

The social determinants of child health

Nick Spencer

Abstract

Social determinants of health have long been recognised but their importance is often overlooked. Globally social determinants are responsible for most childhood illness and death. In the UK, conditions which constitute a large part of paediatric practice are socially patterned. Social determinants exert their influence on child health through a complex inter-relationship of more distal social factors such as income and education with more proximal factors such as health behaviours.

The pathways by which the social determinants exert their influence operate over time and across generations. Socially related risk and protective factors cluster in different social groups and accumulate over time. Social determinants are profoundly influenced by social and political decisions which are beyond the control of parents and individual paediatricians. Societies can protect children against the adverse effects of social disadvantage. National paediatric societies have a key role in promoting policies which protect children. This brief review summarises the impact of social determinants on children's health in the UK and considers the role of paediatricians in reducing the health inequities generated by these determinants.

Keywords advocacy; social determinants of health; social protection

Introduction

Social factors have long been known to influence the growth, health and development of children. As far back as the mid-19th century social reformers were identifying the impact of poor housing, inadequate nutrition and other socially-related factors on children. Their studies helped to promote the social changes which eventually led, in today's rich nations, to the major improvements in living conditions, nutrition and healthcare which have enabled vast improvements in child survival and the health status of child populations. The same deprivation of basic necessities for a healthy life which was responsible for high child mortality and morbidity in rich nations in the 19th century continues to blight the lives of millions of children in low and middle income countries.

Despite this evidence for the historical and global importance of social determinants of child health (SDCH), they have tended to be overshadowed by the advances in understanding of disease processes and medical treatments. Renewed interest in the role of social factors and health behaviours in the aetiology of disease culminated in the publication in 2008 of the WHO Commission on Social Determinants of Health report which definitively re-

established the critical role of social determinants in population health and in the health of children globally.

Professor Sir Michael Marmot, who chaired the WHO Commission, has published a series of country-level reviews of social determinants. The UK review, Fairer Society, Healthy Lives, while acknowledging the improvements in health of the UK's children, shows that, despite being one of the wealthiest countries in the world, the UK has high levels of relative child poverty compared with other rich nations and wide child health inequities.

Definition and relevance

SDCH refers to a range of societal and environmental factors that impact on the health of individual children and child populations. Marmot characterises SDCH as “causes of causes”; in other words, they usually act as distal factors influencing more proximal factors in causal pathways to health outcomes. Although they may be obvious in individual children, they are most commonly identified in child populations as health inequities, inequalities that are unfair, unjust, avoidable and unnecessary and that systematically burden populations rendered vulnerable by underlying social structures, and political, economic, and legal systems. Inequities are responsible for substantial mortality and morbidity among children in both poor and rich nations. [Table 1](#) shows the impact of social inequity on a range of child health outcomes among UK children aged 11 years. The health outcomes shown in the table are relatively common and represent a significant proportion of paediatric activity. The role played by SDCH in their aetiology should be of concern to paediatricians.

Epidemiology

In child populations, the epidemiology of SDCH focuses on the social patterning of exposure to risk and protective factors and of health outcomes. Predictor variables which represent social patterning are known as equity stratifiers. The stratifier used in [Table 1](#) is equalised household income; however, there are many others which can be used such as parental education and various classifications of parental occupational status and many epidemiologists recommend using more than one equity stratifier to illustrate SDCH.

The impact of an equity stratifier on risk exposure or health outcome can be represented in various ways. Frequency or point prevalence, with or without confidence intervals around the estimate, by social group in a child population is the simplest way to express the influence of SDCH. The Population Attributable Fraction (PAF) (see [Table 1](#)) expresses point prevalence as the proportion of the outcome occurring in a child population that is attributable to social inequity. The approach used in [Table 1](#) takes the most advantaged group (in this case, the highest income quintile) as the reference in order to fully represent the impact of social inequity on the outcomes and to illustrate what could be achieved given optimal social conditions.

Relative risk (RR) or odds ratio (OR) with confidence intervals for an outcome by social group are commonly used to show social patterning and can be expressed as unadjusted or adjusted i.e. accounting for potential confounding variables in multivariate

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Proportion of child health outcomes at 11 years of age attributable to social inequity in the UK (based on analysis of Millennium Cohort Study using equivalised household income quintiles as equity stratifier)

Child health outcome	Percentage reduction if all children had same outcome as the highest income quintile (%) (population attributable fractions)
Disability/Limiting long-standing illness:	
Limited a lot	38.5%
Limited a little	20.1%
Limitation due to learning difficulties	46.7%
Limitation due to mobility problems	39.8%
ADHD	39%
SDQ Score >90th centile	64%
Sleep limiting wheeze/asthma in last 12 months	59.5%

Table 1

analysis. The most socially disadvantaged group can be compared with the rest or each sub-group with the most advantaged. The latter is useful in demonstrating the presence of social gradients in child health outcomes. Figure 1 shows the social gradients in the same health outcomes as shown in Table 1.

All four conditions show social gradients such that risk tends to increase in stepwise fashion as the level of household income decreases. The steepest social gradient is for high Strengths and Difficulties Questionnaire (SDQ) scores but all conditions show a similar trend. Social gradients give an insight into the mechanisms by which social factors impact on health and inequities develop and are perpetuated. The mechanisms and pathways by which child health inequities are generated are more fully discussed in the next section; it is suffice to say here that social gradients support the hypothesis that socially-related risk exposures, acting cumulatively over time, result in increasing incidence/prevalence of certain outcomes as living circumstances become more disadvantaged.

It is important to note that not all adverse health outcomes show a social gradient. For example, autism and type 1 diabetes mellitus do not show a social gradient indicating that the aetiological factors are not socially-related.

Mechanisms and pathways

There is no direct causal relationship between social determinants and child health outcomes. They exert their effects through mediating socially-related risk and protective exposures such as health-related behaviours and environmental conditions – ‘causes of causes’ acting over the course of individual lives. Risk exposures tend to cluster among those at the lower end of the social spectrum and their impact can also accumulate over time. Low cumulative household income from birth to 10–11 years was associated with the highest risk of activity limiting chronic illness in children participating in the US National Longitudinal Survey of Youth–Children.

Socially patterned health outcomes are the biological expression of social determinants – in other words, the social translated into the biological. This process has been characterised as social circumstances getting “under the skin”, also known as embodiment. In explaining social inequities in low birth weight, Krieger and Davey Smith use the concept of embodiment as follows:

“Low birth weight as an embodied expression of social inequality reflects socially patterned exposures (during and prior to pregnancy) to such factors as maternal malnutrition, toxic substances (e.g. lead), smoking, infections, domestic violence, racial discrimination, economic adversity in neighbourhoods, and inadequate medical and dental care.”

In a similar way, brain development in early childhood reflects exposure to risk and protective factors in the child’s home environment.

Social determinants can be considered as distal variables exerting influence through more proximal risk factors. The complexity of these relationships can best be understood as pathways from distal through proximal variables to the outcome of interest. Pathways enable biologically plausible temporal relationships over the life course to be taken into account. For children, the life course does not start at birth but fetal life and intergenerational influences also need to be considered. Using

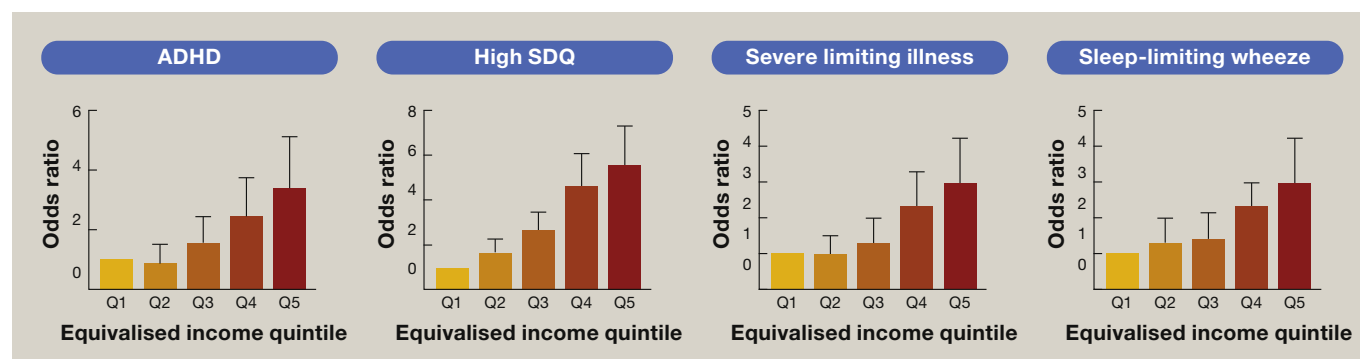


Figure 1 Health outcomes at 11 years showing social gradients (most advantaged quintile, Q1 = reference) (Spencer unpublished).

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