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Health Selection:

An Explanation of Social Inequalties in Health in Young Adults?

by

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HEALTH SELECTION: AN EXPLANATION OF SOCIAL INEQUALITIES IN HEALTH IN YOUNG ADULTS ?

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SUMMARY

The role of childhood and adolescent health and development has been assessed as a potential explanation for later social class inequalities in health using longitudinal data from the 1958 Cohort study. In early adulthood, general health (as self-rated by respondents) and emotional health (as measured by the Malaise Inventory) were generally poorer in lower social classes. Adjustment for a wide range of childhood health characteristics did not reduce class differences in health evident in early adulthood and were therefore considered to be relatively unimportant influences. Some reduction in the class differences did occur, however, when allowance was made for ill-health in adolescence. For example, odds of 'poor' or 'fair' rating of health at age 23 in classes IV and V relative to classes I and II decreased from 2.48 to 2.23 in men and 3.18 to 2.87 in women after adjusting for school absence through ill-health at age 16. Adolescent health may contribute to class inequalities in health but preliminary consideration of other potential influences (socio-economic circumstances and health related behaviour) suggests that other factors may be relatively more important.

Introduction.

Selective social mobility is one of the potential explanations which have been suggested for the unequal distribution of ill-health across social groups in Britain (1,2,3). According to this explanation social mobility is selective on the basis of health, whereby the healthy move up the social scale and the unhealthy move down. There is ample evidence to support this hypothesis (4,5) but the extent to which this is an important explanation of class gradients is still not clear.

In two previous papers we investigated the contribution of social mobility to the development of inequalities in ill-health in early adulthood (6,7). These analyses showed clear differences in health and health potential between social groups, using both social class and housing tenure as indices of social position. Social mobility was found to be related to health at age 23 but did not appear to explain the social gradients.

Childhood and adolescence ill-health was not examined in these previous analyses. It is necessary to do so because earlier health might influence class differences in ill-health among young adults not solely through selective social mobility but also through maintenance of class differences in health problems which developed earlier on. The purpose of this present paper, therefore, is to

focus directly upon the contribution of earlier ill-health to later social inequalities in health. The longitudinal data necessary for these analyses are drawn from the 1958 cohort study.

Subjects and methods

The 1958 cohort - National Child Development Study (NCDS) - is a longitudinal study of all people born in the week 3-9 March 1958 and resident in England, Scotland and Wales. The study originated in the Perinatal Mortality Survey which obtained information for 17,733 births (8). At ages seven, 11, 16 and 23 the sample was followed-up and at each stage, except the last, immigrants to Britain born during the same week were incorporated into the study (9,10).

Measures of ill-health

During childhood and adolescence, medical examinations were carried out by the schools health service and, in a home interview, parents were also asked to report the child's past and present health problems. Data were collected on a wide range of conditions which were subsequently categorised in an attempt to construct meaningful summary measures of ill-health. These have been described in detail in a previous publication (11). So far, data for age 7 have been re-assessed in this way but for 11 and 16 summary measures are not yet available. The present study, therefore, used cruder indices of health and development at these two ages, namely:

i) absence from school in the preceding year for reason of ill-health or emotional disturbance, as reported by parents. The number of days absence was subsequently categorised into those with more than one week in total and those with less.

ii) ascertained handicap reported by doctors in a special examination carried out for the study. The doctors consulted school health records and identified children with any condition severe enough for the local education authority to provide special education. The majority of children included in this category were educationally subnormal (12).

iii) height measurements were used at 11 and 16 as well as 7 as indices of growth and development.

iv) doctors rating of axillary hair development provided a measure for stage of puberty (mature or immature) at age 16.

At age 23 the health of respondents was characterised by:

i) Self-rated health: the 23-year-olds were asked 'How would you describe your health generally? Would you say it is - excellent; good; fair; or poor?'.

ii) 'Malaise' score: from a 24-item self-completion questionnaire, administered at the end of the 23-year interview, developed by Rutter et al (13) from the Cornell Medical Index. It is essentially a screening instrument and scores of seven or more are suggested as indicative of depression (14,15).

Non-Response

A total of 12537 people were successfully retraced and interviewed at age 23. This represents 76% of all those members of the study who were alive and still living in Britain. Those remaining in the study were more often from middle class backgrounds, smaller families and better housing but differences between responders and non-responders were generally small. For example, of the 16969 individuals whose father's occupation at the time of their birth was known, 17.0% were in social classes I or II, and 21.3% were in classes IV or V. Just over 8,000 sujects had complete social class data at birth, 16 and 23, of whom 16.9% were in classes I or II at birth and 21.0% in classes IV or V (7).

Further analyses were conducted which examined response according to health status in childhood. Patterns were found to be similar for most categories, although those with psychosocial and to a lesser extent chronic conditions were underestimated in the sample by the age of 23 (11).

Data Analysis

A series of logistic models were fitted to estimate the effects of ill-health and growth upon the class differences in rating of health at 23. For the purposes of these analyses data for classes I and II have been combined as were classes IV and V. The results are shown in the tables as relative odds, comparing the odds of ill-health in classes IV and V with those in classes I and II. Relative odds were

calculated before taking account of earlier health characteristics (at 7, 11 and 16) and after taking these factors into account.

Results

Of five indicators of health and health potential which were examined previously (7) class gradients were stronger for self - rated health, malaise and height than for psychiatric morbidity and hospital admissions. Self -rated health and malaise were selected for further investigation in the present paper and the class gradients for these two health indicators are reproduced in Figure 1. As the figure shows, differences were greater for women than men and for current social class than class at birth. Similar trends emerge using housing tenure as an index of social position (figure 1).

Class differences in self-rated health and the malaise score were adjusted for previous health and development as represented by the indicators given in Table 1. The latter varied in frequency of occurrence, for example, 45% of 16 year-olds had been absent from school for reasons of ill- health for more than one week in the preceding year; whereas 1.6% had an ascertained handicap at the same age. Table 1 also gives the size of the base populations reflecting the different number of subjects with complete information for each health indicator.

This has implications for the relative odds of 'poor' or 'fair' self-rated health shown in Table 2. Differences in the unadjusted figures, which are given in the first column, were accounted for by

the variable sample sizes described above. The main focus of the table, however, is the difference between the unadjusted and adjusted relative odds for each indicator of health and development. This demonstrates the effect of previous health status upon class differences in rating health as 'poor' or 'fair' at age 23. Table 2 suggests that the effect of such characteristics up to age 7 was negligible since unadjusted and adjusted relative odds were similar for most indicators. For example, relative odds were similar for women, 3.29 (95% CI 2.39 to 4.54) and 3.30 (95% CI 2.39 to 4.54) and the same for men, 2.12 (95% CI 1.50 to 3.00) both before and after taking account of early experience of acute illness such as repeated ear and throat infections. Even for chronic conditions the unadjusted and adjusted odds were similar: 2.19 (95% CI 1.58 to 3.06) and 2.13 (95% CI 1.53 to 2.97) for men, 3.11 (95% CI 2.31 to 4.20) and 3.08 (95% CI 2.28 to 4.17) for women.

The contribution of ill-health later in childhood and adolescence towards class differences in self -rated health at 23 is shown in Table 3. Adjusting for school absence due to ill- health at age 11 gave results similar to the unadjusted values, although adjusting for the same variable at age 16 produced a reduction in odds for both men and women: that is, from 2.48 (95% CI 1.73 to 3.59) to 2.23 (95% CI 1.55 to 3.23) and 3.18 (95% CI 2.30 to 4.39) to 2.87 (95% CI 2.08 to 3.99) respectively. For the other health and development indicators differences between the unadjusted and adjusted relative odds were smaller, although significant interactions ($p<0.05$) denoted complex relationships between height and stage of puberty and social class. Among women, for instance, the odds of rating health as 'poor' or 'fair' in classes IV and V relative to classes I and II were similar for those with shorter and medium stature at age

7, but 1.5 times greater in the taller group. In men, the relative odds between these social classes were three times greater among those with the shortest stature at age 16 than among the tallest. This is consistent with the interactions which occurred when stage of puberty was considered, since the relative odds were again three times greater in those rated as less advanced in their physical development ('immature') at age 16 than the more advanced ('mature').

The malaise was used as a second indicator of health at age 23 in addition to self-rated health. Relative odds of having a high score, which has been taken to indicate depression, are shown in Table 4. In general the odds of being depressed in classes IV and V relative to classes I and II were higher than those for self - rated health, reflecting the steeper gradients for this indicator in Figure 1. Findings for self -rated health and malaise were similar, however, in relation to childhood ill-health: that is, after adjusting for ill-health up to age 7 the relative odds of high malaise scores at age 23 remained largely unaffected. Height measured at age 7 was an exception to this general trend with reductions from 2.78 (95% CI 1.71 to 4.51) to 2.48 (95% CI 1.52 to 4.04) in the relative odds for men and 5.38 (95% CI 3.83 to 7.54) to 5.12 (95% CI 3.65 to 7.17) in women. More specifically, controlling for shorter stature (that is, heights in the lowest quartile of the distribution) at age 7 resulted in reduced relative odds of depression at age 23.

There were reductions in class differences in the malaise after taking account of height at older ages, 11 and 16 (Table 5). These were smaller than the reductions after adjusting for school absence for ill - health at age 16; from 3.26 (95% CI 1.93 to 5.49) to 2.85

(95% CI 1.69 to 4.82) and 5.03 (95% CI 3.52 to 7.20) to 4.62 (95% CI 3.22 to 6.61) for men and women respectively.

Among men, adjustment for ascertained handicap at age 16 resulted in a reduction in relative odds for both self - rated health and malaise (Tables 3 and 5). Adjustment for this factor in women resulted in increased odds. This may have arisen because of the small number of handicapped women included in the analyses (Table 1).

For illustrative purposes we also present results for indicators of other potential explanations of class differences in health. In relation to these, the contribution of earlier health indicators did not appear to be especially important (Table 6). Greater reductions in relative odds of 'depression' occurred as a result of taking account of smoking behaviour at age 16 although the reductions for rating health as 'poor' or 'fair' were similar to those for school absence through ill-health at age 16. Accounting for the proportion of time respondents had been unemployed since finishing full-time education also achieved greater reductions in relative odds especially among young men.

Discussion

This paper has focussed upon one of a range of possible explanations

This paper has focussed upon one of a range of possible explanations for social inequalities in health, that is previous experience of ill - health. The contribution of this potential influence has been assessed in relation to the development of class differences in the reported health of a sample of young adults and conclusions must be restricted to inequalities which have developed by this stage. In addition, analyses were confined to study members with complete information on health and who could be allocated to a social class at age 23. While this limitation can be overcome to some extent by using alternative measures of socio-economic status (7) not all biases can be restricted in this way.

Given these considerations, analyses presented here suggest that previous health and development, especially early in childhood, does not appear to be an important explanation of class inequalities. This conclusion was reached not solely in relation to self - rated and emotional health in early adulthood but also to other indices (hospital admissions, psychiatric morbidity and height) at age 23. The one exception occurred in analyses of class differences in short stature at age 23 in which adjusting for height at ages 7 and 11 resulted, not surprisingly, in marked reductions in relative odds. Details of these further analyses are given in the Appendix.

There are several explanations as to why health in early life may not provide an important contribution towards class inequalities in health in early adulthood. Firstly, many conditions experienced in

childhood and adolescence are relatively minor and self - limiting. We would not expect, therefore, such problems as acute ear and throat infections to exert a longer term effect upon class differences in health.

Secondly, groups affected by potentially lasting and serious conditions may experience downward social mobility (5) but in order for this to make an important contribution towards health inequalities at age 23, those who were socially mobile would need to be substantially different in terms of health from those who were stable. Not just different from the group they were leaving but also different from the group they were joining. At the same time they would need to be numerous enough to influence levels of morbidity in each social class. Previous work on the cohort (6,7) and the numbers with chronic conditions (Table 1) suggest that this was not the case in this cohort of young people.

Thirdly, whilst adjustment for previous ill-health did result in reduction of class differences in health the magnitude of these reductions needs to be put into context. Differences between the unadjusted and adjusted relative odds were smaller than variations in unadjusted relative odds which occurred as the number of respondents with complete information differed for each index of ill - health. Also the reduction of class inequalities in health associated with previous experience of ill - health appeared to be smaller than those for measures selected to represent other potential areas of

explanation. These comparisons were preliminary but they did suggest that aspects of socio-economic circumstances, such as unemployment, and health related behaviour such as smoking made greater contributions towards health inequalities among young adults.

In view of the wider range of indicators used to characterise health in childhood compared with adolescence, our conclusions regarding the contribution of previous health and development to later class differences in health are more pertinent to the influence of childhood health and tentative in relation to adolescence. Fewer indices were used to characterise the latter and they were also cruder. School absence, for example, which according to the parents of the study members resulted from ill-health could, nevertheless include unjustified absenteeism. This is likely to have been a greater problem at age 16 than age 11 (16). A further limitation of this indicator is that it gives no idea of severity of ill -health since it could represent a high level of minor illness.

So far, our analyses are also limited to a few indices of health in early adulthood. Summary measures of health status are, however, difficult to obtain for a period in the lifespan that is considered to be relatively healthy and it is not yet clear which measures will be associated with health at older ages. The indices used here, therefore, were intended to represent current health status and only one of several suggested dimensions (17) have been included. We recognise that analyses need to be extended since it is possible that

the contribution of previous health to later inequalities may vary using alternative measures.

On the basis of the results presented here, our preliminary conclusion is that health and development, especially early in childhood, do not appear to be important in explaining class inequalities in health in young adults. This conclusion remains tentative until more comprehensive analyses of other potential explanations ('inheritance' at birth, socio - economic circumstances, education and training and health behaviour) have been completed.

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Figure 1: Class and tenure gradients in self-rated health and 'malaise' at age 23.

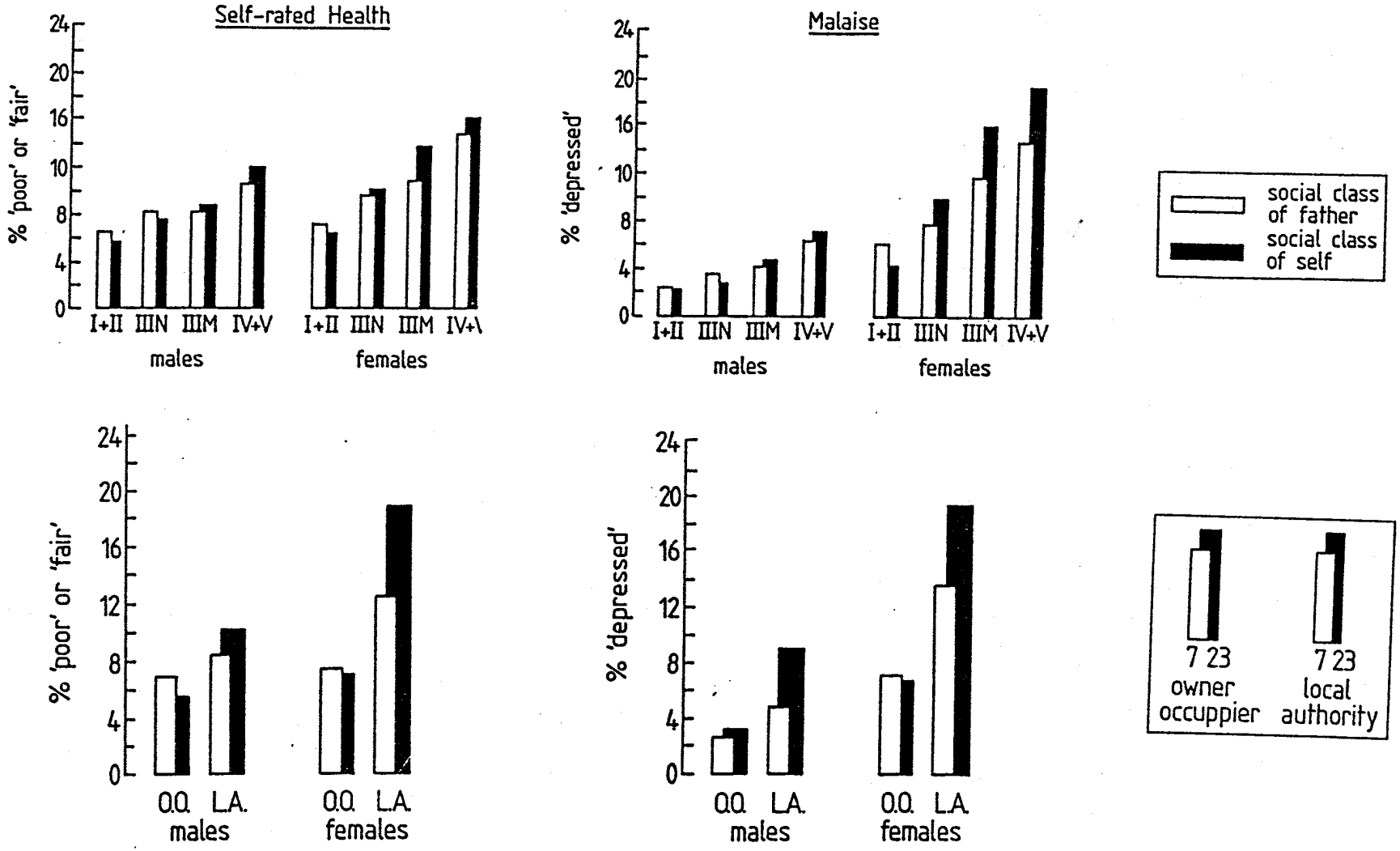

Table 1: Number of respondents for each indicator of ill-health (based on population with data on social class and self-rated health at 23)

Indicator of ill-health	Boys No.(Base Pop.)	Girls No.(Base Pop.)
Age 0 to 7:		
Ear and throat problems	1866 (4696)	1873 (4476)
Other acute illness*	843 (4819)	923 (5037)
Asthma/bronchitis	1049 (5135)	835 (5326)
Allergies	657 (4982)	633 (5151)
Chronic condition	785 (4995)	689 (5174)
Psychosocial	766 (4970)	623 (5144)
Psychosomatic	1473 (5117)	1579 (5315)
Ages 11 to 16:		
More than one weeks school absence due to ill-health: age 10-11	1792 (5010)	2072 (5183)
age 15-16	1766 (4404)	2262 (4528)
Ascertained handicap	92 (4429)	48 (4538)
Puberty rating 'immature'	1601 (4245)	852 (4317)

*Excludes common childhood infectious illness.

Table 2: Relative odds of subjects rating their health as 'poor' or 'fair' (classes IV + V versus I + II) adjusting for health up to age 7

Indicator of health and development	Men		Women	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Ear and throat illness	2.12	2.12	3.29	3.30+
Other acute illness	2.21	2.22	3.12	3.10
Asthma/bronchitis	2.10	2.13+	3.10	3.06
Allergies	2.07	2.10	3.15	3.16
Chronic condition	2.19	2.13	3.11	3.08
Psychosocial	2.07	2.08	3.16	3.08+
Psychosomatic	2.11	2.11	3.11	3.06
Height	2.27	2.14+	3.23	3.05

+ Significant interactions ($p<0.05$)

Table 4: Relative odds of 'depression' (classes IV + V versus I + II) adjusting for health up to age 7

Indicator of health and development	Men		Women	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Ear and throat illness	2.86	2.86+	5.65	5.65
Other acute illness	2.68	2.68	5.16	5.13
Asthma/bronchitis	2.81	2.82	5.30	5.26
Allergies	2.78	2.80+	5.42	5.41
Chronic condition	3.02	2.97	5.39	5.34
Psychosocial	2.91	2.83	5.44	5.23
Psychosomatic	2.92	2.92	5.31	5.23+
Height	2.78	2.48	5.38	5.12

+ Significant interactions ($p<0.05$)

Table 5: Relative odds of 'depression' (classes IV + V versus I + II) adjusting for health later in childhood and adolescene

Indicator of health and development	Men		Women	
	Crude	Adjusted	Crude	Adjusted
At age 11:				
School absence due to ill-health	3.21	3.11	5.55	5.47
Height	2.97	2.82	5.62	5.33
At age 16:				
School absence due to ill-health	3.26	2.85	5.03	4.62
Ascertained handicap	3.54	3.16	4.06	4.36
Height	3.58	3.36	5.56	5.35
Puberty	3.20	3.13	5.85	5.87+

+ Significant interactions ($p<0.05$)

Table 6: Relative odds of rating health as 'poor' or 'fair' and 'depression' (classes IV and V versus I and II) adjusting for earlier health behaviour and educational achievement

Explanation	Self-rated health				'Depressed'			
	Men		Women		Men		Women	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Health behaviour								
Smoking habits at 16	2.27	1.99	3.05	2.82	3.74	3.13	5.13	4.47
Socio-economic conditions								
Unemployment*	2.33	1.90	2.98	2.66	3.32	2.52	5.20	4.65

* proportion of time since finishing full-time education.

Appendix

The contribution of earlier health and development towards later class inequalities in health was assessed in respect of three additional indicators of ill-health at age 23. These indicators - psychiatric morbidity, hospital admissions and height - have been used in previous analyses which have shown stronger gradients for height than for psychiatric morbidity and hospital admission (Fogelman et al, 1987).

Using methods described in detail in the paper, analyses were extended to the three additional indicators which were defined as follows:-

(a) Psychiatric morbidity (but excluding mental handicap) between ages 16 and 23, derived from answers to questions in the 23-year interview on health problems which had required regular medical supervision, hospital admission, or specialist consulation.

(b) Hospital admission between the ages of 16 and 23 which involved an overnight stay on more than one occasion (reported by the subjects at 23); and

(c) Self-reported height at 23, summarised by the proportion who were 'short', defined here as falling below 1.676 metres for men and 1.524 metres for women, the lowest deciles for each sex.

Tables A to C give the odds of these characteristics in classes IV and V relative to classes I and II both before and after adjusting for earlier health and development. For each of the three indicators at age 23, adjusting for a variety of conditions early in childhood did not achieve any notable reduction in the relative odds. The only exception occurred when accounting for height at age 7 in class differences in short stature at age 23 (Table C). In this case, the reduction in relative odds was marked from 2.45 to 1.58 in men and 2.35 to 1.49 in women, as it was at age 11 (2.31 to 1.59 and 2.31 to 1.69 respectively). Class differences in short stature did not appear to be affected by any other measures of previous health status.

Adjusting for school absence for reasons of ill-health at age 16 did, however, produce a reduction in the relative odds of psychiatric morbidity for women, although this was small; from 2.65 to 2.45

(Table A). Whereas adjusting for ascertained handicap at 16 increased the relative odds for women and reduced them for men. As mentioned earlier in the paper this may have arisen because of the small number of handicapped women included in the analysis (Table 1).

Table B suggests that class differences in hospital admissions (which were small in comparison to those for other indices of health at age 23) were as unaffected by health later in childhood and adolescence as by that early in childhood.

In summary, apart from the substantial contribution made by height in childhood towards class differences in short stature at age 23, previous experience of ill-health was not an important explanation of class differences in psychiatric morbidity, hospital admissions and short stature at age 23.

Table A: Relative odds of psychiatric morbidity between ages 16 and 23 (classes IV + V versus I + II) adjusting for health up to age 7

Indicator of health and development	Men		Women	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Age 0 to 7:				
Ear and throat illness	1.82	1.80	2.26	2.26
Other acute illness	1.89	1.89	2.41	2.40
Asthma/bronchitis	1.86	1.86	2.51	2.50
Allergies	2.00	2.04	2.42	2.41+
Chronic condition	2.15	2.11	2.39	2.38
Psychosocial	2.19	2.08	2.44	2.39
Psychosomatic	1.92	1.92	2.52	2.47
Height	2.04	1.96	2.43	2.50
At age 11:				
School absence due to ill-health	1.98	1.93	2.50	2.46
Height	2.08	2.03	2.56	2.51
At age 16:				
School absence due to ill-health	1.63	1.59	2.65	2.45
Ascertained handicap	1.76	1.56	2.13	2.67+
Height	1.93	1.94	2.92	2.98
Puberty	1.85	1.86+	2.88	2.88+

+ Significant interactions ($P<0.05$)

Table B: Relative odds of more than one hospital admission between ages 16 and 23 (classes IV + V versus I + II) adjusting for health up to age 7

Indicator of health and development	Men		Women	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Age 0 to 7:				
Ear and throat illness	1.42	1.42	1.58	1.58
Other acute illness	1.30	1.30+	1.57	1.55
Asthma/bronchitis	1.29	1.28	1.53	1.52
Allergies	1.29	1.30	1.52	1.52
Chronic condition	1.28	1.27	1.38	1.39
Psychosocial	1.30	1.29	1.51	1.47
Psychosomatic	1.34	1.34	1.53	1.52
Height	1.23	1.27+	1.55	1.56
At age 11:				
School absence due to ill-health	1.39	1.37	1.57	1.53
Height	1.26	1.19	1.61	1.60
At age 16:				
School absence due to ill-health	1.27	1.18	1.38	1.28
Ascertained handicap	1.28	1.26	1.30	1.27
Height	1.69	1.76	1.47	1.47
Puberty	1.56	1.57	1.51	1.50

+ Significant interactions ($P<0.05$)

Table C: Relative odds of ''short' stature (classes IV + V versus I + II) adjusting for health up to age 7

Indicator of health and development	Men		Women	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Age 0 to 7:				
Ear and throat illness	2.57	2.57	2.51	2.51
Other acute illness	2.49	2.50	2.37	2.37
Asthma/bronchitis	2.35	2.36	2.52	2.51
Allergies	2.37	2.37	2.44	2.43
Chronic condition	2.46	2.43	2.50	2.48
Psychosocial	2.41	2.40	2.43	2.36+
Psychosomatic	2.39	2.39	2.48	2.49
Height	2.45	1.58	2.35	1.49
At age 11:				
School absence due to ill-health	2.22	2.23	2.52	2.53
Height	2.31	1.59	2.31	1.69+
At age 16*:				
School absence due to ill-health	1.80	1.79	2.34	2.32
Ascertained handicap	1.84	1.68	2.35	2.25
Puberty	2.05	1.99	2.48	2.45

*At age 16 height was not used as an indicator of development, since women in particular and many men would have achieved their adult height by this age.

+ Significant interactions ($P<0.05$)

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N A T I O N A L C H I L D D E V E L O P M E N T S T U D Y

The National Child Development Study (NCDS) is a continuing longitudinal study which is seeking to follow the lives of all those living in Great Britain who were born between 3 and 9 March, 1958.

It has its origins in the Perinatal Mortality Survey (PMS). This was sponsored by the National Birthday Trust Fund and designed to examine the social and obstetric factors associated with the early death or abnormality among the 17,000 children born in England, Scotland and Wales in that one week.

To date there have been four attempts to trace all members of the birth cohort in order to monitor their physical, educational and social development. These were carried out by the National Children's Bureau in 1965 (when they were aged 7), in 1969 (when they were aged 11), in 1974 (when they were aged 16) and in 1981 (when they were aged 23). In addition, in 1978, details of public examination entry and performance were obtained from the schools, sixth-form colleges and FE colleges.

For the birth survey information was obtained from the mother and from medical records by the midwife. For the purposes of the first three NCDS surveys, information was obtained from parents (who were interviewed by health visitors), head teachers and class teachers (who completed questionnaires), the schools health service (who carried out medical examinations) and the subjects themselves (who completed tests of ability and, latterly, questionnaires). In addition the birth cohort was augmented by including immigrants born in the relevant week in the target sample for NCDS1-3.

The 1981 survey differs in that information was obtained from the subject (who was interviewed by a professional survey research interviewer) and from the 1971 and 1981 Censuses (from which variables describing area of residence were taken). Similarly, during the collection of exam data in 1978 information was obtained (by post) only from the schools attended at the time of the third follow-up in 1974 (and from sixth-form and FE colleges, when these were identified by schools). On these last two occasions case no attempt was made to include new immigrants in the survey.

All NCDS data from the surveys identified above are held by the ESRC Data Archive at the University of Essex and are available for secondary analysis by researchers in universities and elsewhere. The Archive also holds a number of NCDS-related files (for example, of data collected in the course of a special study of handicapped school-leavers, at age 18; and the data from the 5% feasibility study, conducted at age 20, which preceded the 1981 follow-up), which are similarly available for secondary analysis.

Further details about the National Child Development Study can be obtained from the NCDS User Support Group.