The poor-communicating two-year-old and his family

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SUMMARY. Two groups of children have been studied. Each group consisted of 21 two-year-olds, who had been matched individually for age, sex and social class, but who had widely differing abilities in both comprehension and expression of language.

High-risk families were defined as those in which there was evidence of significant social or emotional deprivation. There was a statistically significant correlation between delayed language development in a two-year-old and evidence of psychosocial deprivation in his family.

Introduction

For many years a child health service has been an integral part of a group practice caring for 12,000 patients. Child care includes developmental screening examinations at six weeks, seven months, two years, and 4½ years. The two-year-old consultation takes place within two weeks of the child's second birthday and includes a personal and social history, the developmental tests, and a full physical examination.

The tests are done in accordance with a strict protocol, scored on a five point scale (table 1) and the results recorded in the form of a developmental profile (table 2) which I described in 1974.

An analysis of the data from 500 children showed that the incidence of significant delay in the social/adaptive, fine movement, motor function, vision and hearing categories was 0·2–0·8 per cent. By contrast, in the speech scores the incidence of delay was 8·5 per cent. This compares with Morley's findings that, at three-years nine-months, six per cent of children showed language retardation (Morley, 1965).

Aim

In 1969 two children showing significant language delay were seen in whom no organic cause for the delay could be found. However, knowledge of severe stresses within the family suggested that disordered interpersonal relationships might be the cause.

An hypothesis was developed that disordered family dynamics could affect the language development in the two-year-old child of that family.

A project was set up to investigate this hypothesis, for as Rutter (1972) says " Although most writers on language delay mention that it may be caused by psychosocial deprivation, there is a surprising paucity of studies into the condition."

The second aim was to identify families with disordered family relationships.

Method

Selection of children

From 1 March 1971 to 1 March 1973 all children in the practice who scored 2·0 or less in their mean speech score (i.e. the averages of the scores in the individual tests for compre-

TABLE 1

SCORING CHART FOR TWO-YEAR DEVELOPMENTAL TESTS SHOWING FIVE POINT SCALE

TEST	1	2	3	4	5
BRICKS	1 – 3	4 – 5	6 – 7	8 – 9	10 or more
SCREWS	1	2	3	4	5
FORM-BOARD	0 – 1 in board	2 in board	3 in board	3 in reversed board eventually	3 in reversed board immediately
COMPREHENSION	0 – 2 recognised	3 – 4 recognised	5 – 6 recognised and "Spoon in cup"	"Ball to Mummy" and "Doll with spoon"	"Car on top of brick" and "Brick under cup"
6 TOYS	0 – 1 toys	2 – 3 toys	4 – 5 toys	6 toys eventually	6 toys immediately
DRAWING	No scribble	Scribble attempt	One imitated	Two imitated	All three imitated
VOCABULARY	0 – 2	3 – 5	6 – 12	13 – 20	21 or more
SENTENCE	None	Occasional connected words only	3 – 4	5 – 6	7 or more
ROLLING BALLS	6·4 mm (1/4") or larger	8·0 mm (3/16")	3·2 mm (1/8")	8·0 mm Rt. and Lt. separately	3·2 mm (1/8") Rt. and Lt. separately
THROWING BALL	No throw	Throws poor direction and force	Good try but fails	Ball in box 0·6 m (2ft)	Ball in box 1·2 m (4ft)
KICKING BALL	No kicking attempted	No kick Tries but runs into ball	Kicks ball Occ. miss or stumble	Strong kick poor direction	Strong kick good direction

hension, vocabulary, and sentence formation) at their two-year assessment were termed ' poor communicators.'

Out of 372 consecutive two-year-old children seen at the developmental clinic, 28 were classified as poor communicators. Of these 28 children, seven were excluded for the following reasons: (a) one child was congenitally deaf, (b) two children had moderately severe mental retardation, (c) two foreign children whose English-speaking score was low, but who were within the normal range in their native tongue, (d) two children who left the district very soon after their two-year assessments.

Thus 21 children were left in the group of poor communicators. Controls were chosen, matched for age, sex, and social class, from children with a mean communication score of 4·0 or more.

All the children had been screened with the tests shown in table 1. The hearing test is an adaptation of the Stycar six-toy test, preceded by the test for comprehension using the same six toys.

Vocabulary was tested using the ' Ladybird ' *First Picture Book* while connected words, phrases, and sentences were recorded throughout the examination. A summary of the average language abilities of the two groups is shown in table 3, while the position of the index child in the family is shown in table 4.

The controls

The selection of controls from those children with a high mean communication score was not statistically random, but was chosen in order to highlight the differences between the two groups.

TABLE 2

TESTS RE-ARRANGED FOR DEVELOPMENTAL PROFILE

DEVELOPMENTAL PROFILE						
	TEST	1	2	3	4	5
GROSS MOTOR	THROWING BALL					
	KICKING BALL					
FINE MOTOR	BRICKS					
	SCREWS					
VISION	ROLLING BALLS					
HEARING	6 TOYS					
SPEECH	COMPRE-HENSION					
	VOCABULARY					
	SENTENCE					
ADAPTIVE SOCIAL	FORMBOARD					
	DRAWING					
HAND DOMINANCE R L		FOOT DOMINANCE R L				
EYE DOMINANCE R L						

TABLE 3

SUMMARY OF THE AVERAGE VERBAL ACHIEVEMENTS OF THE TWO GROUPS

	Comprehension	*Vocabulary*	*Sentence*
Poor communicators	Recognised only three or less of the six toys named. Unable to perform any requests ' Spoon in cup '.	Fewer than three to four recognisable words identified using ' Ladybird ' picture book	Single words only with possibly occasional connected words
Controls	Recognised all six toys named. Performed requests ' Spoon in cup ' ' Ball to Mummy ' ' Doll with spoon ' ' Car on brick '	18–25 recognisable words identified using ' Ladybird ' picture book	Five to six words phrases used spontaneously

TABLE 4
POSITION IN FAMILY OF CHLDREN IN THE TWO GROUPS

	Poor communicators	*Good communicators*
Only child	5	6
First of family of two	4	4
Second of family of two	7	6
Second of family of three	2	2
Third of family of three	2	3
Third of family of four	1	0
	21	21

The project secretary identified the selected children and the general practitioner then visited the families to explain and ask for their co-operation. All the families approached readily agreed to co-operate and, with the sole exception of one husband, attended all the necessary interviews.

The project secretary held the key to the division of the selected children into good and poor communicators and all the research workers conducted their interviews without knowing to which group the child belonged.

The team

TABLE 5
MEMBERSHIP OF THE RESEARCH TEAM SHOWING ROLES DURING RESEARCH PROGRAMME

Staff	*Role 1971/72*	*Role 1972/73*
General practitioner G.D.S.	Assessments and recruitment to the survey	as before
Project secretary J.S.	Identification of survey children. Admin. and finance	as before
Social worker (1) P.W.	Full social history from mother	Co-worker in family group
Social worker (2) G.B.		Co-worker in family group
Health visitors J.G., R.R. and E.C.	Help with original assessment. Discussion on families at group meetings	Full social history from mother
Speech therapist F.S.	Reynell test on each survey child	Reynell test on each survey child and retest on first year children
Humanities students P.S. & J.S.	Home visit to the family	

The roles of some changed after the first year (table 5). This was because not enough first-hand information about the father and intrafamily relationships was being obtained. To remedy this the social worker (PW) suggested that she and her colleague (GB)

should hold family groups with the complete family, a skill they had already developed in the diagnostic and therapeutic setting of a child guidance clinic.

Method of investigation

In addition to the information from the two-year assessment, each child and its family were investigated as follows:

(a) Full social and personal history,

(b) Reynell test for comprehension and expression of language,

(c) Home visit by a student, replaced during the second half of the research by the more valuable family groups.

A brief description of these three methods will now be given.

(*a*) *Social and personal history.* During the first year this was taken from the mother by the social worker, who set the pattern which was continued by the health visitors during the second year.

The social history traced the developing family relationships, starting with the mother's home background and education; with her experience of childhood and adolescence, it continued with similar—though secondhand—information about the father. The interview also covered a history of the courtship and early married years, the desired family size, and contraceptive practice, the mother's experience during pregnancy and labour, and her early relationship with the child. This part of the history closed with an exploration of the present family relationships and the parents' expectations of the child.

The personal history of the child started with any abnormalities of pregnancy or labour which might affect the fetus—including the Apgar score, perinatal history, and method of feeding. Major developmental milestones were recorded, as were any illnesses and separations from the parents.

Although it was necessary to keep to a fairly formal type of interview, a relaxed atmosphere was fostered in which the mother could, if she wished, explore any particular topic in the way she felt most helpful.

The report concluded by highlighting the main strengths and weaknesses which had been revealed.

(*b*) *Reynell language test.* The speech therapist administered to all the two-year-old children a Reynell test in accordance with the strict protocol (Reynell, 1969), the results being scored under the two headings 'language-comprehension age' and 'language-expression age' which were then plotted on percentile charts.

The Reynell language ages obtained by the speech therapist correlated significantly ($p < \cdot 005$) with the comprehension, vocabulary, and sentence scores obtained at the original two-year assessment by the general practitioner.

During the second year the speech therapist retested the first 26 project children using the Reynell test. The results showed that although many children had moved up their percentile charts, those children who at two were identified as poor communicators were still significantly behind their controls in language age at 4–4½ years of age.

(*c*) *Home visits and family groups.* During the first year a final-year psychology student visited the home by appointment and spent a day observing the children's play and interpersonal communication patterns of the family. She then submitted a written report to the research team.

During the second half of the project the whole family were invited to the surgery on a Saturday morning for a family group which was not formal, apart from the play materials available to the children, which were kept constant.

A full report on the use of the family group as a research tool is being prepared for publication by my co-workers. This will include its use in demonstrating intrafamily communication patterns, the significance of spontaneous child play and child drawings, and its value in detecting those families with relationship problems and whether they were motivated towards change.

After every group each co-worker wrote an independent report on her observations, concluding the report with her assessment of the strengths and weaknesses in the family revealed in the group.

Classification of the degree of risk

The aim of this investigation was to identify those families with positive evidence of disordered family relationships. At the start of the research it was decided not to delineate a fixed number of possible risk factors to be investigated. Such a list would have made analysis easier, but it might also have involved a prejudgement of the outcome of the investigation. It was decided that each worker should use her professional judgement on the basis of the full information available about the child and its family to classify the family as (1) high risk, (2) medium risk or, (3) low-risk.

For this purpose the weekly team conference, which followed the circulation of the reports, proved of great value in establishing the major strengths and weaknesses of the families. These interdisciplinary meetings became increasingly valuable as each member learnt more of the others' skills.

Results

At the end of each year each team member submitted a report on the year's work and included a list of the survey children divided into three categories of high risk, medium risk or low risk.

The ratings of the seven observers were reached independently, but the risk-factor ratings showed a significant correlation ($p < \cdot 001$). From these each child was given a mean risk-factor score. The division of the two groups of children from high-risk, medium-risk and low-risk families is shown in table 6, from which it can be seen that there is a statistically significant association between the poor communicator and the high-risk family.

TABLE 6

POOR COMMUNICATORS RELATED TO RISK CATEGORIES OF THE TEAM

	High risk	*Medium risk*	*Low risk*
Number of poor communicators	8	11	2
Number of good communicators	0	5	16
$N = 42 \quad \chi^2 = 21 \cdot 12$	$P < \cdot 001$		

As a further check the mean risk-factor score was correlated with the original speech assessment scores (scale 1–5) as shown in table 7:

TABLE 7

CORRELATION BETWEEN MEAN RISK-FACTOR SCORE AND TWO-YEAR ASSESSMENT SPEECH SCORES

Mean risk-factor score	χ comprehension	0·7888
Mean risk-factor score	χ vocabulary	0·8635
Mean risk-factor score	χ sentence length	0·7634
	$P < \cdot 005$ for all three	

High-risk group

Analysis of the individual risk occurrences showed that, as expected, those families judged by the workers as ' high risk ' showed the multifactorial nature of the risks in

such families. The occurrences which made up the high-risk group arose in two main categories: (a) from the social history, and (b) from the family group meetings.

(*a*) *From the social history.* Teenage parents, remarried or divorced parents or grandparents, unhappy parental home backgrounds, families living with grandparents or in serious financial difficulties and premarital conception were all shown in varying combinations amongst the high-risk families.

(*b*) *From the family groups.* A tense, reticent family or marked splitting within the family group correlated very highly with other risk factors, as did the families in which the mother was insecure in her maternal role.

It was interesting to note that the poor communicating children drew less than half the number of pictures contributed by their controls, which may be an indication of poverty in non-verbal as well as verbal communication.

Conversely a well-integrated, relaxed family group with parents who appeared certain of their own individual personalities and role within the family, and in which the children exhibited spontaneous play themes and communication, either verbally or through play, were regarded as low-risk families.

Discussion

The organic causes of delayed language development may be classified under the headings of:

(1) Mental retardation, in which there is also evidence of delayed development in a wide spread of developmental attainments, but no specific signs of focal motor dysfunction. The child may persist with echolalia, have a poor attention span and show little interest in his environment, though these findings are not confined to mental retardation. Milestones such as social smiling, sitting, standing, and walking are usually delayed beyond the normal range.

(2) Cerebral palsy, in which there is also evidence of cortical neuromuscular dysfunction, varying from the grossly spastic child to the minor degrees of clumsiness in fine motor control. The child may have language difficulties due to dysarthia, from poor neuromuscular control, but more commonly language delay is due to an associated general brain damage or maternal deprivation, after rejection of the abnormal child.

(3) Developmental aphasia, in which there is significant language delay but no evidence of mental retardation, cerebral palsy, deafness, or social or emotional deprivation.

(4) Deafness which, whether genetic, secondary to intra-uterine viral infection, or childhood otitis media, should always be excluded by positive testing in all children with language delay.

(5) Structural speech delays due to isolated defects of the subcortical speech mechanisms such as dysarthia and dyspraxia or congenital deformities such as cleft palate.

The selection of children for the survey specifically excluded the known causes of delayed language development. It can be seen from tables 6 and 7 that there is a statistically significant relationship between those families identified by the team as high risk and poor verbal communication in the two-year-old child of that family. This must not be taken to imply that all poor communicators come from high-risk families nor that a low-risk family will necessarily produce a good communicator.

The figures show however that if at assessment a two-year-old is found to have significantly below average verbal comprehension and expression, then the family dynamics should be investigated. A poor communicating two-year-old is a sensitive index of possible high-risk families.

Theoretically it is not surprising that a two-year-old, who is just developing the skills of verbal communication, should be affected by any disorders of family communication, which surely must form a pattern for its own learning.

The parents of a child identified as a poor communicator should be encouraged to use the various play techniques involving close eye-to-eye contact and simple clear vocabulary to help language development. This child should be reviewed at $2\frac{1}{2}$–3 years and if the findings are confirmed the possible implications should be discussed with the parents and their informed participation sought in any future consultations.

The assessing doctor should discuss his findings with the child's health visitor and general practitioner when, in the absence of any overt organic cause, it is their responsibility to decide whether any social or emotional factors within the family are significant and how these should be handled. This may be by counselling within the practice or by a local authority social worker or other voluntary agency such as the National Society for the Prevention of Cruelty to Children dealing with whole family counselling, referral to a specialist clinic at a hospital or developmental centre, referral to a child guidance clinic, or a combination of the above.

Once the whole situation, organic, social and emotional, has been assessed, the role of the speech therapist and use of nurseries, nursery schools, play groups can be planned.

Conclusions

(1) Routine assessment of all two-year-old children by a general practitioner using a five-point scale for both verbal comprehension and expression is a practical way of identifying delay in language development.

(2) This study confirms that social and emotional deprivation associated with disordered interpersonal relationships within a family may cause delay in language development in a two-year-old of that family.

(3) Delayed language development in a two-year-old child, in the absence of organic disease, should lead to the investigation of any psycho/social problems in the family with particular attention being paid to the pattern of interpersonal communication within the family. A poor communicating two-year-old is a sensitive index of a possible high-risk family.

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