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CLASS AND TENURE MOBILITY, DO THEY EXPLAIN SOCIAL INEQUALITIES IN HEALTH AMONG YOUNG ADULTS IN BRITAIN?

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Abstract

We have used housing tenure as an index of socio-economic status in extending our previous analyses of the relationships between socio-economic differences in health at 23 and socio-economic circumstances earlier in life. By focussing separately on subjects whose circumstances changed and those whose circumstances remained stable we have investigated whether health-related mobility occurs, its magnitude and its importance to net differences observed at 23. These analyses support hypotheses that subjects who have been upwardly mobile between ages 16 and 23, in terms of social class or housing tenure, are on the whole healthier than those subjects who had been downwardly mobile. This was most marked for emotional health ('malaise') and self-rated health. Weaker evidence is found supporting hypotheses that young adults whose parents were upwardly mobile before the subject was 16 were healthier than those whose parents were not. These findings do not, however, explain the socio-economic differences observed at 23. Indeed, the health of subjects whose circumstances were stable were found to differ between socio-economic groups as much, if not more than that of those who were mobile.

1. Introduction

The debate about mechanisms underlying social inequalities in health has gathered momentum since the publication of the Black report (DHSS 1980) and a new decennial supplement on occupational mortality (OPCS 1986). Both reports contain evidence which suggests that differences in mortality between social classes are as wide, if not wider, now than at any time this century. The Black Report indicated that health differences between social classes are usually attributed to a combination of artefact, social selection, material circumstances and health behaviour. These groupings have been elaborated upon by a number of authors (eg. Carr-Hill 1985; Illsley 1986; Wilkinson 1986). The debate is

principally concerned with which explanation is the most important and what are the policy implications for those wishing to reduce these differences.

In an earlier paper, we suggested a model of influences upon an individual's health which incorporates a wide range of circumstances and experiences (Power et al 1986). These influences are grouped under the headings of 'inheritance' at birth, socio-economic circumstances, education and training, and health behaviour. A complex network of interactions is envisaged with causal paths operating within and between influences in both directions, not only between each set of factors, but also between each of them and the individual's health status. We also suggested that the relative weighting of each set of explanations should be expected to vary with the individual's age.

We have explored this model using data from the National Child Development Study (NCDS), a longitudinal study of a cohort of young adults born in one week in March 1958. This source allows us to look at relationships during childhood and early adulthood using a variety of different indicators of both socio-economic circumstances and health. Our previous paper investigated the contribution of selective social mobility to the development of inequalities in health in early adulthood. These preliminary analyses showed clear differences in health and health potential between social classes irrespective of whether class was measured at birth, at 16 or at 23 years of age. Social mobility within and between generations was related to height but this did not explain the differences in height between social classes at 23.

In the present paper these analyses are extended by focussing more closely on the health of specific groups of people who were either mobile or stable in terms of their social class. Analyses of social class differences in health at 23 which controlled for social class in childhood are presented for a wider range of health indicators than published previously. We also investigate whether conclusions would be similar using housing tenure as an alternative indicator of socio-economic circumstances and social position during childhood and early adulthood. By broadening the range of health and socio-economic indicators used we hope to obtain a clearer understanding of which conclusions might be more widely generalisable.

2. Subject and methods

Sample and measures

The NCDS and most of the variables in these analyses have been described in detail in our previous paper and elsewhere (see Davie et al 1972; Fogelman 1983; and Shepherd 1985). NCDS is a longitudinal study of all people in Great Britain who were born in the week 3-9 March, 1958. Following the original perinatal study (Butler and Bonham 1963), the National Children's Bureau studied the cohort at ages seven, 11, 16 and 23. During the school years information was obtained by means of parental interviews, medical examinations, school questionnaires, attainment tests and personal questionnaires. A substantial personal interview was conducted when the cohort was 23.

The present analyses draw on information about:

Socio-economic measures:

(a) Social class at birth and 16, based on the father's occupation at the time of follow-up (individuals with no male of household were excluded from the analyses);

(b) Social class at 23, based on the subject's current or most recent occupation;

(c) Housing tenure at seven, 16 and 23, classified as 'owner-occupier', 'local authority tenant', 'private rented tenant' or 'other' (information on housing tenure was not collected at birth);

Health measures

(d) 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.

(e) 'Malaise' inventory score, at 23 derived from a self-completed screening instrument on which scores of seven or more have been suggested to indicate depression (see Rutter et al 1970; Rutter et al 1976);

(f) Self-rated health at 23, described as either 'excellent', 'good', 'fair', or 'poor'; represented in the figures and tables as the proportion with the latter two responses;

(g) Hospital admissions between the ages of 16 and 23 which involved an overnight stay on more than one occasion

(reported by the subjects at 23); and

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

Response patterns

A total of 12,537 people were successfully retraced and interviewed when they were 23. This represents 76% of all those members of the study who were alive and still living in Britain. Analyses of response have been reassuring (see, for example, Shepherd, 1985). Those remaining in the study at 23 tend to be more often from middle class backgrounds, and to have grown up in smaller families and better housing circumstances. However, such contrasts with non-respondents are usually small. A more serious bias at 23 is a substantial under-representation of those from ethnic minority backgrounds.

The data analysed here are drawn from several stages of the study. Only individuals with information on all relevant variables have been included and as a result there is a substantial reduction in the sample size. Response analyses demonstrate that subjects with information on relevant combinations of variables differ only trivially from the original cohort. For example, of the 16,969 individuals whose father's occupation at the time of their birth is known, 17.0% were in Social Classes I or II, and 21.3% were in Classes IV or V. Just over eight thousand subjects have 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. Similarly, for those with data on housing tenure at ages 7, 16 and 23, 17.4% were in classes I or II and 20.6% in classes IV or V at birth.

Perhaps more surprisingly, there is little difference in response patterns according to whether the subjects' fathers were socially mobile. For example, of those whose fathers were in the same social class at the time of the subject's birth as when they were 16, 79.6% have data on their own social class at 23. For those in a lower social class when the subject was 16 than at birth, 78.9% have data at 23 as compared with 78.8% for those who were in a higher social class.

Although such figures do not guarantee that the underlying relationships in which we are interested would not differ for those with missing data, they do suggest that this

is unlikely.

3. Social mobility, stability and health

Social class at birth and 23

We have already shown the extent of mobility during childhood and subsequent intergenerational mobility (Power et al, 1986). The pattern to emerge which was of particular interest from the point of view of social mobility and health was the surprisingly high proportion of the sample who had stayed in the same social class at birth, 16 and 23. Of the 647 sons and 671 daughters of men in Social Classes I and II at the time of the child's birth, 336 (51.9%) and 441 (65.7%) were in Social Classes I and II at 16 and were in non-manual occupations at 23. Nearly one third (589) of the 1,902 sons of fathers in Social Class IIIM at birth were in Social Class IIIM at 16 and 23. Nearly one third of the daughters of men in this class at their birth remained in the class till 16 and were subsequently found in Social Class IIIN.

The relationship of health and health potential to social mobility was also examined in this earlier analysis and clear differences were found irrespective of whether social class was measured by father's occupation at the time of birth or by own social class at age 23. Those in lower, less skilled social classes reported worse health at 23 for most of the health indicators (Figure 1). The differences observed for malaise, self-rated health and height appeared to be greater than those found for psychiatric morbidity and hospital admissions. Differences were greater and more consistent for women than men. For most health measures, but not for height, they appeared stronger in relation to current social class than in relation to social class at birth.

Housing tenure at seven and 23

Parental housing tenure was not recorded at the birth of the NCDS member but from seven onwards it also suggests marked stability during childhood (Table 1). Over 90% of subjects who were in owner occupied accommodation at seven were in owner occupied accommodation at 16 and over 80% of subjects who were in local authority accommodation at seven were in local authority accommodation at 16. Parents in privately rented accommodation when the cohort member was aged 7 were likely to move in approximately equal proportions into owner occupation or local authority tenure by the time their child was aged 16.

While during childhood the category 'other' comprised mainly subjects in institutions or accommodation tied to their

parent's occupation, at 23 it consisted mainly of respondents who were still living in their parental home. Classification by own tenure is therefore meaningful only when based on those who had left their parents' home by age 23. Also, for the majority of young people in privately rented accommodation this would be a transient situation and they can be expected to have moved into owner occupation or local authority tenure subsequently. For these reasons our analyses of relationships between health and health potential and housing tenure at ages seven, 16 and 23 are restricted to comparisons between those subjects who at 23 were already owner occupiers or local authority tenants (33% of men and 55% of women). However, in view of differences between socio-economic groups in the rates of leaving home and in marrying (Kiernan, 1986), this is not a representative sample of the whole cohort.

Turning now to differences in health between tenure groups, Figure 2 shows marked and consistent differences between owner occupiers and local authority tenants for the five health measures used in our earlier work, with owner occupiers having generally better health at 23. The only exception to this is psychiatric morbidity for men classified by housing tenure at age 7. Otherwise, differences appear to be similar to the social class differences shown in Figure 1. In general, housing tenure at 23 is a better discriminator of health than housing in childhood, with the exception of height. As in Figure 1, the greatest differences are observed for malaise and self-rated health, and for female rather than male subjects. Although part of the differences between young men and young women may be related to the relative proportions of each sex in local authority and owner occupier housing at age 23, the similarity with observations by social class lends some credence to this pattern.

Similar patterns of differences in health are observed when subjects are classified by socio-economic status early in childhood and at age 23, but with generally more distinct differences by status at 23 than in childhood. We now explore what patterns are observed for subjects whose socio-economic status remained stable and for those who were upwardly or downwardly mobile.

In what follows, we use the term 'stable' to refer to those whose class or tenure was the same across various combinations of points in their childhood (birth and 16 for class, 7 and 16 for tenure) and at 23 - the exact combination depending on whether we are examining stability during childhood or intergenerationally. Similarly, 'mobility' is used when class or tenure differed on these occasions. It must be acknowledged that this overlooks any additional changes which may have taken place between these points, but it seems reasonable to assume that other changes would not be

TABLE 1

Tenure at ages 7, 16 and 23 by sex (number with complete data)

		MEN					WOMEN				
		Tenure at 23					Tenure at 23				
Tenure	Tenure at 16	O.O.	L.A.	P.R.	Other	Total	O.O.	L.A.	P.R.	Other	Total
O.O.	O.O.	361	69	253	922	1605	657	100	275	566	1598
	L.A.	19	8	8	35	70	29	23	4	25	81
	P.R.	5	3	6	18	32	10	5	10	9	34
	Other	3	2	2	6	13	12	1	4	2	19
	Total	388	82	269	983	1720	708	129	293	602	1732
L.A.	O.O.	81	21	32	131	265	125	28	28	64	245
	L.A.	257	235	132	695	1319	445	399	138	402	1384
	P.R.	9	0	3	7	19	8	10	3	5	26
	Other	10	7	2	5	24	9	4	3	8	24
	Total	357	263	169	838	1627	587	441	172	479	1679
P.R.	O.O.	37	12	16	72	137	61	12	26	34	133
	L.A.	42	30	12	68	152	48	37	20	52	157
	P.R.	27	10	10	77	124	49	20	15	32	116
	Other	3	4	2	22	31	14	2	4	12	32
	Total	109	56	40	239	444	172	71	65	130	438
Other	O.O.	11	1	4	12	28	10	3	6	8	27
	L.A.	2	5	1	9	17	5	13	2	7	27
	P.R.	4	1	0	5	10	6	0	1	2	9
	Other	8	7	4	20	39	12	11	5	9	37
	Total	25	14	9	46	94	37	27	14	26	100
Total	O.O.	490	103	305	1137	2035	853	143	335	672	2003
	L.A.	320	278	153	807	1558	527	472	164	486	1649
	P.R.	45	14	19	107	185	73	35	29	48	185
	Other	24	20	10	53	107	47	18	16	31	112
	Total	879	415	487	2104	3885	1500	668	544	1237	3949

substantial enough to alter our conclusions.

The stable

Table 2 compares the health of those subjects in Classes I and II at birth, 16 and 23 with those in Classes IV and V. For men those in Class IIIM at each age are also presented. Since labour market opportunities for young women are different, data are presented for female subjects whose fathers were in Class IIIM during the subject's childhood and who were themselves in Class IIIN. For each of the health indicators the patterns are as expected with stronger differences in malaise, self-rated health and height than in psychiatric morbidity and hospital admissions, and more marked differences for women than for men.

Table 2 Health at 23 of those with stable social class at birth, 16 and 23.

Health Indicator	Social class at birth, 16 and 23					
	Men			Women		
	I + II (n=288)	IIIM (n=595)	IV + V (n=115)	I + II (n=209)	IIIM/N (n=631)	IV + V (n=115)
Height (% 'short')	2.7	11.9	13.0	5.3	9.4	19.2
Self-rated health (% 'poor' or 'fair')	4.8	9.1	11.3	4.8	8.6	15.2
Hospital admissions (% > 1)	3.5	3.7	5.2	6.2	8.6	12.8
Malaise (% 'depressed')	2.2	3.7	9.6	3.4	9.8	25.0
Psychiatric morbidity (% present)	3.5	2.7	5.2	4.8	5.2	8.8

Similar analyses are presented in Table 3 for subjects whose socio-economic circumstances, measured in terms of housing tenure, were stable during childhood and early adulthood. These suggest similar patterns of differences to those found when

social class was used as the index of socio-economic status.

It should be noted from Tables 2 and 3 that despite the fact that our tenure analyses are restricted to local authority tenants and owner-occupiers, the numbers in the stable groups are substantially greater than when Social Classes I and II are compared with Classes IV and V. Nevertheless, the differences between these two tenure groups are generally of similar magnitude to those between the extreme social classes.

Table 3 Health at 23 of those subjects with stable tenure at 7, 16 and 23

Health Indicator	Men		Women	
	Owner Occupiers (n=361)	Local Authority Tenants (n=235)	Owner Occupiers (n=657)	Local Authority Tenants (n=399)
Height (% 'short')	6.4	12.9	5.5	18.0
Self-rated health (% 'poor or fair')	5.0	9.8	5.6	20.4
Hospital admissions (% > 1)	3.9	7.2	7.9	16.3
Malaise (% 'depressed')	2.2	9.8	5.5	21.6
Psychiatric morbidity (% present)	1.1	2.1	4.3	11.0

The inter-generationally mobile

The above analyses indicate that broadly similar observations about socio-economic differences in health and health potential are apparent when analyses are restricted to those subjects whose socio-economic circumstances remained stable during their childhood and early adulthood as when differences are presented by characteristics at birth or at 23 for the whole sample. It may be the case, nevertheless, that subjects whose socio-economic circumstances changed had different patterns and that these patterns contribute to the

overall differences observed.

We consider first those whose own social class at 23 was different to that of their fathers during their childhood. In order to hold constant the effect of father's social class, we focus on those whose fathers were in Class IIIM when the subject was born, and were still in the same class when the subject was 16. We then look at the health differences observed according to the pattern of inter-generational mobility (Table 4).

For both young men and young women, those in a higher social class at 23 than during their childhood reported better health than those in a lower social class at 23 than during childhood. For comparison, those in Class IIIM (IIIN for women at 23) throughout their lives are shown again in Table 4, and it can be seen that usually, but not always, they fall between the upwardly and downwardly mobile. For young men the largest differences are for malaise, self-rated health and height; for young women they are for malaise, self-rated health and psychiatric morbidity.

Table 4 Health at 23 and intergenerational mobility from Social Class IIIM

Health Indicator	Mobility between social class in childhood and age 23*					
	Men			Women		
	Upwards (n=194)	Stable (n=595)	Downwards (n=231)	Upwards (n=210)	Stable (n=631)	Downwards (n=264)
Height (% 'short')	5.2	11.9	12.3	10.0	9.4	14.8
Self-rated health (%'poor' or 'fair')	4.1	9.1	13.4	5.2	8.6	16.3
Hospital admissions (% > 1)	5.2	3.7	7.8	11.9	8.6	12.9
Malaise score (% 'depressed')	1.5	3.7	7.4	6.2	9.8	16.7
Psychiatric morbidity (% present)	3.6	2.7	6.5	3.8	5.2	10.6

* includes those in class IIIM at birth and age 16

These data confirm that intergenerational mobility is associated with differences in the health of upwardly and downwardly mobile groups. For men the magnitude of these differences is generally similar to those observed in Table 2 between subjects who remained stable to age 23. For women the differences observed for height, hospital admissions and malaise are substantially wider for the stable than the mobile, but for psychiatric morbidity they are greater for the mobile.

In our analyses based on inter-generational changes in tenure we define upward mobility in terms of movement from local authority tenure to owner occupation and downward mobility as movement from owner occupation to local authority tenure.

In Table 5, there is no obvious evidence that downwardly mobile subjects are shorter than upwardly mobile subjects. Equally there is little difference in the proportions of upwardly and downwardly mobile men who had had more than one hospital admission. However, for other health indicators there are clear differences to support the hypothesis that subjects who were upwardly mobile between 16 and 23 were healthier at age 23 than those who were downwardly mobile.

Table 5 Health at 23 of those whose tenure changed between childhood and 23

Health Indicator	Tenure mobility between childhood and age 23			
	Men		Women	
	Upward* (n=257)	Downward+ (n=69)	Upward* (n=447)	Downward+ (n=100)
Height (% 'short')	9.4	10.5	10.8	8.1
Self-reported health (% 'poor' or 'fair')	4.7	10.1	7.6	15.0
Hospital admissions (% > 1)	2.3	2.9	7.0	13.0
Malaise (% 'depressed')	3.9	5.8	7.7	15.0
Psychiatric morbidity (% present)	0.8	8.7	4.7	9.0

* from local authority housing at ages seven and 16 to owner occupier at 23.

\+ from owner occupier housing at ages seven and 16 to local authority at 23.

However, the patterns in Table 5 are slightly different from those in Table 4. With the exception of men with psychiatric morbidity, the health differences between the mobile groups in terms of housing tenure tend to be smaller than for those groups which were mobile in terms of social class.

The mobile during childhood

So far, we have concentrated on intergenerational mobility, but the health of those whose parents were mobile during the subject's childhood is also of interest. Again, in the analysis of differences between social classes we focus only on

those whose fathers were in Social Class IIIM in 1958. Table 6 is further restricted to young men in Social Class IIIM and young women in Social Class IIIN at 23. This table shows health differences at 23 according to whether the father was in a higher, the same or a lower class when the subject was 16 than at the time of the subject's birth. The middle columns for each sex represent those subjects who were in this class at birth, 16 and 23, as in Tables 2 and 4.

Table 6 Health at 23 and social mobility during childhood for those in Class IIIM at birth and at 23* only.

Health Indicator	Mobility between birth and age 16					
	Men			Women		
	Upwards (n=101)	Stable (n=595)	Downwards (n=147)	Upwards (n=157)	Stable (n=631)	Downwards (n=133)
Height (% 'short')	3.0	11.9	13.6	6.4	9.4	7.5
Self-rated health (% 'poor' or 'fair')	6.0	9.1	8.8	12.1	8.6	9.7
Hospital admissions (% > 1)	5.0	3.7	5.4	12.1	8.6	12.8
Malaise score (% 'depressed')	3.0	3.7	4.1	6.4	9.8	9.8
Psychiatric morbidity (% present)	1.0	2.7	3.4	4.5	5.2	4.5

* Class IIIN for women at 23

The numbers of subjects experiencing upward mobility during their childhood is understated here because we have attempted to control for class at 23 by restricting this analysis to those who at 23 were in the equivalent class to that of their fathers when they were born. As shown in our previous paper, this is the most common experience. Within this restricted group, the differences in health between those subjects whose fathers were upwardly mobile and those who were downwardly mobile are relatively small (Table 6). The single exception is the proportion of young men who were short, which was substantially greater for those whose fathers were downwardly mobile. For each of the other health measures, suggestions of better health for those subjects whose parents were upwardly mobile, as compared with those whose parents were downwardly mobile, are weak.

In terms of housing tenure we have compared the health at 23 of subjects whose parents moved to and from owner occupation from when the subject was seven to when they were 16 (Table 7). The only suggestion that men benefitted from upward mobility during childhood is in the difference in the proportions with psychiatric morbidity between 16 and 23, but these differences are small in comparison with those noted in Table 5. Table 7 does, however, suggest that women whose parents moved into owner occupation were indeed healthier than those whose parents moved out of owner occupation.

Table 7 Health at 23 of those whose tenure changed during childhood

Health indicator	Tenure mobility between ages seven and 16			
	Men		Women	
	Upwards* (n=430)	Downwards+ (n=115)	Upwards* (n=405)	Downwards+ (n=134)
Height (% 'short')	11.2	11.4	8.2	15.8
Self-rated health (% 'poor' or 'fair')	9.8	10.4	10.6	15.0
Hospital admissions (% > 1)	4.0	1.7	11.4	10.5
Malaise (% 'depressed')	2.8	3.5	7.7	14.4
Psychiatric morbidity (% present)	4.9	7.0	6.2	9.0

* Owner occupiers at 16 but not at age seven

\+ Owner occupiers at 7 but not at age 16

These analyses of health in early adulthood and parental mobility appear to conflict in many respects. In both Tables 6 & 7 there is weak evidence supporting the suggestion that subjects whose parents were upwardly mobile during childhood tended to be taller and healthier at 23 than those whose parents were downwardly mobile. However, the patterns are inconsistent for each sex and for individual health indicators. To illustrate, use of social class suggested that in terms of height men benefitted from the upward mobility of their parents but not women; the opposite was the case when tenure was used as the index of socio-economic status. For women the patterns appear much weaker in relation to social class than to tenure, but for men, with the exception of height, they are equally weak for both measures.

The explanation for these differences may well lie in the select groups on which we have focussed in these analyses. For social class we have ignored here the height and health of subjects

born in social classes other than IIIM, ie nearly half the population. Similarly for tenure our analyses are based on an unrepresentative sub-set of the population (those who had moved out of the parental home), though less so for women than for men.

Health at 23 controlling for circumstances in childhood

The foregoing has demonstrated some relationships between social mobility and health in early adulthood. The question still remains of the extent to which these relationships explain the social gradient in health at 23. In this section we attempt to answer this by standardising the relationship between social position at 23 and health at 23 for earlier social position. This has been shown previously for one health measure only: that is height.

As regards the other measures, standardisation for earlier circumstances results in some reduction in the gradient at age 23, but this is by no means always substantial. For instance, ratios of observed and expected 'depressed' men were 0.56 and 1.62 in Classes I and II combined, and IV and V respectively. This narrowed to 0.65 and 1.45 after taking account of father's social class at birth and age 16. Controlling for earlier social class had not, therefore, totally 'explained' the class differences in the proportions of men 'depressed'.

The extent to which this applied to both sexes and each of the health and socio-economic measures is demonstrated in Table 8, which provides summary indices of the crude and standardised ratios. The index used, the Index of Dissimilarity (ID), measures the proportion of all cases which would need to be redistributed among the classes or tenure groups in order to achieve equal rates for all groups (Preston et al, 1981). It is calculated from the following formula:

$$\text{Index of Dissimilarity} = \sum_i \frac{|O_i - E_i|}{\sum_i O + \sum_i E}$$

where O_i and E_i are the numbers of cases observed and expected in each category and summation is over all categories used in the comparison.

A limitation of this index is the lack of any measurement of direction of inequality. The index can, for example, give the same answer when differences between socio-economic groups favour the better-off or poorer groups, or even when there is no

systematic pattern to the differences. This limitation is not critical here since the gradients are generally clear, from better health in Classes I and II to poorer health in Classes IV and V and, similarly, from owner occupiers to local authority tenants (Figures 1 and 2).

It should also be appreciated that the index weights according to the size of the groups being compared. In the case of the social class analysis, the largest groups are IIIM for men and IIIN for women. Since these are at the centre of the scale this property will tend to make the index relatively less sensitive to the values in the extreme groups. This limitation has to be taken into account when interpreting Table 8. The measure does have the advantage of using rates for all social classes and tenure groups, rather than, as is commonly practiced, just comparing the extremes.

Table 8 Index of dissimilarity, by sex and health indicator at 23: crude and standardised* for socio-economic circumstances during childhood

Health Indicator	Tenure		Social Class	
	Men	Women	Men	Women
Height (% short)				
crude	8.9%	14.7%	12.1%	14.8%
standardised	5.2%	9.5%	7.1%	10.8%
Self-reported health (% 'poor' or 'fair')				
crude	15.2%	23.9%	9.8%	12.7%
standardised	14.0%	19.2%	7.9%	10.4%
Hospital admissions (%>1)				
crude	18.9%	14.3%	5.9%	6.8%
standardised	18.5%	12.5%	3.9%	6.0%
Malaise (% 'depressed')				
crude	26.6%	27.1%	16.6%	17.3%
standardised	23.0%	21.0%	11.8%	14.6%
Psychiatric morbidity (% present)				
crude	39.9%	19.9%	8.1%	11.8%
standardised	43.6%	18.4%	7.5%	10.6%

* standardisation is based on data obtained at birth and 16 for social class and 7 and 16 for tenure.

The crude ID shown in Table 8, summarises the class and tenure differences shown in Figures 1 and 2 for the five indicators used throughout these analyses. The standardised ID is based upon the rates that would be expected from the distribution of, respectively, social class at birth and 16, and tenure at 7 and 16. The table shows, therefore, the effect of controlling for social position in childhood, and further, it provides an indication of the proportion of inequality in health at 23, which can be 'explained' by social position earlier in childhood.

Standardisation almost always reduces the ID, the single exception being psychiatric morbidity in men in relation to tenure. However, the reduction is rarely substantial.

It does appear that social gradients in height, and to a lesser extent 'malaise', are partially explained by the relationship with earlier circumstances, but the gradients of the other three measures of health considered here are almost independent of any additional effects of social position during childhood.

4. Discussion

In this paper we have built upon the preliminary ideas and results presented in our earlier paper (Power et al, 1986). By using housing tenure as an index of socio-economic status we overcome, at least in part, limitations arising from earlier use of social class alone. Housing tenure is itself limited by the relatively small, and biased, fraction of the cohort who by age 23 had already formed their own household; and also by the likelihood that subjects in privately rented accommodation would have moved to owner occupation or local authority tenure within a few years of the 1981 interview. The biases introduced in the tenure analyses are however different from those in analyses based on social class. In particular, there is a tendency for those in the most disadvantaged circumstances to marry and to set up their own household earlier in life than those from advantaged backgrounds, and consequently to feature in these analyses. As an illustration, subjects brought up by lone mothers would, if they had left home by age 23, be included in the analyses of tenure, but not of social class.

On the other hand, young women leave home earlier than young men, and this may confound some of the sex differences observed in the tenure analyses with differences which might be associated with earlier marriage and household formation.

The analyses we have presented do nevertheless make clearer

the extent to which selective social mobility, as described by Stern (1983), might influence relationships between socio-economic circumstances and health. Our analyses of health differences at 23 supported hypotheses that subjects who had been upwardly mobile, in terms of social class or housing tenure, between ages 16 and 23 were on the whole healthier than those who had been downwardly mobile. This was most marked and consistent for malaise and self-rated health. This conclusion is not likely to be affected by differences in the social origins of the mobile since class of origin was held constant by limiting the analysis to those born to fathers in Class IIIM. It remains possible, however, that different patterns could be found for those mobile from other social classes.

Evidence for a relationship between mobility of parents and socio-economic differences in the health of their children when they are young adults was less marked than the findings associated with intergenerational mobility. Again, there were inconsistencies: malaise among women, and to a lesser extent psychiatric morbidity, varying with mobility during childhood to a greater degree than other health indicators. The present analyses do not, however, rule out the possibility that differences in health may have been found if we had used other measures of health at 23 or health in childhood.

Overall, the evidence presented here which demonstrates the relationship between mobility and socio-economic differences in health at 23 does not necessarily mean that mobility explains differences in health at 23. These differences must first be compared with those observed for subjects whose socio-economic circumstances remained relatively stable throughout childhood and early adulthood. This is a large group for whom health inequalities are not influenced by mobility. It is striking to note, therefore, that the gradients observed for this group were generally as large as, if not larger than, those between subjects who had been upwardly or downwardly mobile, inter- or intra-generationally.

For social mobility to be an important determinant of inequalities in health at 23 those who were mobile would need to be substantially different in terms of health at 23 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 the weighted averages. Although the upwardly mobile tend to be healthier than the downwardly mobile, the analyses we have performed thus far suggest that the differences between the incomers to the extreme groups and those who had always been in the extreme groups are not such as to determine the differences between the extreme groups, irrespective of the numbers who are mobile.

This is most clearly shown by our analyses which standardised gradients at age 23 for social circumstances during childhood. For most of the five health measures there was a reduction in the gradient but there remained substantial differences in health at 23 which were not explained by the relationship with earlier social position.

Although the general direction of our findings is reasonably consistent, it is important to note that there are significant variations in detail according to which social measure or health measure was used, and between the sexes. Leon (1987), in a recent analysis of the social distribution of cancer, and Blaxter, in Chapter 11, have explained how indicators may represent different dimensions of socio-economic circumstances and health, respectively, and this is likely to be relevent to the measures used here. Consequently, some variation between the measures was to be expected. In particular, there was frequently a contrast between the patterns found in relation to height - a measure used in many studies as an indicator of general health in age groups upto early adulthood - and the other four health measures. In fact it is not surprising that a greater proportion of the differences in height between classes and tenure groups is explained by earlier circumstances. The other four health indicators can be taken to represent the more recent health experience of these young adults. Adult height, on the other hand, is likely to have been largely determined several years earlier, and thus be more influenced by earlier events and circumstances; genetic influences are also likely to have been greater (Foster et al, 1983).

Social inequalities in height and to a lesser extent malaise in early adulthood appear from our analyses so far to be partially explained by social position in childhood. This is not so for hospital admissions, self-reported health or psychiatric morbidity. However, these are not yet firm conclusions. There are other aspects of childhood experience, such as family situation and size, which may influence the patterns we have found.

We have continued to use simple statistical approaches at this exploratory stage. However, it is already clear that, as soon as we complicate our "model" further, and wish to quantify effects more precisely, more sophisticated multivariate approaches will be needed. In our further work we will build upon the tentative findings presented here and examine the mediating role of educational attainment between childhood circumstances, social position in adulthood and health, as well as the significance of health in childhood which must be expected to be a major influence on educational and occupational achievement and adult health.

Acknowledgements

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Figure 1

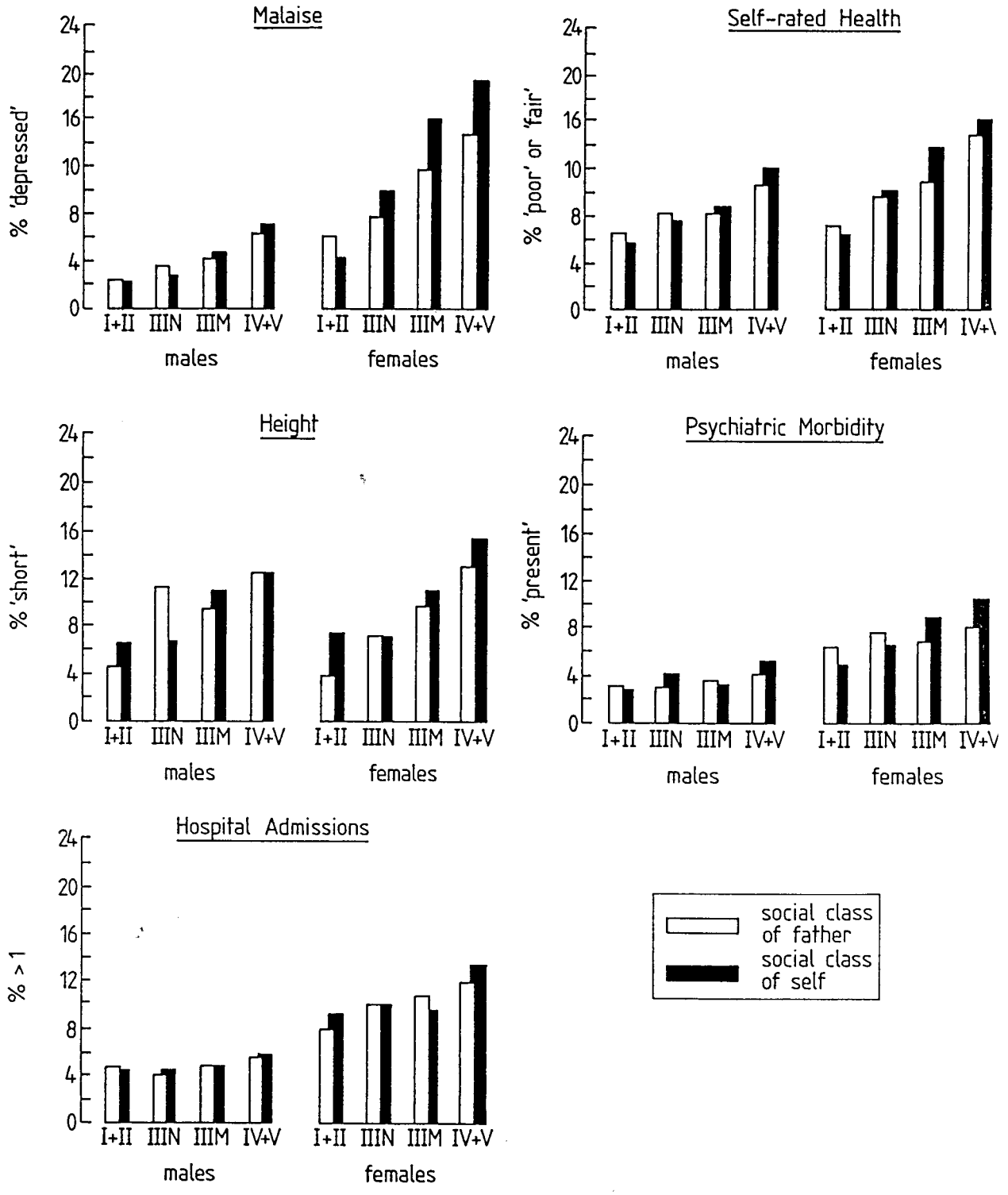
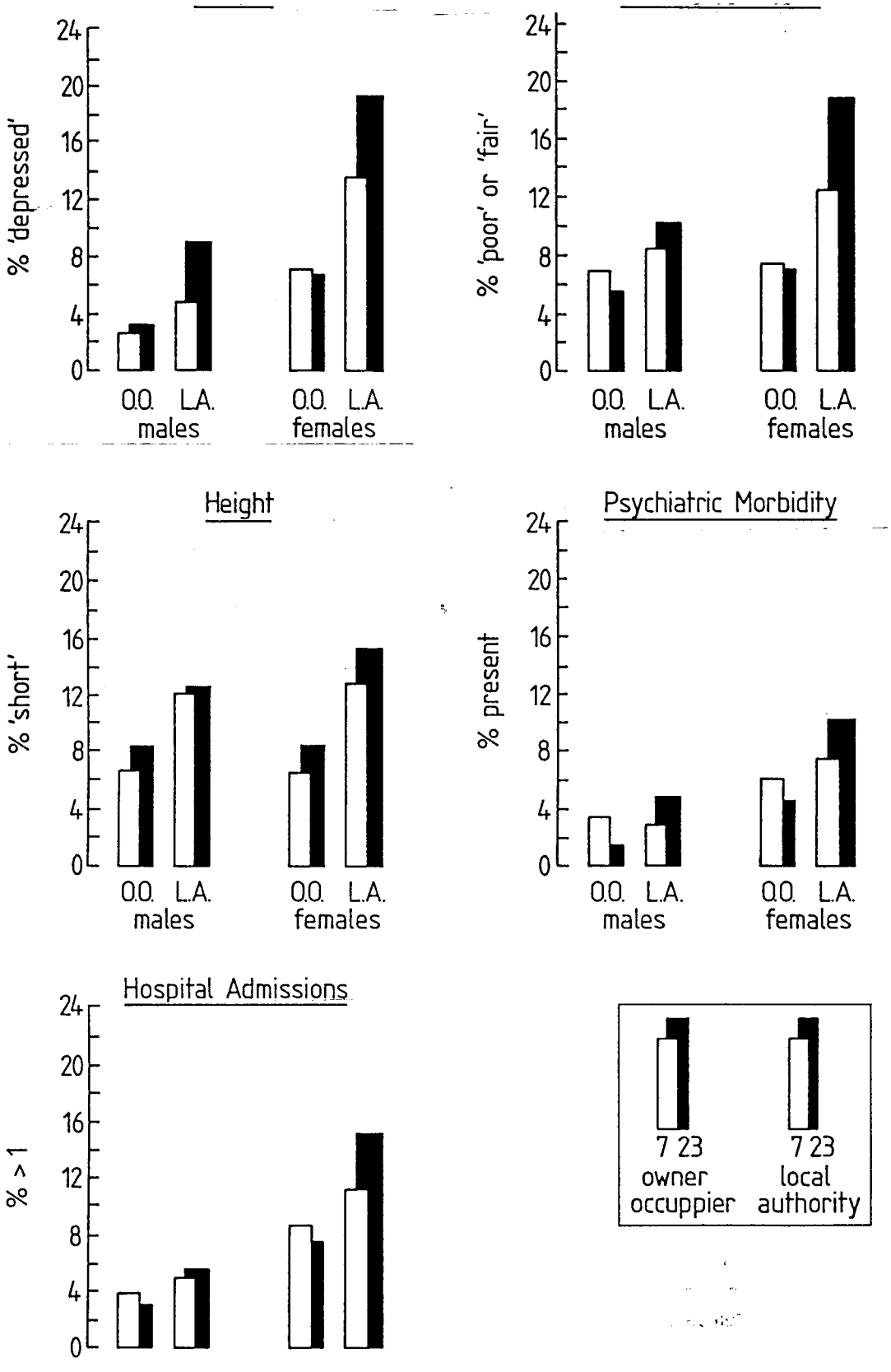

Malaise
% 'depressed'
Self-rated Health
% 'poor' or 'fair'
Height
% 'short'
Psychiatric Morbidity
% 'present'
Hospital Admissions
% > 1
24
20
16
12
10
8
4
0
I+II
IIIN
IIIM
IV+V
males
females
social class of father
social class of self

Figure 2


% 'depressed'
% 'poor' or 'fair'
Height
% 'short'
Psychiatric Morbidity
% present
Hospital Admissions
% > 1
24
20
16
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8
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0
O.O.
L.A.
males
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local authority

National Child Development Study User Support Group Working Paper Series.

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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 oorder 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.