inequalities* (Townsend and Davidson 1982), which again found social inequalities in health and death. This report gave a strong incentive for health inequalities research all over the developed world (see also Davey Smith et al. 1990; Macintyre 1997). The Black Report also influenced the European strategy for *Health for All by the Year 2000* by the WHO, with equity in health as a primary target (WHO 1985). In 1997 the British Labor government commissioned a new *Independent Inquiry into Inequalities in Health* (1998). This inquiry reviewed the British evidence since the Black Report, but also put forward a detailed program "to improve health of the worst off and to narrow the health gap."

Since the Black Report research, inquiries, and programs on health inequalities have spread all over the western world. The main message from these can be encapsulated in the invariance: *The poorer the social position, the poorer the health*. Subsequent research has elaborated the nature of the association and suggested reasons for health inequalities in different countries.

## THE DETERMINANTS OF HEALTH

Taken as a whole, the variety of social factors determining the patterning of the population's health is broad and complex. Based on evidence from the medical sociological and epidemiological research tradition, such factors have been summarized by Göran Dahlgren and Margaret Whitehead (1991) in figure 4.1.

Individuals are found in the center. First of all, they bear constitutional factors contributing to their health. Age and sex/gender are biologically as well as socially determined, since our social roles and positions are strongly affected by the phase of life course and gender. Secondly, individual lifestyles and



**Figure 4.1** Main determinants of health

*Source:* Dahlgren and Whitehead 1991.

behaviors, such as smoking, drinking, eating and exercising, are likely to be health-damaging or health-promoting. Thirdly, individuals do interact with each other in communities and the mutual support provided helps sustain the health of its members. Fourthly, people's material living and working conditions influence their ability to maintain good health. These conditions vary a lot between individuals, groups, and whole societies. Fifthly, social, structural, cultural, and other environmental factors characterizing communities and whole societies contribute to people's health and its social patterning.

An examination of health inequalities will concentrate on the social structural influences included in the outermost layer of Dahlgren and Whitehead's model. However, in accordance with the research tradition, the model emphasizes interrelationships between the determinants effective at different levels. Therefore, an examination of social inequalities in health needs to make frequent reference to other layers of the social determinants as well. Particularly, attention should be paid to how gender and life course shape the social patterning of health.

## THE DIMENSIONS OF HEALTH

The Black Report (Townsend and Davidson 1982) and studies earlier on in the health inequalities research tradition have relied mostly on mortality and main causes of death. Very often only men have been included. The main reason for these limitations is availability of data. Additionally, mortality data has advantages in being reliable and valid in most countries, and allowing comparisons

between countries. Therefore, mortality continues to be a major indicator in the examination of health inequalities.

However, mortality data do have drawbacks. A methodological problem is that combining death records with population censuses may produce mismatches in the data, called the numerator-denominator bias. Such problems do not exist where universal person numbers are available and permit linking different data sources at the individual level. During the last few decades this possibility has been open mostly in the Nordic countries (e.g. Valkonen and Martelin 1999). The main drawback with mortality data in the examination of the population's health is that it does not adequately reflect the burden of ill health among living people. There are health problems which cause a lot of pain and suffering as well as costs for sick leave, treatment, and care, but which are not fatal. These include, for example, musculoskeletal problems and most problems of mental health; both are prevalent in the adult population. From a welfare perspective, besides mortality data, we need data on the manifold dimensions of health and illness, including their social consequences.

Data on inequalities in ill health often derive from population surveys using interviews or mail questionnaires. Information on ill health and the social status is obtained from the same individuals responding to the survey. Health measures are by their very nature self-reported, instead of being medically confirmed diagnoses or other kind of data. Rather than being a limitation, working directly with people's own reports is an inherent characteristic of many medical sociological studies: the aim is not medical treatment, but an examination of people's well-being and ability to perform their everyday activities.

Often-used health measures include such generic indicators as perceived or self-assessed general health and (limiting) long-standing illness. These have been recommended as suitable for comparative research by a WHO report (de Bruin et al. 1996). Additionally, functional capacities, disabilities, symptoms, pain, and various summary indices of health can be used in studies (see e.g. Bowling 1991, 1995). Also statistics, records from health services, and qualitative self-reports provide data for medical sociological studies. Most measures reflect *illnesses* indicating health problems as experienced by people, or *sicknesses* indicating social consequences of health problems, but less often *diseases* indicating medical conditions (Blaxter 1989).

All self-reported indicators share the characteristics of being bound to people's own perceptions and the surrounding cultures. Therefore, the disposition to report ill health may vary between individuals and groups, such as social classes, as well as whole countries. For example, it has been suggested that at similar true limiting long-standing illness levels manual and non-manual workers may report different levels of limitation because of the differential nature of their work (Blane et al. 1993). Subsequent research suggests that the limiting long-standing illness measure rather underestimates than overestimates socioeconomic inequalities in health (Elstad 1996; Macintyre et al. 1999).

## THE DIMENSIONS OF SOCIAL STRATIFICATION

Social stratification is a comprehensive concept encompassing the positioning of people in the social structure by their social status (Liberatos et al. 1988; Krieger et al. 1997). A person's social status is related to various assets which are distributed unequally in society, such as power, prestige, material and non-material resources. Classifications of social stratification do contain qualitative elements, such as the difference between farmers and workers, as well as hierarchical elements, such as the difference between upper and lower professionals or white-collar employees as well as manual and non-manual workers. Some stratification schemes are fully hierarchical and form ordinal scales, such as those based on the amount of prestige, income, or education. Some others contain partial hierarchies, which are typical to employment status and occupational social class. Whatever the classification used, hierarchies and social divisions which are in principle avoidable, are taken as foci in the examination of health inequalities.

A stratification approach views social statuses across the whole social structure emphasizing hierarchical positions. Within such a perspective systematic inequalities are expected between all hierarchical strata under scrutiny, with those at the bottom of the ladder having poorer health than those in the middle and at the top. An alternative perspective suggests that only the worst off differ from all other groups. Such a marginal perspective would predict that the disadvantaged groups, such as poor or excluded people, have poorer health than other groups, but the moderately wealthy do not necessarily differ from the rich (Najman 1993).

A perspective closely related to the marginal one predicts that a threshold can be found below which health is poorer than in the higher strata. Such a threshold might be found for income or for education since it has been suggested, for example, that the amount of money available up to a certain level contributes to people's well-being, but an additional increase of money after that has no impact whatsoever (Warr 1987).

Whether a structural, marginal, or threshold perspective is valid for an examination of health inequalities cannot be resolved a priori. Also time periods and countries are likely to differ from each other. Furthermore, different stratification schemes and criteria can be used. As social structures change and new social divisions emerge, it is important to use multidimensional measurements and be open to new types of health inequalities. This will also help respond to the challenges suggested by late modernist social theorizing (see Scambler and Higgs 1999).

There are a number of options to measure social stratification in empirical studies on health inequalities. The following concentrates on structural measures classifying people across the whole social ladder. The main classification schemes include: first, occupational divisions, such as employment status and occupational social class; secondly, educational attainment; and thirdly, income.



## Occupational Classifications

*Employment status* divides people into classes according to their main activity, i.e. whether they are gainfully employed or non-employed. First, employment status distinguishes between those who are engaged in paid employment, be they employees or self-employed. Secondly, the main groups of the non-employed include unemployed, those doing housework ("housewives"), disabled or retired, and full-time students. Being non-employed may increase the risk of poor health, but employment status is subject to reverse causality as well. Those with poor health may drift out of the labour market into non-employed positions (Arber 1997).

*Occupational social class* divisions relate people by their current occupation to the social structure. The individual approach uses a person's own occupation (Arber 1997). When currently non-employed, the last occupation can be used. However, some people have never been employed and have no past occupation. In many countries a substantial proportion of women remain outside paid employment all their life. In such cases the conventional approach can be used and a person's missing occupational status can be substituted by his/her partner's occupation.

The benefits of the occupational classification schemes include links to traditional macro-sociological class divisions as presented by classical sociologists. These traditional divisions attach people to social structures based on their relationship to production (Marx) or their status and power related to different occupations (Weber). The main drawback with occupational classifications is that they are suitable for those who have an occupation, but less so for those who are outside employment. A gender bias is likely depending on the proportion of women who are non-employed. Also many classifications are more detailed for male-dominated than female-dominated jobs. Another difficulty in using occupational divisions relates to changes of occupational structures over time as well as variations between countries. Some occupations decline while new ones emerge. For example, farmers in most developed countries form a small group only, whereas some decades ago they may have still been a substantial group. Similar variations in the occupational structure between countries can be found.

Occupational social class groupings typically distinguish between (1) non-manual employees, such as upper and lower professional or white-collar employees; (2) skilled and unskilled manual workers; (3) self-employed and entrepreneurs; and (4) farmers. An example is the aforementioned British Registrar General's occupational social class scheme (table 4.1).

The special feature of the Registrar General's scheme is that the classification is understood as a fully ordinal scale. This classification has been very much used in British documentations and research on health inequalities. As this is an old measure it is particularly susceptible to the criticism emphasizing changes in occupational structures as well as disregarding female employment. New social class classifications have been developed (see Rose and O'Reilly 1997), but the

**Table 4.1** British Registrar General's occupational social class scheme

	<i>Social class</i>	<i>Examples of occupations</i>
I	Professional, higher administrative	Lawyer, doctor
II	Managerial and technical/intermediate	Manager, teacher, nurse
IIIN	Skilled non-manual	Clerk, police, secretary
IIIM	Skilled manual	Cook, bus driver, carpenter
IV	Partly skilled	Post worker, farm worker, security guard
V	Unskilled	Cleaner, car park attendant, building laborer

Registrar General's scheme continues to have discriminatory power in studies on health inequalities (e.g. Drever and Whitehead 1997).

As occupational social class is closely related to available material resources and living conditions, including working environment, it is reasonable to assume that class will shape people's health.

### Education

Education as a measure of social stratification reflects people's social status in a broad manner and is related not only to their material but also non-material resources. The significance of educational attainment may even increase in competitive societies which need a better labor force. Education can be measured using highest passed examinations or years of completed education. Educational classifications have some advantages as compared to occupational ones. First, each individual can be allocated to educational groupings irrespective of his/her employment status. Secondly, education remains broadly stable across the life-course. Thirdly, education is equally suitable for men and women. Fourthly, the amount of completed education forms an ordinal scale. Fifthly, education is better comparable across countries than occupation (Valkonen 1989). The drawbacks of this measure include that educational structures change over time. A major difficulty with education is its skewness which varies across cohorts. The distribution of education is particularly skewed for older people of whom a great majority has completed basic education only.

Education by its very nature gives people knowledge and qualifications. Therefore, education shapes people's health consciousness and health behaviors, and through these affects their health and illness.

### Income

Income is the third main measure of social stratification. It most clearly indicates material resources, the availability of money. Gross and net income can be measured. Gross income can be taken as an indicator of the social status, whereas net income reflects closely the available resources. As many people

live in families, household income is a more accurate measure of their available resources than individual income. Household income measures need to be “equivalized,” taking into account the size of the household. This yields a measure of net household disposable income, often used in studies on health inequalities (Cavelaars et al. 1998a). Usually, income is used to allocate people across the whole social ladder, but also marginal approaches can be used to distinguish poor people. Classifications use absolute sums of income as well as relative income groups, for example quintiles of equal size.

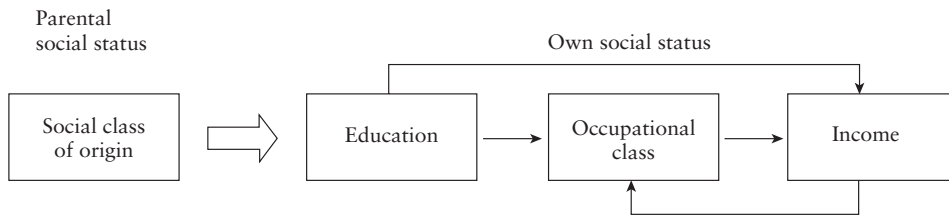
The main advantage of income measures is that they, in principle, allow accurate measurement and ordinal scales. The main drawback is that causal relationships are difficult to establish. A person’s income may contaminate with his/her own health since, on the one hand, poor income is likely to contribute to poor health; but on the other hand, poor health is equally likely to contribute to a lowered income. The latter takes place as people with health problems drift to less well-paid jobs and outside the labor market. In cross-sectional studies the direction of causation is difficult to determine. A second problem with income is its close relationship with employment status. Usually those without employment also have a low income. For example, women doing housework lack individual income. To cope with this problem, household income is needed. A third drawback is that the measurement of income is often problematic since self-reports of income are inaccurate and biased. Additionally, many people refuse to report on their incomes.

In addition to individual or household income, the association between the income distribution and health at the aggregate level has been examined (Kaplan et al. 1996; Kennedy et al. 1998). It is argued that the relative position, not the absolute amount of money available, in the income distribution contributes to poor health and mortality through lack of cohesion and stress (Wilkinson 1996).

### Interrelationships

Above, special features of each of the main dimensions of social status have been emphasized. Finally, it should be noted that these dimensions, as well as further measures of social stratification, such as housing tenure, car ownership or consumption, are interrelated and together give a comprehensive view of people’s multiple social positioning. A schematic presentation is given in figure 4.2.

First of all, the social class of origin of a person, i.e. his/her parents’ social status, influences the social status of destination, i.e. his/her own achieved status. Secondly, people’s own education gives them basic resources and qualifications usually in youth. Education is causally prior to employment status and occupational class. Educational qualifications are important at the labor market and lead people to various occupational classes. Being without or with poor educational qualifications a person runs the risk of low status jobs, unemployment, and other forms of non-employment. Occupation class and employment status, together with education, contribute to a person’s income level.



**Figure 4.2** Associations between main dimensions of social status

Education is a very basic measure of social stratification and is a marker of other measures as well. So is occupation since in western societies many material and other resources are strongly dependent on the individual's labor market position (Arber 1997). In addition to using separately the measures of social status, summary indices combining several dimensions of the social stratification are sometimes used. However, their usefulness is limited to the extent that the measures are closely correlated and the direction of causation is similar. Finally, many other characteristics, such as gender and life course, modify the stratification pattern and should be taken into account in the examination of health inequalities. For example, assessing young people's social position is a complicated task; their own status is not yet crystallized, since their education may still continue, but they are non-employed and therefore have low incomes.

## TYPES OF EXPLANATION AND CAUSALITY

Social inequalities in health are often described using the above measures of health and social status. However, the ultimate aim of research is a deeper understanding and explanation of health inequalities. Rather than being only descriptive, studies need to illuminate questions, such as "What is the causal direction of the associations found between health status and social status?" and "What are the reasons for the found associations?" Reference has already been made to the causal direction of the association between health and the social status. On the one hand, a person's social status is likely to affect his/her health, on the other hand, poor health may affect the social status through low income and lead sometimes to a non-employed social position.

### Explanations

Various types of explanation have been advanced to explain the observed social inequalities in health. A major effort to approach the potential explanations was included in the Black Report (Townsend and Davidson 1982). The report presented a typology which included four types of explanation: (1) artefact, (2) natural or social selection, (3) materialist or structuralist, and (4) cultural or behavioral explanations. These types have been much discussed and a further

**Table 4.2** “Hard” and “soft” explanations for health inequalities

	<i>“Hard” version</i>	<i>“Soft” version</i>
<i>Artefact</i>	No relation between class and mortality; purely an artefact of measurement	Magnitude of observed class gradients will depend on the measurement of both class and health
<i>Natural/social selection</i>	Health determines class position, therefore class gradients are morally neutral and “explained away”	Health can contribute to achieved class position and help to explain observed gradients
<i>Materialist/structural</i>	Material, physical, conditions of life associated with the class structure are the complete explanation for class gradients in health	Physical and psycho-social features associated with the class structure influence health and contribute to observed gradients
<i>Cultural/behavioral</i>	Health-damaging behaviors freely chosen by individuals in different social classes explain away social class gradients	Health-damaging behaviors are differentially distributed across social classes and contribute to observed gradients

*Source:* Macintyre 1997.

development was presented by Sally Macintyre (1997), who emphasized the explanations *not* being mutually exclusive. She distinguished between “hard” and “soft” versions of the four types of explanation (table 4.2).

1 *The artefact explanation* in its hard version suggests that the observed association between social status and health is spurious and non-existent due to measurement error of the studied variables. A soft version recognizes that the measurement of social status and health does not fully produce the observed association, but nevertheless may contribute to its magnitude. An example thereof is the numerator/denominator problem in Britain, since census data and death certificates are not linked at the individual level, and the social position given in the death certificates may differ from those given in the census.

2 *Natural or social selection explanation* is related to the direction of causality. The hard version of this selectionist explanation implies that the association between the social status and health is a real one, but that health determines social status rather than the other way round. People are recruited to social classes by their health and therefore poor people are in low social status groups. Avoidable inequalities in health are explained away and are outside any sociological or political concern. According to the soft version, recruitment to employment or education is not fully determined by health-related selection, but nevertheless selective entry to social status groups can contribute to the production of health inequalities to a greater or lesser extent. For example, illness in childhood may affect school performance and through this contribute to adult social status, or those with illness in adulthood may be excluded from

the labor market. Thus, the soft versions of the selection explanation are closely related to discrimination of people at important arenas of life.

3 *Materialist or structuralist explanations* are those most often searched for in research. Many scholars think that these are important explanations, and some scholars think that these are the only important explanations for social inequalities in health. According to the hard version, occupational social class, together with income and wealth, determines people's physical and material living conditions, such as working conditions and housing, and these produce an unequal distribution of health in the population. According to the soft version, living conditions determined by occupational class include additionally psychosocial factors. In this way the soft version takes into account social and cultural capital available to people, to which also education contributes.

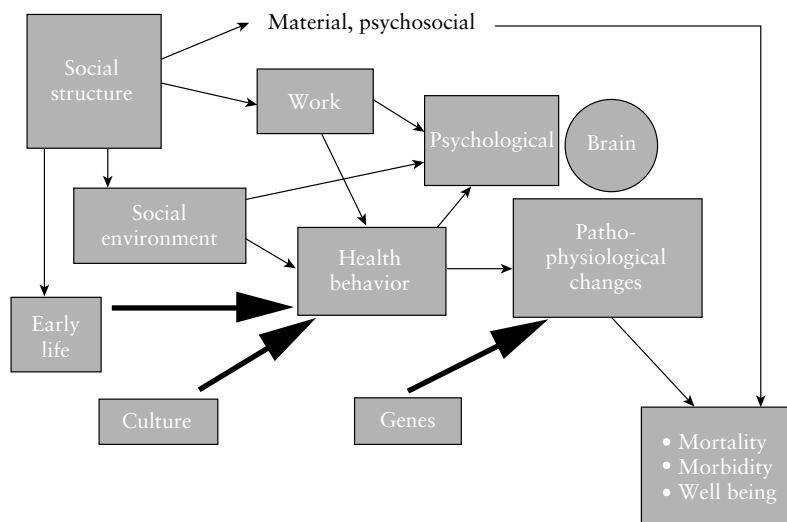
4 *Cultural/behavioral explanations* in the hard version imply that the observed health inequalities can be explained away by health damaging behaviors, such as smoking, drinking, or poor diet. The soft version suggests that health-damaging behaviors may be unequally distributed across social status groups and to a greater or lesser extent contribute to health inequalities. For example smoking, which is more prevalent among low status people, contributes to a number of health problems. Thus health inequalities are not explained away, but the final explanation is pushed back and one can ask what are the reasons for the unequal distributions of health behaviors.

The hard versions of the above explanations for health inequalities are too fundamentalist to direct research and sticking to these may only obscure the richness of empirical associations between health and social status. The typology of the four main explanations in itself distinguishes important areas where explanations need to be searched for. The soft versions, contrary to the hard ones, allow alternative hypotheses to be formulated. Hypotheses may suggest a particular explanation or their combination depending on the aim of research, and predict the relative strength of the various explanations.

## Causes

The causation from social status to ill health or death is a very complex process. An example thereof is a model from the British Whitehall Study (Marmot et al. 1991). As presented in figure 4.3, the model summarizes a number of causal factors included in the materialist as well as behavioral explanation. To cover also the possibility of the selection explanation reverse associations could be added to the figure, for example from health outcomes to work and social structure. Reverse causation is direct when poor health contributes to poor social status, and indirect when parents' social status contributes both to a person's own social status and his/her health (West 1991).

The model also includes early life, which is a biologically and psychosocially important phase of life with regard to adult social status as well as health. Health, together with social and economic living conditions in childhood, contribute to adult health and health inequalities. The social status of origin acquired in childhood correlates with the class of destination achieved in adulthood, and these both are associated with inequalities in adult health.



**Figure 4.3** Summary of main causal associations between the social environment and health

*Source:* Independent Inquiry into Inequalities in Health 1998.

Genetic and pathophysiological influences are included in the model. So far very little is known about the mutual relationships between the biological, psychological, and social processes producing poor health. General susceptibility to ill health as well as specific etiological processes leading to diseases can be distinguished (Marmot et al. 1984). A disadvantaged position is likely to contribute to poor health in general and to a large number of diseases. Additionally, specific etiological factors related to particular social and occupational positions contribute to particular diseases, such as smoking or asbestos to lung cancer.

An exclusively “hard” emphasis on a particular type of explanation is likely to lead to unfruitful controversies. For example, one can ask whether health inequalities are caused by material living conditions *or* by health-damaging behaviors? An exclusive individualist interpretation of the influence of health behaviors leads easily to blaming the victim him/herself for the health-damaging behaviors, instead of trying to understand the social processes leading to such behaviors. On the other hand, sticking exclusively to material living conditions omits other potentially important simultaneous influences, such as those related to health behaviors. Another controversy concerns the bi-directional causality between social status and health. Looking at one direction only overlooks either the contribution of poor conditions to health, or social exclusion and discrimination based on poor health. A third example of a controversy is that between living conditions *per se* and the relative social position as determinants of health inequalities. An exclusive emphasis on absolute living conditions, such as poverty, overlooks the potential significance of relative deprivation, whereas an exclusive relative emphasis overlooks the contribution of absolute scarcity of resources to health inequalities.

The alternative explanations should be taken as hypotheses allowing further analysis instead of being established positions. Unwarranted controversies between the different explanations lead to a one-sided and distorted scientific picture of the production of health inequalities. Additionally they obscure policy options, which have potential beneficial and egalitarian consequences.

### THE PATTERNING OF HEALTH BY SOCIAL STATUS

There is now ample evidence showing that health inequalities by social status exists all over the developed world. A summary up to the 1970s was provided by the Black Report (Townsend and Davidson 1982). This was substantially completed by Margaret Whitehead in the *Health Divide* report (Townsend et al. 1990). There are further reviews adding to the evidence, for example by Davey Smith et al. (1990) and Macintyre (1997), and further British documentations, including the latest *Decennial Supplement* (Drever and Whitehead 1997) and the *Independent Inquiry into Inequalities in Health* (1998). A number of state of the art collections on health inequalities have been produced (e.g. Fox 1989; Illsley and Svensson 1990; Vågerö and Illsley 1992; Lahelma and Rahkonen 1997; Bartley et al. 1998; Marmot and Wilkinson 1999).

Studies have examined health inequalities by the different dimensions of social status, analyzing various health outcomes. To illuminate the nature of the invariance on health inequalities the patterning of health by social status is examined among Finnish adult men and women in the mid-1990s (Lahelma et al. 1997; Rahkonen et al. 2000). An examination of perceived health by main measures of own social status, that is employment status, occupational social class (current or last occupation), education (highest examination passed), and income (net household income per consumption unit classified into quintiles), shows very clear results for men and women (table 4.3). Among the employment status groups the employed have the best health, whereas the unemployed and housewives, and retired people, most of whom are on work disability pension, have clearly poorer health. Occupational social class shows the best health is among the white-collar classes, particularly the upper white collar, whereas the poorest health is found among workers and farmers. Education and income, both ordinal measures, give a very clear gradient: the lower the education or income, the poorer the health.

Perceived health shows a very clear gradient across the various dimensions of social status, for men as well as women. Not only do the worst off show poor health, but an unequal distribution of health across the whole social ladder is evident. Often the highest social status groups are in a particularly advantaged position in terms of their health. Looking at other health indicators, such as limiting long-standing illness, we would find a very similar patterning of health inequalities.

Further evidence based on mortality among Finnish men and women confirms the above patterning of inequalities found for dimensions of ill health (Valkonen and Martelin 1999). Life expectancy at age 35 for men and women is distributed very unequally by social class: the upper white-collar class, particularly for men,



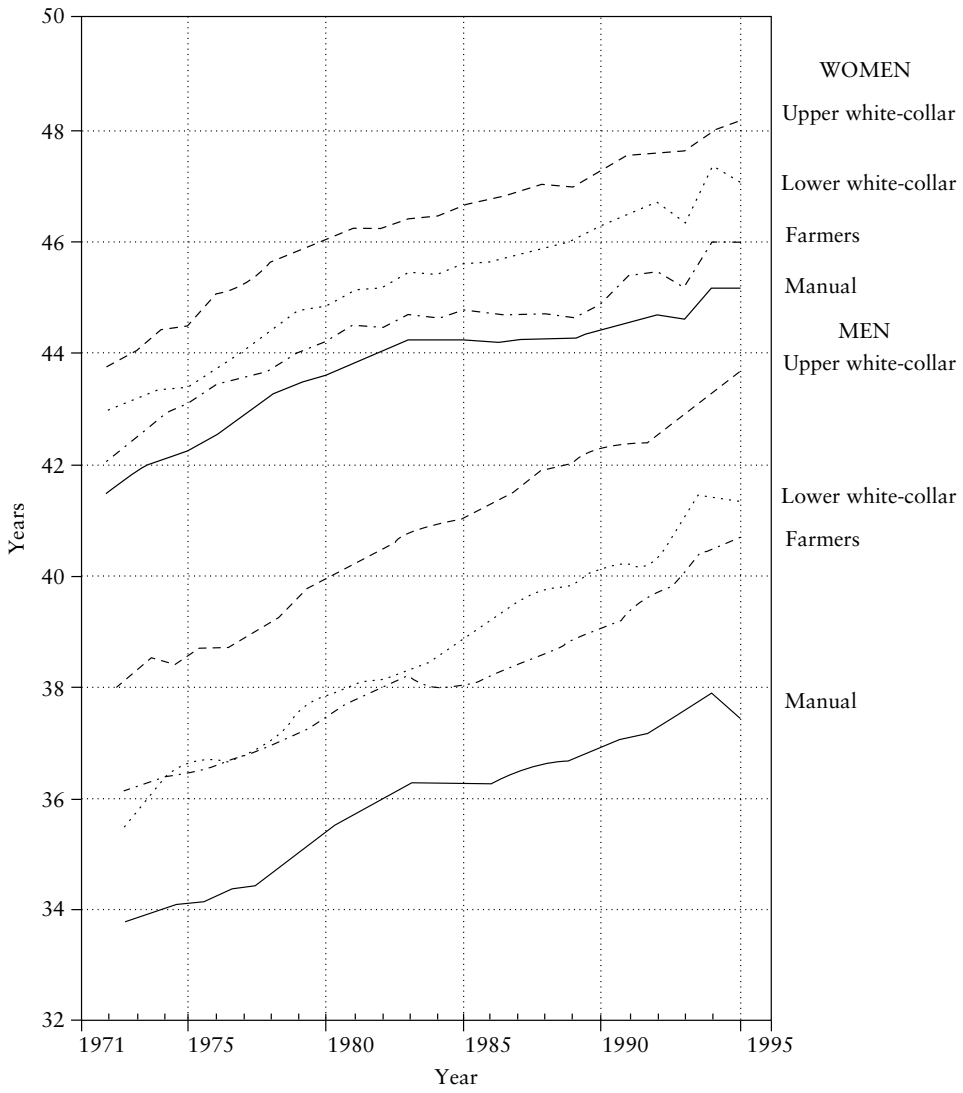
**Table 4.3** Age-adjusted prevalence of perceived health as below good (in percentages) by main measures of social status among Finnish men and women in 1994

	<i>Men</i>	<i>Women</i>
<i>Employment status</i>		
Employed	28	25
Unemployed	37	33
Housewives	–	31
Retired/disabled	79	75
<i>Social class</i>		
Upper white-collar	21	20
Lower white-collar	30	26
Manual workers	36	36
Entrepreneurs/self-employed	33	27
Farmers	35	40
<i>Education</i>		
Higher	21	17
Secondary	32	27
Lower	37	35
<i>Net household income</i>		
Highest quintile	23	19
Fourth	30	28
Third	33	31
Second	34	33
Lowest quintile	37	32
<i>N</i>	3220	3087

*Source:* Rahkonen et al. 2000.

shows much longer life expectancy than any other social class (figure 4.4). Manual men and women have the shortest life expectancy, and other classes fall in-between. The gap in life expectancy between the upper white collar and manual class is six years for men and three years for women in Finland. The patterning of mortality by education is very similar to that by social class (Martikainen and Valkonen 1995).

The above examples use data from one country only. Inequalities in ill health and mortality by various dimensions of the social status are persistent even in an advanced welfare state such as Finland. Examples could have been taken from other western countries and the general picture would be very similar. However, there are also differences between countries. These are shown by available comparative research on health inequalities.



**Figure 4.4** Life expectancy at age 35 by social class among Finnish men and women during the period 1971–95  
*Source:* Valkonen and Martelin 1999.

**Table 4.4** Mortality for manual vs. non-manual men aged 45–56 in nine European countries

<i>Mortality ratio: manual vs. non-manual</i>	
France	1.71
Finland	1.53
England/ Wales	1.44
Sweden	1.41
Spain	1.37
Italy	1.35
Norway	1.34
Switzerland	1.34
Denmark	1.33

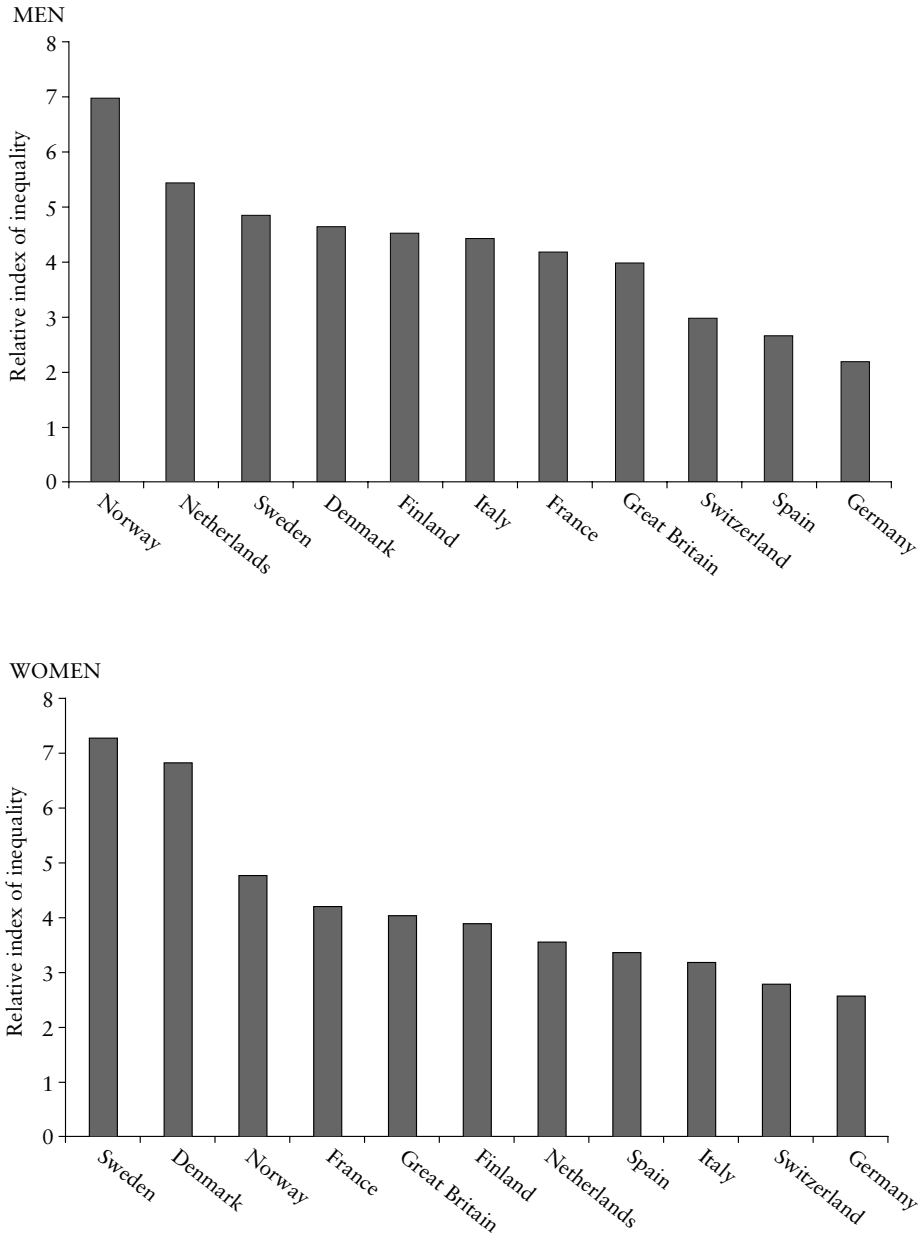
*Source:* Mackenbach et al. 1997.

## THE INTERNATIONAL EVIDENCE

Comparative studies allow for testing whether similar social inequalities in ill health and death can be found in different countries, what are the differences in the social patterning of health, and how does the size of health inequalities vary between countries? Most comparative studies on health inequalities have included a limited number of countries only. One of the first comparative studies examined inequalities in limiting long-standing illness by social class and education in Denmark, Finland, Norway, and Sweden in the early 1970s (Karisto et al. 1978). A clear gradient following the health inequalities invariance was found for each country. These Nordic results were further confirmed for the 1980s (Rahkonen et al. 1994). Another study compared educational inequalities in mortality in the 1970s in seven European countries and found again a clear gradient (Valkonen 1989). The gradient was steeper for men than for women. Largest inequalities in mortality were found for France, whereas inequalities were smallest in the Scandinavian countries. However, differences between countries were not very large. By cause of death inequalities were smallest for cancer, average for cardiovascular causes, and largest for accidents and external causes.

The broadest international comparison of health inequalities so far was made by the EU Working Group on Socioeconomic Inequalities in Health (Mackenbach et al. 1997). The study aimed to examine health inequalities in as many European countries as possible, for mortality as well as morbidity, with special reference to the size of relative inequalities between countries. Existing data sources from various countries were used and harmonized to be as comparable as possible. Educational inequalities for perceived health as below good could be studied in 11 countries (Mackenbach et al. 1997; Cavelaars et al. 1998b).

According to Relative Index of Inequality – a regression based measure (Mackenbach and Kunst 1997) – the size of inequalities in perceived health varied between countries for men as well as women (figure 4.5). Gender differences in inequalities in each country were not very large. For both men and



**Figure 4.5** Perceived health by education in 11 European countries. Relative Index of Inequality

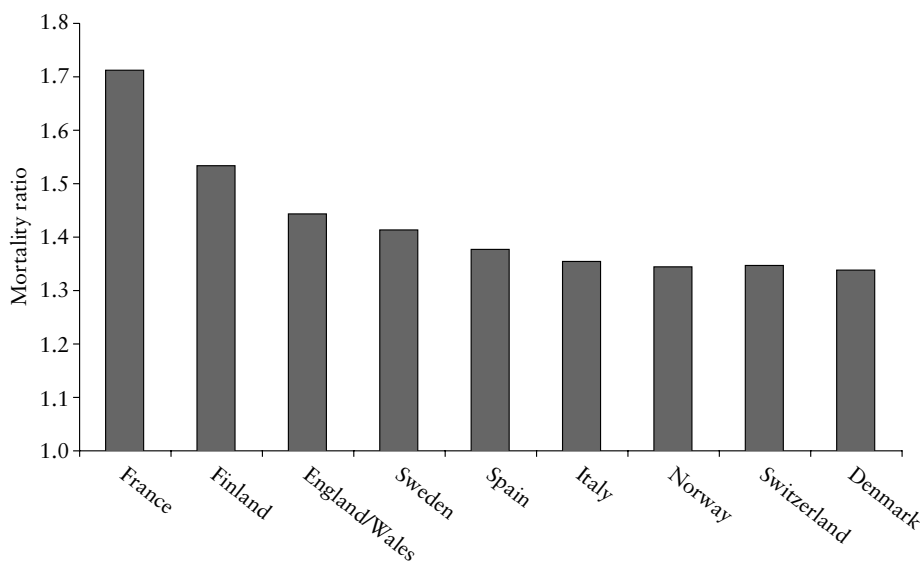
Source: Cavelaars et al. 1998b.

women there was a tendency for the Nordic countries to show larger than average health inequalities, whereas Germany and Switzerland showed small inequalities.

Occupational social class and income inequalities in perceived health could be found as well. The international pattern for social class was broadly in accordance with that for education (Caverlaars et al. 1998c). However, for income, the pattern was different since the Nordic countries did not stand out as having large inequalities as for education. On the contrary, inequalities in perceived health by income in these countries were now smaller than average (Cavelaars et al. 1998a).

Inequalities in mortality by occupational social class could be studied for men only (Mackenbach et al. 1997). This was done by comparing mortality in two broad occupational groups, manual vs non-manual, in nine European countries in the 1980s (table 4.4 and figure 4.6). Although a rough measure, the two broad classes are likely to be very similar in different countries. France shows largest inequalities, as was found also for the 1970s. Out of the Nordic countries Finland has large inequalities, but other Nordic countries average or small inequalities.

The international patterning, particularly for perceived health inequalities, is unexpected, given that the Nordic countries are highly developed welfare states emphasizing egalitarian policies. However, inequalities in ill health could be found for other measures of ill health as well, although the international pattern was not fully similar with that found for perceived health.



**Figure 4.6** Mortality for manual vs. non-manual men aged 45–56 in 9 European countries

*Source:* Mackenbach et al. 1997.

The patterning of health inequalities is under further debate, and the reasons for the found inequalities and the variation of their size by country are not yet well understood. However, the differential international patterning of inequalities in morbidity and mortality suggests that the reasons are not necessarily identical. The European comparative study looked only at relative inequalities. Looking at absolute inequalities in morbidity and mortality by various measures of the social status might add to the picture. Furthermore, the significance of methodological issues, particularly for morbidity, needs further elaboration.

A major effort to find out potential determinants of health inequalities in the European comparative study concerned smoking. The results give an example which may help explain the production of health inequalities (Cavelaars et al. 1998d). Educational inequalities in smoking are particularly large in the Nordic countries whereas the southern European countries show negligible or even reverse inequalities in smoking; in other words, people with higher education are more often smokers. This suggests that the southern countries are still in an earlier phase of the "smoking epidemic." Lacking the unequal social patterning of smoking might then contribute to health inequalities. Looking at causes of death can be taken as supporting this line of reasoning, since overall inequalities in mortality in the Nordic countries were largely determined by unequal cardiovascular mortality, whereas a similar gradient is virtually non-existent in the southern European countries.

### CHANGES OVER TIME

There has been considerable debate concerning the trend in health inequalities: whether they are widening, narrowing, or remaining stable over time (Marmot and Dowall 1986; Whitehead and Diderichsen 1997; Lahelma et al. 2000). Analyzing time trends in health is a challenging task and part of the debate is related to methodological difficulties. How to study changes? Should one measure absolute or relative differentials? How to take into account changes in the size of social status groups over time? Relatively little is known about time trends in health inequalities, and particularly little is known about the international variation of time trends in health inequalities.

Trends in mortality inequalities in the 1970s in seven European countries showed that in France and England, where inequalities already were relatively large, further widening occurred, whereas in the Nordic countries inequalities in mortality remained broadly stable (Valkonen 1989). In no single country did inequalities show a narrowing trend.

More recent international evidence on the trends of mortality inequalities is so far very limited. For Finnish men as well as women widening mortality inequalities and an overall decline in mortality can be seen since the early 1970s (see figure 4.4). For British men and women a similar widening trend in mortality by social class can be found (Harding et al. 1997). In Finland the decline in mortality from cardiovascular diseases, particularly among men, has been much faster in the higher social status groups than in the lower ones, and this

largely accounts for the widening trend of mortality inequalities (Martikainen and Valkonen 1995).

Changes in morbidity differentials will not necessarily follow a similar pattern as those found for mortality. Studies from Finland and Sweden suggest that from the 1980s to 1990s health inequalities have remained broadly stable among men and women (Fritzell and Lundberg 1994; Lahelma et al. 1997; Fritzell 1999; Lundberg et al. 1999). A comparison of health inequalities in Britain and Finland from the 1980s to 1990s showed a contrasting trend in these two countries (Lahelma et al. 2000). In Britain perceived health and limiting long-standing illness inequalities widened or remained stable, whereas in Finland they declined or remained stable.

Finally, reference is made to Norwegian evidence on time trends in health inequalities which deviates from other countries, but has potential future significance for the other affluent countries as well. According to a recent study (Dahl and Birkelund 1999) health inequalities among the Norwegian employed labor force have narrowed by the mid-1990s and become virtually invisible. However, simultaneously ill health among non-employed men and women has become more prevalent resulting into a widening gap between the non-employed and the employed. This trend is likely to be due to health-related selection out of the employed labor force: the Norwegian labor market has become more selective and reluctant to accept less competitive employees who are discriminated against and even excluded from paid jobs. Once non-employed, people with health problems have poor chances of re-employment. As a result, health inequalities tend to be polarized between the employed and non-employed, but may not be found within employed people only.

The significance of the Norwegian development will become evident as research on the trends of health inequalities from other countries accumulates. However, available evidence on the main trends of health inequalities over the last few decades has suggested rather a stable or widening development. It is possible that different countries show contrasting trends in health inequalities as the evidence from Britain and Finland suggests (Lahelma et al. 2000). It is also worth noticing that in the western countries the response to major social transformations in terms of health inequalities is not a straightforward, but a complex one. An example thereof is Finland where unemployment skyrocketed in the early 1990s from 2–3 percent to 18 percent, but so far health inequalities have remained stable or even narrowed (Lahelma et al. 1997).

## POLICY AND FUTURE PERSPECTIVES

Evidence from international comparisons as well as a large number of national studies confirms the universal social patterning of ill health and mortality in the developed world. The health inequalities invariance – *the poorer the social position, the poorer the health* – holds true even in the most advanced countries. Thus the evidence contrasts hypotheses suggesting universal hierarchical social structures giving way to new divisions, such as age, identity, or other. Health has provided a case which shows persistent continuities in class and other unequal-

ities by social status. A death of class development cannot be found, at least so far, for morbidity and mortality in advanced societies. Regarding the persistence of health inequalities they are likely to continue in the foreseeable future. Therefore, health inequalities need to be given a high priority in the future medical sociological and epidemiological research as well as political agenda.

Having emphasized the universal patterning of health inequalities it is equally important to recognize that there are variations between countries and over time. Additionally, for example, gender and life course modify health inequalities. Whether occupational social class differences in health will be transformed outside the labor market in the future and whether a stricter polarization of health status will develop between the employed and non-employed as the Norwegian evidence suggested, remains a hypothesis to be tested in other countries as well. The universal patterning of health inequalities may have partly common reasons in hierarchically organized societies. However, to understand the variation between countries, concrete analyses and country-specific explanatory factors are needed.

Explanations for health inequalities have included a variety of factors which should not be taken in an exclusive way, as suggested by Macintyre (1997) in her distinction between the "hard" and "soft" versions of explanations. Four particularly important areas of factors, which all provide partial explanations for health inequalities and their size, can be identified on the basis of current evidence. First, living conditions at work (Lundberg 1991) and at home (Bartley et al. 1992; Arber and Lahelma 1993; Hunt and Annandale 1993) contribute to health inequalities and their size. Secondly, health behaviors, such as smoking (Cavelaars et al. 2000), drinking (Mäkelä et al. 1997), and diet (Pekkanen et al. 1995; Roos et al. 1998) are all factors which contribute to health inequalities. A third area includes early influences on health: economic and social conditions in childhood have a bearing on adult health inequalities (Lundberg 1993; Rahkonen et al. 1997a). Fourthly, selective social mobility (Lundberg 1993; Rahkonen et al. 1997b) and discrimination, for example, at the labor market (Bartley and Owen 1996; Dahl and Birkelund 1999) also play a role in the production of health inequalities. In other words, health, directly or indirectly, can influence people's placing into different social positions which then contributes to health inequalities between social status groups.

The patterning of observed health inequalities is usually very clear and the size of absolute health inequalities often large. For example, life expectancy at age 35 among Finnish men with higher education is close to six years longer than that for men with basic education only (Martikainen and Valkonen 1995). A large part of this gap is in principle avoidable. In other words, narrowing the health gap between social status groups provides a large potential not only for improving equality in health, but also producing a substantial improvement in the overall public health. If health among the worst off groups could be improved closer to the best off groups, this would bring about advantages to the population's health so large that it is difficult to imagine other equally effective policy options. At the international level the size of health inequalities shows substantial variation. This, in turn, suggests that countries with particularly large health



inequalities show a particularly large potential for narrowing the health gap between social status groups.

The significance of health inequalities has been recognized at the international level as well as in many countries. The *Health for All by the Year 2000* strategy of the WHO emphasizes the need to reduce health inequalities (WHO 1985). Two recent British reports reviewed the international evidence on policy options to reduce social inequalities in health referring to individual, community, macro-economic, and cultural factors as well as to the role of health services (Benzeval et al. 1995; Independent Inquiry into Inequalities in Health 1998). Particularly the *Independent Inquiry into Inequalities in Health* suggests concrete measures to improve the living conditions and health among disadvantaged groups. Emphasis is laid on social and health services which are often overlooked as reasons for health inequalities. Although little is known about the significance of health services, available evidence suggests that health services may contribute to health inequalities (Keskimäki 1997).

Research on health inequalities has often examined relative health inequalities only, for example whether and to what extent health is poorer among the manual relative to the non-manual classes. The relative strategy indicates the existence of health inequalities and allows hypotheses to be forwarded and explanations to be searched for. However, this is likely to be an inadequate strategy for egalitarian health policies, since for policy purposes measures which bring about maximal public health benefits are needed. It is then important to know how large health improvements can be achieved and how many people can be covered by using a particular measure. For example, two years more of life expectancy among upper white-collar women brings about moderate relative benefits for a class which already has a longer life than other classes. This class is also relatively small and therefore the impact to women's overall life expectancy also remains moderate. In contrast, two years more of life expectancy for manual women would bring about a much larger relative benefit, since life expectancy is much shorter in this class. Also, as the manual class is larger than the upper white-collar class, two years longer life among manual women brings about a substantial extension to women's overall life expectancy.

Absolute measures, for example how many deaths or diseases could be prevented or how many years longer life expectancy can be achieved by a measure, are indispensable for the evaluation of the efficiency of health and welfare policies in the population and in each social status group (Independent Inquiry into Inequalities in Health 1998).

In conclusion, egalitarian policies need a multiple strategy aiming simultaneously at improving the health of the worst off groups, reducing the gap between all other social status groups, and improving the overall level of health in the whole target population. To be able to successfully implement policies the evidence from research should be better communicated to lay people as well. This would help people articulate their needs, suggest initiatives, and participate in egalitarian policies to reduce health inequalities.

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