Millennium Cohort Study Briefing 9

Parental and child health

Based on Chapter 15 of *Children of the 21st century (Volume 2): The first five years*

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About these briefings

This Briefing is one of 14 that distil the key findings of the first three surveys of the Millennium Cohort Study, as collected in *Children of the 21st century (Volume 2): The first five years*.

The study has been tracking the Millennium children through their early childhood and plans to follow them into adulthood. It covers such diverse topics as parenting; childcare; school choice; child behaviour and cognitive development; child and parental health; parents' employment and education; income; housing; and neighbourhood.

It is the first of the nationwide cohort studies to over-sample areas with high densities of ethnic minorities and large numbers of disadvantaged families.

For the first survey, in 2001–2, interviewers visited the families of nearly 19,000 children aged 9 months throughout the United Kingdom. It established the circumstances of pregnancy and birth, as well as the families' social background. The second survey recorded how nearly 16,000 cohort children were developing at age 3. The third survey, when they were age 5, involved almost 15,500 children and provided a uniquely detailed account of their physical, cognitive and social development in the year they entered school.

The study is housed at the Centre for Longitudinal Studies at the Institute of Education, University of London. It was commissioned by the Economic and Social Research Council, whose funding has been supplemented by a consortium of government departments.

Children of the 21st century (Volume 2): The first five years, edited by Kirstine Hansen, Heather Joshi and Shirley Dex, The Policy Press, 2010, can be ordered via www.policypress.co.uk

Introduction

A range of environmental factors influences early childhood health and development, including the health of parents. However, little is known about the pathways via which parents' health and behaviours, such as smoking and alcohol consumption, affect children. This Briefing examines new evidence that the Millennium Cohort Study (MCS) is producing on this vital issue.

Many research studies have linked child health and development to parents' health-related behaviours and body mass index (BMI). Parental health status is less frequently investigated, although a child's own health and development can obviously be put at risk by a parent's illness.

Early childhood health and development (physical health, socio-emotional behaviour and cognitive ability) are also affected by socio-economic factors. These include family income, parental occupation and education, nutrition, environmental stimulation, parenting, family relationships, housing, social networks, and area of residence. The association between several of these factors and children's wellbeing is discussed in this Briefing.

Pathways to child health

Four possible pathways for parent health to influence child wellbeing are considered:

1) parental health-related behaviours affect both parents' and children's health (lines marked A on Figure 1);

2) parents' psychological distress has repercussions for children's health and development: the 'psychosocial' pathway (B);

3) Socio-economic background helps to explain both parents' mental and physical health and their influence on early childhood health and development (C); and

4) although parents' health and child outcomes are socially patterned, socio-economic circumstances directly affect child health and development, regardless of parental health, the psychosocial environment or behaviours (D).

MCS data

The authors of the study on which this Briefing is based analysed cohort data gathered by the first and third MCS surveys (MCS1 and MCS3), at age 9 months and 5 years. They considered four markers of ill-health in early childhood: limiting longstanding illness, child health rated fair/poor by parents, children's socio-emotional behaviour problems, and childhood obesity.

Child's general health and socio-emotional health

The main respondent was asked to rate the child's general health at age 5 and state whether the cohort member had a longstanding illness that limited their activities. Children's height and weight were measured during home visits. Obesity was defined using age and gender-specific cut-points recommended by the International Obesity Task Force.[2]

The study used an indicator of whether the child was displaying severe behaviour problems. At the age 5 interview, the mother[3] was asked to complete the Strengths and Difficulties Questionnaire. Scores from four of the assessment's five subscales – conduct problems, hyperactivity, emotional symptoms and peer problems – were summed to construct the Total Difficulties score, with a range of 0 to 40. Ten per cent of the MCS children had scores at or above the clinically relevant cut-point (17) for problem behaviours.

Explanatory factors

Information on parent health was available for both mothers and fathers who were questioned about their health at each survey. In this Briefing answers from the MCS1 and MCS3 surveys are used to construct a parent health score at each survey as follows:

0: general health 'good' and no limiting longstanding illness
1: general health 'fair/poor' but no limiting longstanding illness
2: general health 'good' but some limiting longstanding illness
3: general health 'fair/poor' and some limiting longstanding illness.

The combined score ranged from 0 to 6. Zero signified 'very good health'; scores from 1 to 3 'average health' and 4 or more 'poor health'.

Parents' health-related behaviour, psychosocial wellbeing and socio-economic position were also examined. Whether or not these factors confound or mediate[4] relationships between parent and child outcomes is likely to depend on which marker of child health and development is considered. For example, health-behaviour factors might mediate the relationship between parent health and child obesity, whilst socio-economic and psychosocial influences might confound the relationship.

The parental psychosocial marker used in this Briefing is the mental health of mother and father respondents at MCS3. The parent health-related behavioural markers, again all from MCS3, are current parental smoking (Yes/No), and current alcohol consumption (Yes/No). The authors of the study summarised here considered parental and family background factors that could be related to obesity:

Figure 1
Possible pathways linking parent and child health
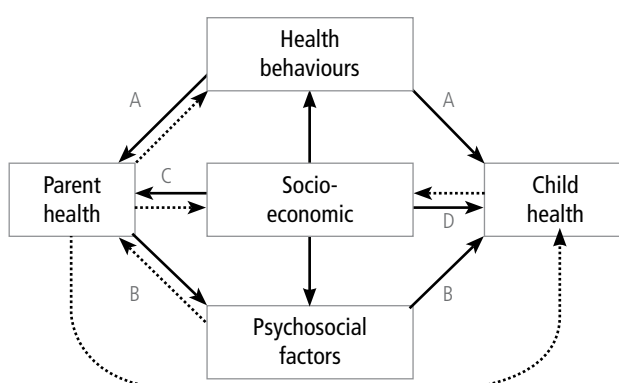
- parental BMI when the child was age 5

- the child's eating patterns at that age (fruit consumption, regular mealtimes and skipping breakfast)

- level of physical activity at age 5 (such as visits to playground, and computer and TV use).

The measures of socio-economic background considered were: highest occupational group in the family (at MCS1); highest qualification in the couple (at MCS3); family income poverty[5] score from MCS1; and housing tenure at MCS3 (owning, renting, or other type of tenure).

Data analysis

All singleton infants[6] who participated in the MCS1 and MCS3 surveys (n = 14,478) were included in the analysis. Data on problem behaviour were available for up to 13,878 cohort members and on obesity for 14,242. When mothers' health scores were considered, missing data reduced the sample for behavioural outcomes from 14,383 to 13,484 (93%) and for obesity to 11,401 (78.7%). The partner-respondent sample was 8,200 for behaviour outcomes and 8,000 for obesity.

Findings

More than two-thirds (69%) of mothers had very good health, almost a quarter (23%) had average health, while 8 per cent were in poor health. Fathers were more likely to have very good health (73%), while 21 per cent had average health and 6 per cent poor health.

Figure 2 shows that parent health scores are socially patterned, for example 78 per cent of mothers with a postgraduate qualification had very good health, compared with 51 per cent with no qualifications. Similar patterns were seen for occupations, poverty and housing tenure in both main and partner respondents. Only 59 per cent of mothers who smoked had very good health, compared with 74 per cent of non-smokers. However, 72 per cent of mothers who drank alcohol had very good health, compared with 59 per cent who did not drink.

## Child's general health

Poor parent health was related to the increased likelihood of the cohort child having fair/poor health and a limiting longstanding illness at age 5. Fair/poor cohort child health was socially patterned, with a two-and-a-half-fold increase in likelihood for children in families where the highest occupation was semi-routine/routine, compared with those in managerial/professional families. The likelihood of limiting longstanding illness appeared more weakly associated with socio-economic markers (see Figure 3).

Child's socio-emotional health

The association between parent health and the likelihood of clinical levels of behavioural difficulties appeared stronger for the mother's health than the father's. Children whose main carer had poor health were more than four times as likely to have high behavioural difficulties scores as those with main carers in the best health group.

Figure 2
## Mothers' and fathers' self-rated health, by highest qualification between them
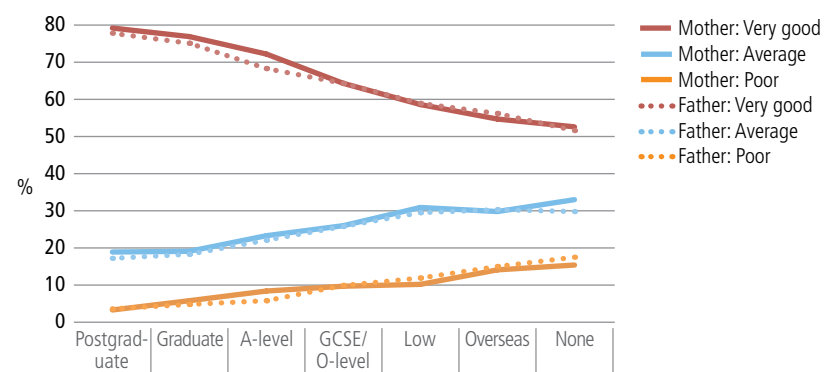
Highest qualification is of either mother or father. Data on fathers apply only to those families where he was present and participated in the age 5 survey.

Figure 3
Child health problems by highest parental qualification, age 5 survey
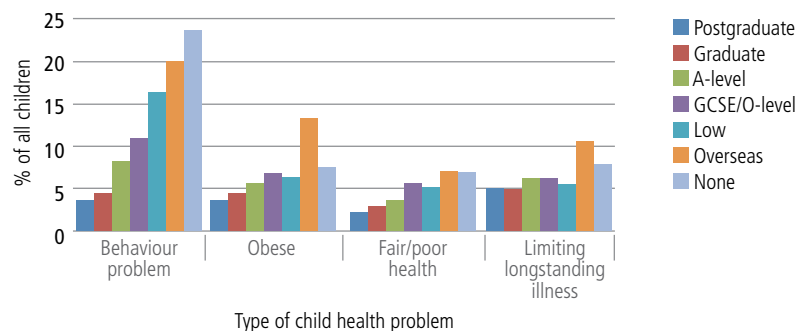
Figure 4
Child health problems at age 5 by parents' smoking
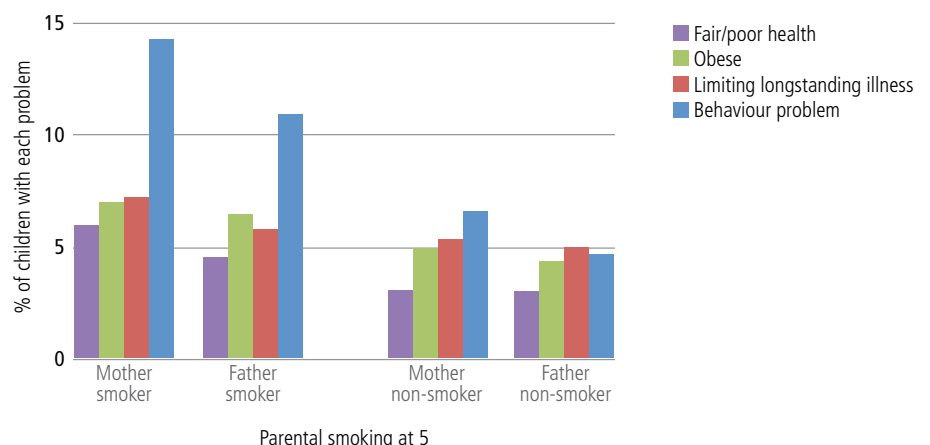
Children with disadvantaged economic and psychosocial circumstances were also more likely to have difficulties than advantaged youngsters. These socio-economic disadvantages were particularly important in accounting for the higher behaviour problems of children whose fathers were in poor health. An important factor helping to account for the higher behaviour problems of children where the mother was in poor health was her own psychological distress. Although it is a clear limitation of the MCS data on children's socio-emotional health that they were based on mothers' reports, they can help to provide robust estimates of the many influences behind children's socio-emotional development. Identifying behavioural problems in early childhood is important as they help to predict health and wellbeing in adolescence and adulthood.

Child obesity

An association between poor parental health and child obesity was largely accounted for by family health-related behaviour and, to a lesser extent, by social disadvantage. Mothers' BMI was independently associated with the likelihood of child obesity. Overweight mothers were more than twice as likely (2.2:1) as normal or underweight mothers to have an obese child. Obese mothers were four times (4.1:1) as likely. Obesity was also strongly patterned according to the child's eating and physical activity indicators, as well as parental socio-economic background.

The rise in the prevalence of child overweight and obesity in recent decades in the UK and other countries is a major public health concern. Child obesity tracks into adulthood and is associated with chronic disease risk. Obesity and associated health risks can, in theory, be tackled at various stages of the life course. However,

Lawlor and Chatuvedi (2006) point to the ineffectiveness of individual-level interventions aimed at reducing obesity. Rather than trying to reduce parent and child BMI through behaviour-change programmes it may therefore be better to identify a) broader environmental and societal influences that are amenable to change and b) effective policy developments, for example on safe outdoor spaces, and the availability of affordable 'healthy' foods (Lobstein et al. 2004).

Child cognitive scores

Parent health was also associated with children's cognitive scores. For example, children in otherwise average families where mothers or fathers had poor health had Naming Vocabulary[7] scores lower than children with parents who had very good health, equivalent to 10–12 percentage points down the overall ranking of families.

Adjustment for health-related behaviours appeared to explain little of the relationship between parent health and child cognitive

Key statistics

12.6 per cent of children with mothers who had poor health were said to suffer from poor/fair health themselves, compared to 2.2 per cent of children whose mothers had very good health.

Obese mothers were more than 4 times as likely as normal-weight or underweight mothers to have an obese child.

Children whose main carer had poor health were more than 4 times as likely to have a high level of behavioural difficulties as those with very healthy carers.

scores. However, adjustment for socio-economic markers appeared to explain much of the relationship between both main and partner-respondent health and children's cognitive scores.

Conclusions

Parent health is related to measures of early childhood health and development, but these relationships appear to have different underlying explanations. Family socio-economic circumstances seem particularly important in explaining the link between parent health and poor cognitive and socio-emotional outcomes.

Unfortunately, research has shown that policies and interventions aimed at individuals have limited impact. The findings of the study reported here also suggest that family socio-economic circumstances and parental psychosocial factors are important in explaining the relationship between parent health and a child's socio-emotional difficulties and, to a lesser extent, the likelihood of child obesity. Policies designed to tackle the societal inequalities that shape the circumstances in which people live may therefore have a bigger influence on parent health and child health and development in the long term.

References

Lawlor, D. and Chatuvedi, N. (2006) 'Treatment and prevention of obesity: are there critical periods for intervention?' *International Journal of Epidemiology*, 35: 3–9.

Lobstein, T., Baur, L. and Uauy, R. (2004) 'Obesity in children and young people: a crisis in public health', *Obesity Reviews*, 5 (suppl 1):4–85.

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1 Yvonne Kelly and Melanie Bartley, Department of Epidemiology and Public Health, University College London. This text has been adapted and shortened to suit the format of these Briefings. Responsibility for any errors therefore rests with the Centre for Longitudinal Studies rather than the chapter authors.
2 For more details see Griffiths, L.J., Sherburne Hawkins, S., Cole, T., Law, C. and Dezateux, C. (2010) 'Childhood overweight and obesity' (Chapter 13) in K. Hansen, H. Joshi and S. Dex, S. (eds) *Children of the 21st century (Volume 2): The first five years*, Bristol: The Policy Press; and Hansen, K. and Joshi, H. (eds) (2008) *Millennium Cohort Study Third Survey: A User's Guide to Initial Findings*, London: Centre for Longitudinal Studies.
3 In this Briefing 'mother' and 'father' refer to mother and father-figure survey respondents as well as natural parents.
4 *Mediation* means showing a pathway through which a causal relationship works. Associations are not necessarily evidence of causation. *Confounding* occurs when two factors which are not themselves causally related have a common association because each is related to other factors that may be.
5 Net income, adjusted for family composition as in official poverty statistics, above or below a threshold at 60 per cent of the national median household income.
6 Children who are born as a result of single, rather than multiple, births.
7 The British Ability Scales (BAS) Naming Vocabulary sub-test is part of a set of cognitive assessments designed for 3 to 17-year-olds. The interviewer asks the child to name a series of pictures of everyday items. There are 36 items in total but the assessment is terminated if five successive items are answered incorrectly. The assessment was not given to children who did not speak English.