

A LONGITUDINAL STUDY OF DEPRIVATION: LIFE CYCLE CHANGES IN ONE GENERATION - IMPLICATIONS FOR THE NEXT GENERATION

I.KOLVIN, F.J.W.MILLER, R.F.GARSDIE, F.WOLSTENHOLME, S.R.M.GATZANIS

INTRODUCTION

Between 1947 and 1962 Dr. F.J.W. Miller, Professor S.D.M. Court and their colleagues at the Department of Child Health, University of Newcastle upon Tyne, conducted a continuous medical and social study of a consecutive representative sample of Newcastle families, which has come to be known as THE THOUSAND FAMILY SURVEY. When, in the early Seventies, Sir Keith Joseph, then Secretary of State for Social Services, raised the question of 'a cycle of deprivation' from one generation to the next, it was possible that if these Newcastle families could be traced, the effects of 'deprivation' across generations could be measured for one urban community.

HISTORICAL INTRODUCTION

After the war, in 1946, in partnership with the City Health Committee, a study group from the University Department of Child Health began to plan a project which would answer the questions: "what types of infective illnesses occur in the first year of life?; what is their incidence?; what are the results?" After a year of preparation the study group chosen comprised all the infants born in the city between the 1st May and 30th June, 1947. As each baby was born, at home or in hospital, the parents were told of the study and asked if they would allow members of the team to visit their home and observe the progress of their infant. In all, 1142 babies were enrolled and only seven families withdrew their cooperation in the first year. A detailed description of planning and organisation is available in the report of the first year (Spence et al., 1954) and also in that of the first five years (Miller et al., 1960); although planned originally for one year only, in the event, the study continued for a second year, and then until the children reached school age.

In those five years, some families moved away from the city, and the risks of the first year were reflected in the number of deaths. Although the observer role was maintained, a close relationship developed between the families of the 'red spot' babies* and the health visitors and doctors of the study team. By the end of the fifth year, 847 families remained in the study. Throughout these years the research team made a series of studies of special groups of children, surveyed housing, collected records of growth (height and weight) and documented school achievement. In 1962, when all but a handful of children left their secondary modern schools, while about one-quarter stayed on in selective schools, the research team had continuous records of some 760 children and their families over fifteen years.

*From the beginning of the study all documents and correspondence were marked with a red stick-on legal seal - so that the infants soon became known as the 'red spots' and the study the 1000 Families

The report of the first year described the general pattern of illness in the first year of life, the care the children received and the environment in which they lived. The second report carried the process further, as the study group hoped to relate the incidence of illness and the growth of children to the quality of family life. To this end, by 1952, when the children were five years of age, the survey team isolated a series of factors which would be simple for students to observe and which would serve as markers of indices of family dysfunction and therefore of disadvantage for both the family as a unit and for each child or member. These factors form the basis of the present study. A synopsis of these early reports and the data relating to the school years were presented in 1974 (Miller et al.)

DEVELOPING CRITERIA OF DEPRIVATION

THE SIX MAIN CRITERIA OF DEPRIVATION - When the 'red spot' children were five years of age, six main areas of deprivation were delineated. The first five years of the six are identifiable at a later point in the life cycle, i.e. when the 'red spots' were ten years of age. The six criteria, their frequencies and subsections are:

A. Family/Marital Disruption	- i. Divorce/separation	14.5%
	ii. Marital instability	
B. Parental illness - Parent incapacitated by illness		12.2%
C. Defective Care of the Child	-i. Personal cleanliness	12.6%
	ii. Domestic cleanliness	
	iii. Poor clothing	
D. Social Dependence of the Family	- i. Debt	17.5%
	ii. Unemployment	
	iii. National Assistance	
E. Housing - Overcrowding		18.7%
F. Poor Maternal Capacity (Coping)		15.2%

Each family was given a score of 0 or 1 on each of the above criteria and their scores were added to give a total score of deprivation. The frequency with which each criterion was fulfilled ranged from 12% (parental illness/incapacity) to 19% (overcrowding) of the 847 families. Some families did not show any of the criteria of deprivation while others embraced all six. Conditions in 43% of families fulfilled at least one criterion and 14% at least three criteria. The greater the number of criteria exhibited by a family the greater the degree of deprivation.

COMPILATION OF DISADVANTAGED AND CONTROL GROUPS

All the children with evidence of 'deprivation' at the age of five years were identified by their records. Of the 847 families 482 scored zero (57%), i.e. had no criteria of disadvantage; 365 scored one or more (43%); and 116 scored three or more (14%) (see Table 1.) Samples of deprived children and control groups were selected as follows:

- a. Supercontrols: families in which there was no evidence of deprivation; this was a random sample of those families scoring zero (n = 63: 7.4% of 847)

- B. Random controls: a randomly selected group of families; these are representative of the 847 families in Newcastle in 1952 (n = 67: 7.9% of 847).
- C. Deprived Group: a 50% random sample of those families with at least one of the previously mentioned criteria (n = 185: 21.8% of 847).
- d. Multiply Deprived Group: a random sample of those families with at least three of the previously mentioned criteria (n = 78: 9.2% of 847).

We selected our groups in such a way that there was no overlap of the control groups with the deprived groups.

These groupings took into consideration two complementary views first, that each of the criteria of deprivation should be studied separately and hence in a reasonably pure form. Second, because 43% of the families had at least one criterion of deprivation, there was the danger that mild rather than significant deprivation would be emphasized; the use of a multiply-deprived group would constitute an insurance against this possibility.

The profile of deprivation in Figure 1 shows clearly the difference between the four groups with regard to each criterion.

CONCEPT OF CONTINUITY AND HYPOTHESES

In the strict sense, continuity can be defined as circumstances of deprivation which appear to repeat themselves in the next generation at an equivalent point in the life cycle. Alternatively, continuity can be used to describe the presence of certain criteria of deprivation at different points of the life cycle in the same generation.

However, a yet wider concept of continuity is that underprivileged family environment give rise to underfunctioning children, with poorer physical development and poorer social, behavioural and educational functioning in the school years. Further, such childhood underfunctioning will subsequently reveal itself, when the children become adults, as poorer emotional, social and economic functioning and also as a relatively poor ability to provide adequate care for their own children. When used in the narrow and wide sense, the concept of continuity can be studied both within (intragenerational) and across (intergenerational) generations.

HYPOTHESES . We have described our study as three generational simply because we have data on three generations; it may be considered that we can make comparisons across two generations only. The parental and other family data which was available in full only in the fifth year enables us to identify criteria of deprivation as originally recorded in the families. Thus, the 847 families remaining in the study at the children's fifth year constituted our baseline. Our concept of deprivation is relatively wide and some of our basic hypotheses are:

1. Underprivileged family environments will be associated with poorer social, behavioural and educational functioning in the school years and adults in subsequent generations.

2. Specific criteria of deprivation may continue within one generation, i.e. they may continue to be evident at different points in the life cycle (across Generation 1).
3. Multiple criteria of deprivation have an even stronger association with all types of subsequent underfunctioning.
4. Short-term changes in deprivational status in one generation in the direction of 'improvement' will correspondingly be associated with better functioning of the offspring.

TRACING AND COLLABORATION

Our search conducted in 1979-81 was aimed at tracing a sample of the 847 'red spot' children who were five years old in 1952. The average age at follow-up was therefore 33 years.

In our 1979-81 search we were able to trace 96% of the members of the original fifth year sample, of whom we managed to interview and assess 92% - higher than families contacted and studied at the 10th and 15th years.

EARLIER LIFE AND ILLNESS EXPERIENCES OF THE COHORT SELECTED AT THE AGE OF FIVE

(a) THE PICTURE IN THE FIRST YEAR OF LIFE

INTRODUCTION. There is much empirical and theoretical evidence suggesting that a child's pre-school years are crucially formative for physical, cognitive and personality development, as well as for behaviour adjustment (Clarke and Clarke, 1976; Pringle, 1975). In the light of such evidence we consider it important to sketch a picture of the children's life experiences before the fifth year, which is our baseline. The first year data we have available cover the following major areas - social, family, marital and health/illness factors.

In the following sections we provide detailed statistics for the four groups which reflect degree, that is, according to the severity of deprivation, namely, Supercontrols, Random Controls, Deprived and Multiply Deprived. The data provided in this section was amassed at the first year whereas the groups were defined on the basis of data available at the fifth year.

1. SOCIAL FACTORS. The four groups of our cohort differed significantly in social class and certain housing conditions (see Table 2).

The social class of the first year families was determined by the nature of the father's occupation, using the Registrar-General's occupational classificatory system (1951). Cohort families fall into all five broad classes. Our classification, according to the degree of deprivation, reveals a step-wise decrease in the upper and middle social strata and a step-wise increase in the lower social strata.

The housing data collected during the first year of our cohort's life was described according to: definition and distribution of the types of houses; overcrowding and housing repair and structural adequacy or deficiency.

We confine ourselves to reporting on overcrowding. In 1947 overcrowding was rated according to the statutory definition in the 1936 Housing Act. Table 2 indicates the marked differences between the four groups reflecting degree of overcrowding according to the above statutory definition. Despite the above findings, the housing situation in Newcastle upon Tyne in 1947 should be seen in context, in that the greater majority of the '1000 Families' were coping adequately according to the standards of the time - far better than 20 years previously (Spence et al., 1954)

2. FAMILY FACTORS (See Table 2). The importance of a united and stable family for the healthy development of an infant towards adjusted adulthood cannot be underestimated. Our data indicates that the percentage of mothers who were married by the age of 19 years increased markedly in relation to the degree of deprivation. Maternal parity was calculated in respect of all births - live, stillborn, legitimate and illegitimate. Our data shows the mothers of the Supercontrols leaning significantly towards the low parity and the Deprived towards higher parity.

Spence et al (1954) pointed out that, as might be expected at the conclusion of a long war, 47% of the children in their study were first-born and 29% were second infants. Our findings indicate that mothers in the Deprived groups not only marry younger but have larger families.

3. MARITAL FACTORS (See Table 2). A large body of literature attests to the effect family members have on each other and in particular, that parents have on their children during the formative years of the latter. Family factors are of particular importance. There is a steep gradation of marital instability across our four groups defined according to severity - this is to be expected. Thus, a high per cent of the children from the Deprived groups were exposed to and experienced distressing marital, and consequently family pressures, during the highly formative first year of their lives.

4. ILLNESS (See Table 2). Illness in the mother, preventing usual or reasonable care of the child, creates a particularly disadvantageous situation for an infant in its first year. Conversely, an ill baby can create or intensify maternal anxieties and distress. If the variables 'indifferent maternal health' and 'poor maternal health' are combined, mothers in the Deprived groups experienced more ill-health during the first year of their children's lives than did the more advantaged mothers.

(b)

THE PICTURE AT THE FIFTH YEAR OF LIFE

The starting point of our study was when the 'red spots' were five years old and it is useful to provide an account of the families at that point. Some of this data will simply reflect the social criteria by which the families were selected, but some will provide a more fine-grain picture of differences between the groups in the broad areas of family and social factors and of illness. In addition, in this section we report on relevant data covering the whole span of the first five years of life that was not reported on in the previous section.

FAMILY CIRCUMSTANCES when 'red spot' aged 5

Loss (See Table 2). 6.6% of the 'red Spots' either entered a family in which there was no father or permanently lost their father before their fifth birthday. Our data indicates that the degree of deprivation is significantly associated with loss of father. Loss of mother has a similar pattern but it is a comparatively rare event.

FAMILY SIZE AND PLACE IN THE FAMILY when 'red spots' aged 5 (see Table 2). Previously we have shown that deprived children come from larger families and the current data reinforces this. Furthermore, in only 14% of the families of the Supercontrols was the 'red spot' the third or subsequent child, whereas this was the case in 58% of the Multiply Deprived families.

HEALTH OF THE CHILDREN AT FIFTH YEAR Miller and colleagues (1960) consider that severe respiratory illness comprises bronchitis and pneumonia Pneumonia is an acute respiratory disease with severe constitutional illness." Excluding the first year of life, we still find a high rate of severe respiratory infection with the rate being significantly related to the degree of deprivation.

The mothers were encouraged to attend Child Welfare Clinics over the first five years of the 'red spot's' life - "Mothers with a poor standard of care and those with large families or illegitimate children were less likely to attend" (Miller et al., 1960). Again, it is evident that frequent attendance at Welfare Clinics is correlated with lesser degrees of severity of deprivation. We also report here on hospital attendance in the second and following years. The out-patient and in-patient attendances progressively increase according to the degree of severity of the deprivation.

SPEECH DISORDERS (See Table 3). Miller et al., (1960) report that at some stage during their first five years, about 20% of the children had disorders of speech: they ". . . were slow in developing language, had defective articulation or stammered." (Miller et al., 1960, page 177). It is evident that the incidence of speech disorders in the Deprived groups is more than double that in the control groups.

COMMENT. We have analysed a selection of data collected over the first five years. Many of our findings merely reflect the selection criteria; for instance, severity of deprivation is closely linked to the structure of the houses in which the families lived, the rent they paid, the sleeping arrangements for the children and their poor social amenities. However, this data does emphasize that deprivation, when the children are five, is not simply the circumstances at a single juncture, but is a reflection of the continuing saga of deprivation over the important formative years of the children's lives. Furthermore, the data indicates how such criteria are inadequate representations of the pattern of disadvantage, which covers many aspects of the life circumstances of these children, such as living in large families with lesser opportunities for stimulation by significant adults. In addition, the parents of 'deprived' children make less use of preventive welfare facilities but much greater use of the hospital facilities. We have also shown how a significant excess of deprived children had severe respiratory infections over the first five years of life. The hazards

of deprivation are not only in the economic, psychological and educational spheres, but also in the sphere of physical illness.

SOME INTERGENERATIONAL FINDINGS

FUNCTIONING OF THE 'RED SPOTS' IN CHILDHOOD AND ADOLESCENCE.

i. Physical Development. As growth curves are sex specific, ideally we should present the data for boys and girls separately. Elsewhere we will report on such analyses. However, we have not so far been able to study boys and girls separately, but in the selection exercise we have controlled for sex by making the sex ratio the same in each of the groups. It is therefore legitimate to present the data in curves by height and weight by age. The scale we have used has not allowed a sufficient separation of the curves of the four groups and so we present data for the two extreme groups only. At almost every age, the Supercontrols are significantly taller and heavier than the Multiply Deprived.

ii. Childhood Accidents and Burns and Scalds (See Table 2) It is well known that children from underprivileged home backgrounds are particularly prone to accidents of various kinds in childhood. This is well-illustrated in our own study - the greater the weight of disadvantage the more frequent the accidents.

iii. Behaviour at Ten and Fifteen Years (See Table 3) Again, the findings demonstrate a clear association between degree of disadvantage and the frequency of behaviour disturbance at the age of ten and delinquency at the age of fifteen years.

iv. School Reports, Cognition and achievements (See Table 3) Information from the school about the children's attendance and about the examinations they attempted, reveal not only a step-wise increase of poor school attendance with the increase in degree of disadvantage of the groups under study, but also a step-wise decrease in the number of children who attempted examinations. There is a consistent relationship between ability and achievements, and degree of disadvantage.

SIBLINGS OF THE 'RED SPOTS' (See Table 3) We studied the families with a delinquent sibling and again discovered the same step-wise increase of delinquency with the increase in evidence of underprivilege in the families.

EVIDENCE OF DEPRIVATION IN THE FAMILIES

We have information about criteria of deprivation in families at two periods: during the children's first five years, as recorded when the children were aged five and when they were ten years of age. Table 4 clearly demonstrates that in this group of families, over the period of time in question, which was at least five years, the degree of deprivation was substantially reduced. The group with the greatest weight of disadvantage shows the greatest reduction and that with the least weight shows some minimal spread into deprivation. These are partly ceiling and floor effects where scores of extreme groups can only move towards the mean. A direct consequence of this is that the number of differences between the Deprived and control groups is reduced at the tenth year, compared with the fifth year: without going into detail, by the age of ten, the 'red spot' children were living in far less underprivileged circumstances than they were at the age of five, and this is true over a wide number of social and

family areas which we studied. The change in overcrowding is largely a reflection of the City Rehousing Programme and is not, therefore, a good indicator of reduction in general disadvantage. However, there is a similar reduction on all other criteria.

We are reporting a change in the frequency of criteria of deprivation in three of our four selected groups of families. However, it is important to know whether there is an overall reduction of criteria of deprivation in the 847 families, as well as group differences. We therefore returned to our 847 families and were able to demonstrate that the reduction is real. To this end, we compared the sums of the same five criteria at the fifth and tenth years. From a study of our data we found that:

- of those families scoring zero at year 5, 10% score more at year 10;
- of those scoring one at year 5, 67% score less and 7% score more at year 10;
- of those scoring two at year 5, 75% score less and 12% score more at year 10;
- of those scoring three at year 5, 83% score less and 8% score more at year 10;
- of those scoring four at year 5, 75% score less and 10% score more at year 10;
- of those scoring five at year 5, 86% score less. This overall improvement is reflected in each of the five criteria separately.

CONCLUSION. While there is a clear reduction in the extent of underprivilege in the families in our urban community over a relatively brief period, there is transmission to the next generation, demonstrated by widespread physical, behavioural and cognitive underfunctioning. Thus, despite their subsequent reduction, the earlier malevolent environmental influences appear already to have taken their toll. Further details are available in a companion paper (Madge, 1982).

IMPLICATIONS OF LIFE CYCLE CHANGES IN ONE GENERATION FOR THE NEXT GENERATION

IMPROVEMENT. We were particularly interested in whether short-term changes in the degree of deprivation in one generation in the direction of improvement was associated with better progress of the children of the families that had improved, compared with the children of those families that remain static.

The evidence of crude reduction of deprivation described in the previous section tells us little about the percentage of families who were previously 'deprived' but are no longer so at the tenth year. This constitutes improvement. We therefore decided to seek ways of defining improvement. After analysis of the data we made the following operational decisions:

Deprived Group A deprivation score for a particular family had to reduce to zero at the tenth year.

Multiply Deprived The summed deprivation score had to reduce to zero or one at the tenth year.

Using the total original sample, we will have sufficient cases for a study of short-term changes of deprivational status of families and whether such changes have implications for later functioning of the children in those families. Hence, for the purposes of the above analyses, we have used all the 812 families still in touch with the research team when the 'red spots' were ten years old. Using the above definitions, it is seen that about half of both the 'Deprived'

and 'Multiply Drprived' groups improve by the tenth year (see Table 3).

FINDINGS

i. Sex Differences We included all the families in which data was present at the tenth and fifteenth years, and the numbers were therefore sufficient for us to be able to study sex differences in outcome. To our surprise, there were few such differences which were specific to particular groups. Differences in respect of cognitive, educational and behavioural data were no more frequent than could have occurred by chance and therefore it seemed reasonable to ignore sex differences on these variables. On growth data (height and weight) boys were consistently heavier and taller than girls, with this pattern repeating itself in each of the groups under study, but we could not find any evidence of interaction (between sex and grouping). Since the boys and girls were almost equal in numbers, we felt we could ignore the sex differences on the growth data.

For the purposes of this section, therefore, we examined only the Multiply Deprived and Deprived groups when the children were ten and fifteen years, and have divided these into 'Improved' and 'Static' subgroups. Maximum numbers in the groups at the tenth year are given in Table 5 and are rather less at the fifteenth year.

ii. Physical Development In absolute terms, children from Deprived Families (when the 'red spots' were five years), where the deprivation lessens over the course of time, prove to be significantly heavier and taller when they are ten years than children from Deprived families where the deprivation does not lessen. This continues when they are surveyed at fifteen years. At the ninth year the weight difference is 2½ lb and by the fifteenth year it is almost 8 lbs. At ten years the height difference is 0.8" and at fifteen years 1.1". There are no differences in the case of the children from those Multiply Deprived families who improve, compared with those that remain static.

iii. Cognitive Development (see Table 6). The children from both Deprived and Multiply Deprived families in which there is a lessening of deprivation perform better on cognitive tests at the tenth year than those groups in which there is no lessening, with many of the differences being significant. Where there are differences between the groups of children from those families who improve and those who remain static, the absolute differences are always greater in the case of the Deprived than the Multiply Deprived.

Though the data is not really comparable, the findings suggest that the children from Deprived families who improve, as a group, have a slight edge over the children from Multiply Deprived families who improve. This edge is greatest in achievement tests, where not only are there significant differences between the children of the static and improved families for the deprived groups, but the absolute differences between the static and improved are greater in the Deprived than the Multiply Deprived (four points for arithmetic quotient and English quotient for the Deprived and three points for the Multiply Deprived). However, by the fifteenth year all significant differences of improvement had washed out in the case of the Multiply Deprived but they persisted in the Deprived.

iv. General Behaviour and Attitude to School (See Table 7)

We do not have comparable behavioural data at the tenth and fifteenth years and, in addition, data was not available on all children at fifteen. However, even so, there were no differences at the tenth year. At the fifteenth year, one of the few differences was that children from the groups of families that had remained static were more eager to leave school. Further, a significant number of the Deprived who had improved continued at school, whilst most of the Multiply Deprived left at fifteen years.

v. School Attendance (see Table 7) Children either from Deprived or Multiply Deprived families who improve had a significantly better record of attendance at school than those from families which did not improve. The highest rates of attendance occurred in the children from Deprived families who improve and the lowest rates in the Multiply Deprived who remain static.

vi. Police Record (See Table 7) The police record of the children from those families that improved was substantially lower than the children from families that remained static. Improvement, i.e. decline in deprivation, was associated with a substantially lower risk of Court appearance than non-improvement in both Deprived and Multiply Deprived families. This fulfilled the prediction by teachers concerning the percentage of those in the 'static' group rated as likely to become maladjusted.

vii. Sibling Data (See Table 7) Improvement in terms of lessening of evidence of deprivation in families in one generation is also reflected in sibling data of the next generation, where improvement was associated with lower rates of delinquency.

CONCLUSION

Life cycle changes of deprivational status in the direction of improvement in one generation are associated with evidence of improved functioning in the next generation, provided that the deprivation is not severe. This is true for physical development, cognition and behaviour.

Where it is severe, there is some evidence that reduction in family deprivation is associated with better cognitive functioning in the next generation, when the children are ten years of age. However, this better functioning appears to wash out by the time the children are fifteen. Family changes do not appear to affect physical development, but such changes do have some effects on behaviour and attitude to school.

It is important to try and understand the mechanisms that determine these differences. One plausible explanation is to attribute the differences between the groups of children to the changes in family circumstances over their second five years of life. This would give rise to the suggestion that the adverse effects of milder deprivation can be appreciably attenuated by the reduction in deprivation. However, the earlier malevolent influences of serious deprivation seem 'critical' in the sense that they appear more frequently to give rise to more enduring effects.

Another possibility is that the differences between the groups of children are mostly determined by an underlying parental cognitive factor, which determines both the reduction in family deprivation and the performance of their children. For instance, the lessening of deprivation may, in part, reflect the greater social competence of intellectually more able parents, which then re-emerges as identifiable differences, in the next generation, between the groups of children. This theory would carry with it the implication that, where deprivation is not severe, the range of cognitive abilities is wide, and this allows differences between the groups of children to emerge. However, where deprivation is severe, not only is the range of cognitive abilities narrow, but the mean level of ability is low, and these factors hamper the appearance of differences.

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TABLE 1
CRITERIA OF DEPRIVATION
FREQUENCY OF CRITERIA IN 847 FAMILIES

<u>No. of Criteria</u>	<u>No. of Families</u>	<u>Percentage of Total</u>		<u>Combined Percentages</u>
0	482	57.0	=	57%
1	165	19.5	}	
			}	= 29%
2	84	9.8	}	
3	61	7.2	}	
			}	
4	30	3.5	}	
			}	= 14%
5	17	2.0	}	
			}	
6	8	0.9	}	

Table 2

SOCIAL, FAMILY, MARITAL AND HEALTH FACTORS

	A Super Controls	B Random Controls	C Deprived Group	D Multiply Dep. Group
"Red Spots" and their parents.				
AT FIRST YEAR	n = 63 %	n = 67 %	n=170-185 %	n=72-78 %
a. Social Class				
(i) I + II	14.3	9.0	2.2 a**	1.3a,b
(ii) III	65.1	52.2	47.0 b*	28.2
(iii) IV + V Plus	20.7	38.4	50.8	70.5
b. Overcrowding	1.6	16.4	22.7 a*	38.5 a,b,**
c. Mother Married by 19 years	15.9	22.4	38.3 ^{b*} a**	51.4 a,b **
d. Maternal Parity at Birth of 'Red Spot'				
(i) One	47.6	34.3	31.4a**	19.2)a**
(ii) Four Plus	4.8	18.0	31.2	46.2)b**
e. Mother 24 years and Younger at delivery	20.6	22.4	33.5 a,b**	39.5 a,b**
f. Marital Instability	1.6	6.0	27.2	46.1 a,b**
g. Health				
(i) Maternal	9.5	17.9	22.8 a*	35.9 a,b **
(ii) Red Spot -pneumo- nia	1.6	1.5	4.8	7.7
AT FIFTH YEAR				
a. Red Spot - Loss of either parent	1.6	3.0	4.3	3.9
b. Red Spot - Speech defects	18	16.5	29.7 b*	37.0 ^{a*} b**
c. Two or more childhood accidents by 5 years of age.	16	15.0	25.9 a,b*	36.0 a,b**

* = p < .05; ** = p < .01 - (one tailed test)

A v C or A v D = a: B v C or B v D = b

Table 3

BEHAVIOUR AND COGNITIVE ABILITY

	A Super Controls	B Random Controls	C Deprived Group	D Multiply Dep. Group.
Red Spots				
BEHAVIOUR	n = 32-53	n = 42-59	n = 112-160	n = 56-70
a. Problem Behaviour Cumulative Incidence to 12th year	18.8%	22.1%	34.4% a*b*	42.8% a,b**
b. Police Probation Records - aged 15	5.7%	8.5%	13.3%	27.5% a,b**
c. School Reports - aged 15				
(i) Relatively poor school attendance	20.8%	40.5%	52.9% b* a**	71.4% a,b,**
(ii) attempted examinations	56.9%	43.1%	21.4% a,b,**	6.1% a.b.**
d. Families where red spots have delinquent siblings	3.1%	9.5%	14.3% a* b**	26.8% a.b.**
COGNITIVE ABILITY (11+ examinations)				
a. I.Q. Mean	104	98	94 a** b*	87 a,b **
S.D.	13	14	13	9
b. English Mean	106	99	95 b* a**	87 a,b**
S.D.	14	15	14	12

* = $p < .05$; ** = $p < .01$ - (one tailed test)

A v C or A v D = a: B v C or B v D = b

Table 4

LIFE-CYCLE CHANGES
SOME WITHIN GENERATIONAL CHANGES
Number of Criteria at 5th and 10th Years

Number of Criteria		0	1	2	3+
		%	%	%	%
Multiply Deprived	5th	0	0	0	100
	10th	21	30	23	25
Deprived	5th	0	45	23	32
	10th	50	27	14	9
Controls	5th	57	20	10	14
	10th	70	16	9	5
Supercontrols	5th	100	0	0	0
	10th	85	10	5	0

5th year data based on six criteria
10th year data based on five criteria

Table 5

"IMPROVEMENT"

		<u>Deprived Group</u>	<u>Multiply Deprived Group</u>
Total	n =	331	103
	(5th Year)		
Improved	n =	167	51
	(10th year)		
% Improved	=	50.5	49.5

Table 6

COGNITIVE DATA

(Mean Scores)

CHILDREN	'DEPRIVED' FAMILIES			'MULTIPLY DEPRIVED' FAMILIES		
	<u>Improved</u>	<u>Static</u>	<u>Sign.</u>	<u>Improved</u>	<u>Static</u>	<u>Sign.</u>
Aged 11 Years						
IQ	95.2	90.6	<.01	89.2	84.8	<.05
Arithmetic Quotient	98.3	94.1	<.01	92.3	89.1	NS
English Quotient	96.3	91.6	<.01	89.8	86.1	NS
Ravens Matrices	37.0	31.1	<.01	31.1	27.2	<.05
Mill Hill Vocabulary	31.7	27.7	<.01	27.1	24.0	<.05
Achievement Score	48.9	45.9	<.05	45.5	43.4	NS
Aged 15 Years						
Ravens Matrices	43.25	38.8	<.01	39.5	36.9	NS
Mill Hill Vocabulary	37.9	33.7	<.01	33.6	32.4	NS

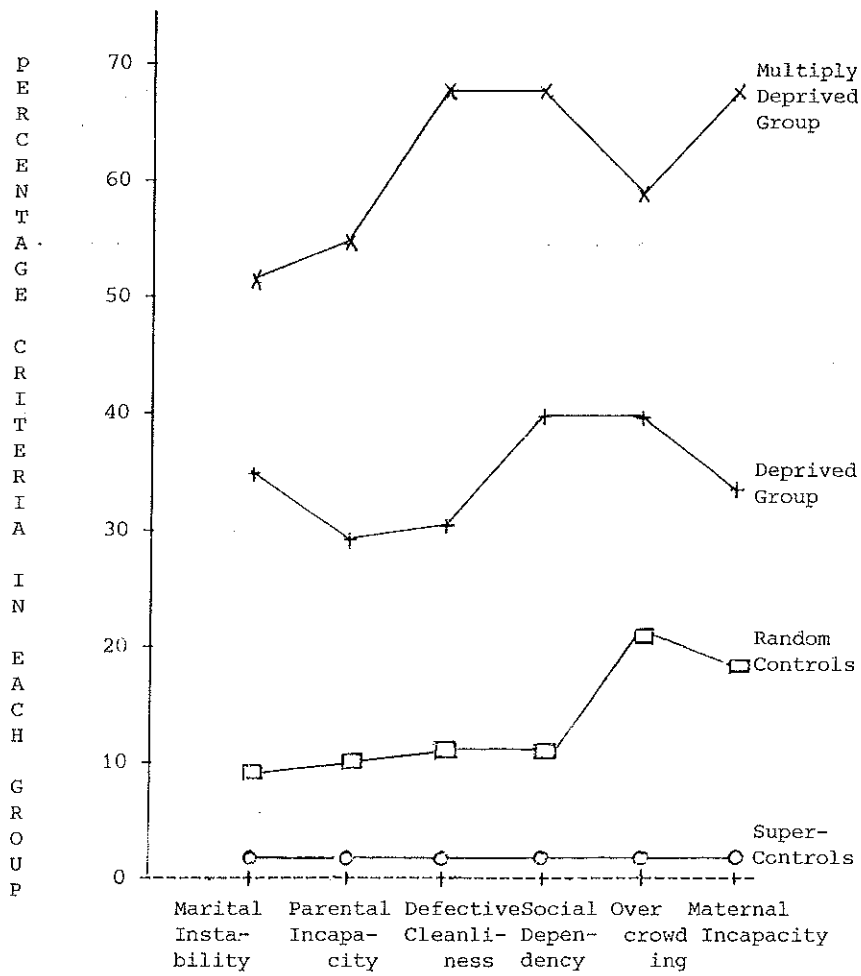
Table 7

BEHAVIOUR AND ATTITUDE TO SCHOOL

At 15 Years

CHILDREN	'DEPRIVED' FAMILIES			'MULTIPLY DEPRIVED' FAMILIES		
	Improved	Static	Sign.	Improved	Static	Sign.
Eager to leave school	35.9%	47.7%	<.05	35.7%	59.1%	<.01
Continued school after 15 years	30.0%	17.3%	<.01	14.0%	4.2%	NS
Interest in family activities	56.5%	39.9%	<.01	48.0%	20.0%	<.01
Police Probation record	9.0%	17.9%	<.05	10.0%	37.7%	<.01
Teacher predicts likely to become maladjusted	27.0%	44.7%	<.01	34.0%	60.0%	<.01
Good concentration in class	54.5%	25.2%	<.01	31.8%	27.2%	NS
Persistence	53.8%	42.4%	<.05	43.2%	25.0%	NS
Sibling delinquency (15 year data)	5.0%	21.5%	<.01	15.0%	35.0%	<.05

FIGURE I
 PROFILE OF DEPRIVATION CRITERIA
 IN THE FOUR SELECTED GROUPS



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