

MEASURING SOCIOECONOMIC INEQUALITIES IN HEALTH

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This document is a discussion paper prepared by the Programme on Country Health Policies and Equity in Health of the WHO Regional Office for Europe. The work is aimed at achieving the following target in the health for all strategy.

TARGET 1

EQUITY IN HEALTH

By the year 2000, the differences in health status between countries and between groups within countries should be reduced by at least 25%, by improving the level of health of disadvantaged nations and groups.

Keywords

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Drafts of this paper were discussed with a consultation group, which was drawn from various disciplines and different parts of the Region. The members of this consultation group, which convened once, in April 1994, in Rotterdam were:

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It is hoped that this discussion paper will contribute to the successful monitoring of socioeconomic inequalities in health throughout the European Region.

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FOREWORD

In 1990 and 1992, two discussion papers were issued as part of the programme on equity in health at the WHO Regional Office for Europe. The first, written by Margaret Whitehead, was entitled *The concepts and principles of equity and health*, and the second, written by Göran Dahlgren and Margaret Whitehead, was entitled *Policies and strategies to promote equity in health*.

This third discussion paper in the series deals with the measurement of socioeconomic inequalities in health. It was prepared by Anton E. Kunst and Johan P. Mackenbach, who work at the Department of Public Health of Erasmus University, Rotterdam, the Netherlands, which is a WHO Collaborating Centre for Research on Inequalities in Health

This document is directed towards a broad public, including both policy-makers and scientists. Because policy-makers cannot be expected to know all the technical issues in depth, this document is divided into two parts, followed by a third part containing a number of detailed case studies.

The first part contains the main thrust of this document, introducing and summarizing the main technical issues. This first part should be read by everyone interested in the measurement of socioeconomic inequalities in health, and especially by policy-makers responsible for developing and implementing a strategy for monitoring these inequalities in health.

The second part discusses the technical issues in detail, and is mainly intended for researchers and statisticians. When there is widespread consensus on an issue in the international literature, this is reflected in the text. When such a consensus is lacking, this document generally attempts to bring the different perspectives together.

The third part describes four case studies of the measurement of socioeconomic inequalities taken from different parts of the European Region: Finland, Hungary, the Netherlands and Spain.

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PART 1

FOR POLICY-MAKERS

SUMMARY

- Socioeconomic inequalities in health can be defined as differences in the prevalence or incidence of health problems between individual people of higher and lower socioeconomic status.
- Socioeconomic inequalities in health are a major challenge for health policy. Monitoring the changes in the magnitude of these inequalities is essential to assess the effectiveness of health policy interventions.
- Policy-makers should develop a systematic strategy for monitoring socioeconomic inequalities in health, following four steps: assessing the data currently available; collecting additional data if necessary; analysing, interpreting and presenting the data; and formulating a policy response to the results.
- The core of every monitoring system should be regular health interview surveys and a mortality registry. Several indicators of self-reported morbidity should be included in the health interview survey to cover various aspects of health.
- Whenever possible, socioeconomic status should be measured by three indicators: occupational status, level of education and income level.
- There is a wide variety of summary measures for the magnitude of socioeconomic inequalities in health. These measures choose different perspectives, and it is recommended to assess the magnitude of health inequalities based on a set of diverse measures that together cover all the relevant perspectives. Specifically, one should look at both relative and absolute differences, and one should look at both the effect of lower socioeconomic status on health and how these inequalities affect the health of the total population. Both simple and sophisticated summary measures are available for each of these perspectives.
- All results should be checked against the list of potential data problems presented in part 2 of this document.

WHY SHOULD SOCIOECONOMIC INEQUALITIES IN HEALTH BE MEASURED?

There is consistent evidence throughout Europe that people at a socioeconomic disadvantage suffer a heavier burden of illness and have higher mortality rates than their better-off counterparts (1-3).

These socioeconomic inequalities in health are a major challenge for health policy, not only because most of these inequalities can be considered unfair (4) but also because reducing the burden of health problems in disadvantaged groups offers great potential for improving the average health status of the population as a whole.

Recognizing this, the Member States of WHO in the European Region have adopted a strategy for health for all that has as its first target (5):

By the year 2000, the differences in health status between countries and between groups within countries should be reduced by at least 25%, by improving the level of health of disadvantaged nations and groups.

This is clearly a very ambitious target that may not be realized everywhere. Nevertheless, it gives a clear focus to health policy and promotes the monitoring of quantitative changes over time in socioeconomic inequalities in health, which is essential to assess the effects of health policy interventions.

This will only work, however, if socioeconomic inequalities in health can be quantified. No indicators on the magnitude of health inequalities for use in monitoring progress towards the target have yet been specified, partly because of differences between countries in data availability and partly because of the conceptual and technical complexities involved in choosing these indicators (6). This document is intended to provide guidelines for the measurement of socioeconomic inequalities in health and especially monitoring changes over time.

A DEFINITION OF SOCIOECONOMIC INEQUALITIES IN HEALTH

In this document, the term inequalities is used in a purely descriptive sense. It is not intended to convey any message on the fairness of the differences in health between socioeconomic groups, as implied by the term inequities. Assessing to what extent certain inequalities also are inequities requires knowledge of the causes of the inequalities and a judgment as to the fairness of these causes: for example, differences in the prevalence of specific genes between socioeconomic groups would generally not be considered unfair (4). Therefore, inequities cannot be measured directly, whereas inequalities can.

Although the first target for health for all encompasses all kinds of inequalities, this document focuses on the socioeconomic inequalities in health within countries, as this type of inequality presents the most difficult measurement problems. In addition, there is evidence that socioeconomic inequalities in health are larger than many other inequalities in health between groups within countries (7).

The health for all publications and documents present examples of socioeconomic factors by which national populations can be divided into groups: social class, occupational group, educational level and income level (5). These characteristics relate to social stratification: individuals occupy a higher or lower position on the social hierarchy according to their occupation, education, etc. This position on the social hierarchy is frequently called socioeconomic status (8).

The concept of health also needs to be clarified. Definitions of health have given rise to much debate, and this document is clearly not the place to continue this debate. A pragmatic approach adopted in this document is to determine the presence or absence of health problems. Essentially, two types of indicators are used: morbidity in the broad sense of the word, covering both objective and subjective aspects, and (premature) mortality. This emphasis on the negative side of health, however pragmatic, should not lead to a complete lack of attention to the positive side. Examples of positive indicators are therefore given too, such as excellent self-perceived health and healthy life expectancy.

Inequality in health should not be confused with inequality in access to health care or in the quality of care received. Although these inequalities may explain some inequality in health, the measurement of inequality in health care is outside the scope of this paper.

Combining the remarks made on all three elements of the concept of socioeconomic inequalities in health leads to the following working definition:

differences in the prevalence or incidence of health problems between individual people of higher and lower socioeconomic status.

A STRATEGY FOR MONITORING SOCIOECONOMIC INEQUALITIES IN HEALTH

Monitoring health inequalities implies repeated measurement of the differences between socioeconomic groups in the prevalence of health problems. This requires a great effort, even if one can use data being collected routinely, and therefore requires careful planning. A general strategy to implement a successful monitoring system could include assessing the data currently available; collecting additional data if necessary; analysing, interpreting and presenting the data; and formulating a policy response to the results.

Assessing the data currently available

Assessing the data currently available involves inventorying the data that are already being collected and that can be used to measure the magnitude of socioeconomic inequalities in health, now and in the future. Data from mortality registries and from health interview surveys are available in many European countries and are likely to be the main sources of information. The informative value of the available data needs to be assessed carefully and should take into account such issues as representativeness, sample size and potential bias caused by, for example, inadequate measurement. A checklist for assessing available data is presented in part 2 of this document.

Collecting additional data if necessary

The results of the first step determine whether additional data need to be collected. Because repeated measurement is needed, it is often more useful to add new data to an already existing routine data collection system than to start a completely new data collection. One may either add health variables to socioeconomic registries or surveys (for example, adding a few health questions to a labour force survey) or add socioeconomic variables to registries or surveys of health problems (for example, adding questions on education or occupation to a health interview survey).

The addition of a variable should not always be taken literally: sometimes data from different registries or surveys can be linked for the same purpose. Linking mortality data to socioeconomic data collected in a population census has proved to be a very successful way of measuring socioeconomic inequalities in mortality in many countries.

Analysing, interpreting and presenting the data

The analysis of socioeconomic inequalities in health is a specialized area of research, and there are many technical pitfalls; some of these are briefly explained in the next chapter of part 1.

Many of the technical issues, however, are also conceptual issues and cannot be resolved without further specifying the question to be answered by the analysis. Policy-makers have an important responsibility in guiding the experts doing the analyses. Are relative or absolute

differences (or both) to be measured? Should the analysis be limited to measuring the effect of lower socioeconomic status on the health of people of lower socioeconomic status, or should it also aim at measuring the total impact these inequalities have on the health of the population?

After the analysis, the results have to be interpreted carefully. Although this is the responsibility of the experts doing the analyses, policy-makers should make sure that the results have been checked for any biases arising from common data problems. A list of possible biases is provided in part 2.

Finally, the results have to be presented clearly and understandably. Simple measures and plain language are preferable, although the experts doing the analyses may want to check whether the sophisticated measures proposed in the scientific literature lead to the same conclusions. It is usually helpful to use graphical displays to present the results.

Formulating a policy response to the results

Strictly speaking, formulating a policy response is not part of a strategy for monitoring socioeconomic inequalities in health. The main reason for including this step, however, is that monitoring inequalities in health serves health policy, and it is therefore useful to consider in advance the type of policy response that may be required. Different types of policy response require different types of data.

Suppose that, before statistical information is collected, day-to-day impression tells one that some vulnerable groups (such as the poorest) suffer disproportionately from ill health, and suppose that one would like to direct policy measures to these groups. In that case, the choice of data sources should aim at identifying these vulnerable groups, and the socioeconomic and other indicators should be chosen such that these groups become visible in the statistical information.

Or suppose that widening inequalities in health are suspected: what is to be done if the data confirm this? Policy-makers then need to know the causes, and it therefore may be wise to include some of the major causes of health problems in the population in the monitoring scheme. Lifestyles (including smoking and dietary habits), living conditions (for example, occupational hazards and housing problems) and health care utilization (such as the inadequate use of preventive services and a lack of access to treatment services) are obvious examples. Collecting data on socioeconomic inequalities in these factors, in addition to the data on health inequalities that are the subject of this document, will be a tremendous help in the final stage of formulating a policy response.

The strategy outlined here requires the active involvement of routine data collection agencies, such as national bureaus of statistics. They should be encouraged to collect the data necessary for monitoring socioeconomic inequalities in health and to make these data available for analysis. The question of who should then perform the analyses is very much a matter of

national, regional or local circumstances. Ideally, the data collection agencies have the expertise and resources to do these analyses and to report on them regularly. Frequently, however, this requires the involvement of researchers specialized in this area, such as demographers, epidemiologists or sociologists.

IMPORTANT TECHNICAL ISSUES

Policy-makers cannot be expected to know in detail all the technical issues involved in measuring socioeconomic inequalities in health. To effectively communicate with researchers and statisticians, however, they should generally understand the main issues discussed in part 2.

Sources of information

Health interview surveys and mortality registries are recommended as the main sources of information for measuring socioeconomic inequalities in health. Health interview surveys cover self-reported morbidity (both in its more objective dimension, such as chronic conditions, and in its more subjective dimension, such as health complaints) and, together with mortality registries, provide a comprehensive picture of socioeconomic inequalities in health.

Other available sources of information might provide complementary data. For example, cancer registers or health examination surveys cover only part of the health spectrum but can provide valid data on the health problems they do cover.

Calculating of morbidity or mortality rates by socioeconomic status requires that socioeconomic information be linked to the morbidity or mortality information somewhere in the analysis. This is preferably done separately for each individual, for example, by asking each respondent to a health interview survey for his or her educational level and occupation.

Sometimes the available data do not permit such an individual-level analysis, and then a geographical or ecological analysis may be considered. This type of analysis assesses whether and to what extent people residing in areas (neighbourhoods or regions) with a low average socioeconomic level experience higher levels of ill health than people who live in better-off areas. This approach is scientifically less valid than the individual-level approach but may indicate the existence of socioeconomic inequalities in health and may even be the main way of documenting the existence of health inequalities in some countries.

Measuring morbidity and mortality

Health interview surveys can measure a broad spectrum of health indicators, and many good questionnaires have been developed that may, however, need to be translated into the local language or languages and adapted to the cultural characteristics of the population to be surveyed. Mortality can be subdivided according to cause of death, which is usually helpful in generating hypotheses on the factors that may cause socioeconomic inequalities in health. The magnitude of socioeconomic inequalities in health may differ for different health indicators, and the measurement must therefore be based on several different aspects of health.

Measuring differences in morbidity or mortality requires removing the effects of any differences in the age composition of the groups, for example, by standardization. Without

standardization the results are usually meaningless, because socioeconomic groups may differ widely in age composition.

Assessing the relevance of a given difference in mortality or morbidity rates is frequently difficult. It may then be helpful to express these differences more concretely, for example, by using the mortality rates to calculate a difference in life expectancy at birth. Data on self-reported morbidity and mortality can be combined in single measures with a clear and attractive interpretation, such as the healthy life expectancy and disability-free life expectancy.

Measuring socioeconomic status

There are several indicators for socioeconomic status. The most important indicators are occupational status, level of education and income level. Each indicator covers a different aspect of social stratification, and it is therefore preferable to use all three instead of only one. Nevertheless, if one can only select one indicator, the level of education is likely to be a good choice in many circumstances, because it is easy to measure and very important in determining health status.

The measurement of these three indicators is far from straightforward, and due attention should be paid to the application of appropriate classifications for, for example, children, women and economically inactive people, for whom one or more of these indicators may not be directly available.

Information on education, occupation and income may be unavailable, and it may then be necessary to use proxy measures of socioeconomic status such as indicators of living standards (for example, car ownership) or indicators relating to certain socioeconomically disadvantaged subgroups of the population (such as ethnic minorities). The analyses using proxy measures of socioeconomic status almost always confound the effects of socioeconomic status with those of the specific characteristics of, for example, non-car owners or blacks.

Measuring the association between socioeconomic status and morbidity and mortality

Any measurement of the magnitude of socioeconomic inequalities in health should start by describing in detail how age-standardized morbidity or mortality rates differ between groups with different socioeconomic status.

If the description of the differences demonstrates a regular pattern of increasing or decreasing morbidity or mortality rates with decreasing socioeconomic status, one or more summary measures may be calculated for the magnitude of the socioeconomic inequalities in health. Such summary measures facilitate comparison, such as over time, and are necessary to decide whether the 25% reduction specified by the health for all target (or any other reduction target) has been achieved.

A wide variety of measures is available, and the main differences between these measures relate to differences in perspective rather than in technical quality.

First, inequalities in health can be expressed both in relative terms (for example, the morbidity or mortality rate of the lowest socioeconomic group as a percentage of that of the highest socioeconomic group) and in absolute terms (for example, the difference between the morbidity or mortality rate of the highest and the lowest socioeconomic group). Both are important: relative differences are usually easier to understand, but a 50% higher rate of a rare health problem may be much less important to public health than a 10% higher rate of a frequent health problem.

Second, there is a crucial distinction between measures of effect and measures of total impact. The main difference between the two is that whereas the measures of effect only look at the effect of decreasing socioeconomic status on health, the measures of total impact also take into account the extent of inequalities in socioeconomic status within the population, for example, by taking into account the size of the groups with lower socioeconomic status.

For example, a measure of the effect of health inequalities by level of income would calculate the difference in the prevalence of health problems between two income levels (for example, monthly incomes of ECU 1000 and ECU 2000, respectively). A measure of total impact, however, would combine this information with data on the extent of income inequality in the population to produce an estimate of the impact of this inequality on the health of the whole population. The larger the income inequality, the higher these measures of total impact will be.

The perspective chosen determines whether one should take into account the extent of inequalities in socioeconomic status. The size of the groups with lower socioeconomic status is largely outside the sphere of influence of public health policy, and this favours using a measure that focuses on the modifiable aspect: the effect of lower socioeconomic status on health. Nevertheless, policy-makers can address some features of the distribution of the population across socioeconomic groups (such as the income distribution), and this favours using the more comprehensive measures of total impact. We recommend using both types of measure and making a judgment based on a comparison of the results.

Finally, policy-makers should always ask for simple measures, because these can be readily understood. The problem with simple measures, however, is that they ignore parts of the available information. For example, a simple measure comparing the lowest to the highest socioeconomic group ignores information on the morbidity or mortality rates of the groups in-between. Researchers and statisticians should therefore try to compare the results of analyses based on simple measures with the results of analyses using sophisticated summary measures for the magnitude of socioeconomic inequalities in health.

The combination of these three different characteristics (relative versus absolute; effect versus

total impact; and simple versus sophisticated) yields a whole set of summary measures for the magnitude of socioeconomic inequalities in health that is discussed in part 2, and illustrated in part 3.

Evaluating data problems

Part 2 presents a checklist of potential data problems that researchers and statisticians can use to critically evaluate the results of their analyses. Policy-makers should make sure that the results have been checked, because data problems are common and can easily lead to incorrect conclusions.

Four types of data problem have been distinguished: problems of external validity (the population surveyed is not representative of the total population of interest); problems of internal validity (leading to biased estimates of the magnitude of socioeconomic inequalities in health in the population covered by the survey or registry); problems of precision (too much chance fluctuation caused by, for example, the small size of the population surveyed); and problems of comparability over time (changes in data collection which lead to biased estimates of the changes over time in the magnitude of socioeconomic inequalities in health).