

Inequalities in child health

It is odd that discussions on what are usually called 'inequalities in child health' have been concerned mainly with mortality and morbidity and relatively little with health. This is particularly curious when the great improvements in child health achieved since the NHS began have considerably reduced the proportion of children who are nowadays seriously ill. Generally in such discussions health itself is taken to be shown by height, or by the rate of height growth, or by the absence of illness, but these are now scarcely sufficiently discriminating indicators for population studies. Recent thinking about the development of adult chronic illness shows why the measurement of child health should be developed to a point where we could differentiate degrees of health in childhood and see whether they were distributed evenly across all social groups, and we could therefore ask whether the proportion of the most healthy is increasing or not.

It is well documented that height, one of the traditional measures of child health, varies considerably with social class in childhood,¹ and that the tempo of height growth is similarly varied, being slowest in the lowest social classes and greatest in the highest classes.² It is also well documented that height is related to health in later life, in the sense that shortness of stature is associated with higher mortality at any given adult age.³ But although depletion or enhancement of quality of skeletal structure and of stature may occur during adult life through eating, exercise, and smoking habits, the limits of growth in height may be achieved only during a relatively short period of time in childhood. Therefore social inequality in achievement of height growth is indicative of risk of social inequality in health in adult life.

This example brings together the important notions of a critical period, during which partially inherited potential is developed through environmental influences, particularly those involving individual choice, in this case choice of food and exercise. During childhood, when these choices are largely a matter for the child's mother, she may well be influencing both the extent of fulfilment of developmental potential and the child's taste in such habits now and possibly even in later life. The relative contribution of these elements to the observed social class differences in growth rates and in height is so far not known.

It begins now to look as if there are other aspects

of childhood health that, like height, may well have long term implications for health. Although few other areas of development are quite so circumscribed in time as physical growth, the model of a potential in which the degree of fulfilment is affected by environmental factors has been often used in other aspects of child development, although the inclusion of habit behaviour as part of the environment has been relatively rare, even though it is likely to be of considerable importance.

In the study of obesity, where research into habit behaviour is of relevance, it seems now that early adult onset is far more common than childhood obesity,⁴ and may even prove to be a greater risk for chronic illness than childhood onset obesity. Although the dynamics of the aetiology of obesity are still by no means clear, there is no doubt that the secular trend in prevalence is rising in childhood and in adult life, and that it is rising fastest in the lower social groups.⁴⁻⁶ Childhood and adult obesity each carry appreciable risks to health.⁶

Blood pressure also looks as if it may prove to follow a pattern of childhood establishment to a certain extent.⁷ It too has an intrafamilial element and the blood pressure measurements of each individual tend to 'track' from some, as yet undefined, point in childhood or adolescence into adult life,⁸ and blood pressure is strongly associated with such environmental choice factors as eating and exercise, with which it is also related through its association with obesity. Blood pressure is appreciably higher in the manual social classes, but seems likely to be reduced in those from lower socioeconomic families of origin who achieve a relatively high standard of education.⁹

Adult respiratory capability may also fit with the notion of a critical or particularly sensitive period in childhood, during which time adverse environmental factors may have a long term influence. Childhood chest illness and poor home circumstances have been found to be associated with relatively poor respiratory function in adult life. These early life experiences were found to be independently associated with adult respiratory function, and they were aggravated in their effect by poor home circumstances in adult life and by cigarette smoking. The risk of this chain of problems is much higher in families in the lowest social classes and in the poorest home environments.^{10 11}

Recent epidemiological work that uses national

mortality data reinforces the idea of the probable importance of health in childhood for health in adult life. Cohorts of children who grew up in times of high infant death rates from bronchitis or pneumonia and survived, have been found in their adult years to have a high risk of mortality from bronchitis or emphysema; as these infant death rates fell from 1900 onwards so corresponding death rates from the same conditions fell in the next generation: from 1940.¹² Analysis of secular trends in mortality data has suggested that the current distribution of ischaemic heart disease reflects poor social conditions in early life, particularly poor nutrition in childhood, among those now at the ages of greatest risk for this condition.¹³

A review of research on long term effects on pregnancy outcome and fetal development concludes that there is a mass of evidence that shows the importance of the mother's childhood health.¹⁴ Low birth weight, which is more prevalent in low social class mothers and those from the poorest home circumstances, has been found to be associated in due course with relatively increased risk of poor or abnormal outcome of pregnancy in these same individuals.¹⁴ There is therefore evidence for intergenerational links in child health.

This increasing and necessary body of research into health during the course of the individual's lifetime shows not only the fundamental nature of health in childhood for later life, but also the extent of social inequalities in child health, particularly in those aspects that may affect health in adult life. In some conditions, such as obesity, there may even be an adverse trend over time.

It is therefore appropriate now to argue that we should no longer rely on the negative measures of health as absence of illness nor on height as a sufficient indicator of health by implication. An improved knowledge is required of those dimensions of children's health that are most likely to be associated with their health in the long term for two reasons. First, because from what we know of these dimensions some children still have a better opportunity than others for good health; second, because it looks, from the evidence of one-off studies, as if some of these important aspects of child health are changing, and at present there is no systematic way of monitoring either improvements or adverse change.

The first stage in improving our knowledge would be to establish a monitoring system to obtain appropriate data from small samples that were representative of the population of children aged 5, 10, and 15 years. Information might, for instance, be collected on height, weight, and other appropriate anthropometric measures, on respiratory function,

blood pressure, and possibly some form of exercise test. The opportunity should also not be lost to collect data on health associated behaviour that might include a mother's report on her child's diet and exercise habits and on parental smoking, as well as a small amount of data on the home and social circumstances of the family. This would provide information on the state of child health and on its variation across social and family circumstances, which would complement the work of the British Paediatric Association's Surveillance Unit on morbidity in severe conditions that have a very low prevalence, and the Registrar General's collection of mortality information.

A repeat of this same study design on new samples selected in the same way five years later would offer the opportunity to assess the extent of change in these measures and the rate at which change had occurred in different social groups. This would be primarily an epidemiological design of data collection and not a system for collecting information in a case finding way. For some purposes, however, it might also be valuable to recontact children in some of the original samples measured for the first stage, in order to investigate individual rates of change. But that would not be necessary in achieving the first objective of measuring the social distribution of child health and the rates of change of its components and thus amassing some information that may provide data about adult health in future years.

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