

EMOTIONAL DISTURBANCE IN BACKWARD READERS*

Controlled Trial of Hypnotic Suggestion

E. TUCKMAN, M.D. D.C.H., D.T.M. & H.
St Mary Cray, Kent

ABOUT ten per cent of primary school children are backward at reading and this disability is usually associated with excessive emotional disturbance. A wide range of symptoms, numbering more than one hundred, have been described in association with reading disability but there is nothing to suggest a specific syndrome (Vernon, 1957). There is dispute as to which is the primary fault, the emotional disturbance or the backward reading; probably these two factors interact and produce a vicious circle.

Except for those of Kline (1951), and Moodie (1959) who each describe a case of academic failure treated by hypnotic suggestion, there are no reports of reading disability being treated by hypnosis. Controlled trials of the use of this method of treatment have been described in alcoholism (Paul, 1958), in obstetrics (Perchard, 1955), in warts (Sinclair-Gieben and Chalmers, 1959) and in asthma (Maher-Loughnan *et al.*, 1962), but there is no previous report of a controlled trial of its use in psychotherapy.

This paper reports on a study of children of average intelligence who were backward at reading; their emotional disturbance and their personality make-up were measured and the effects of two types of treatment were assessed.

Description of study

Selection. The children were selected for the study by the head teachers of three primary schools who made a list of all eight- and nine-year-old children who had an I.Q. of 90 or more and a discrepancy of ten or more 'points' between their I.Q. and their attainment on the annual school reading tests. There were 615 children in these age groups and 75 (12 per cent) had such a discrepancy, an incidence of reading retardation similar to that reported in national

*Based on a thesis submitted for the degree of M.D., University of London.

and county surveys (Morris, 1959). The sex incidence (56 boys and 19 girls) was also the expected one.

Thirty-seven of these children were patients of my four partners and their medical records were inspected to exclude any child with organic defect and any who had previously been hypnotized. Their parents were visited, the project explained to them and their cooperation sought. Thirty-two parents agreed to their child taking part and the children were then divided randomly into two groups, those to be treated with hypnosis (group H) and those to be treated with psychotherapy (group P). A control group of 15 children was chosen at random from the original list of backward readers who were not patients of the practice. These children were not seen, their parents knew nothing of the project and they constitute an untreated control group (group U).

Tests. Each child was given a test of conversational hearing and was also tested for refractive errors if this had not previously been done. At the schools, all 32 children were given the junior Maudsley Personality Inventory (Furneaux and Gibson, 1961) which was also given to children not in the study. Each child was given the Schonell Graded Word and the Schonell Silent Reading Test by his head teacher one week before the start of treatment. The tests were repeated two months later and again after an interval of between three and seven months. These tests were also given to the children in group U. The head teachers did not know the treatment groups in which the children were included and no result of any test was divulged to me until after the end of all treatment. Teachers were asked not to alter their teaching methods in any way nor to pay more attention to the children taking part in the study.

To assess the amount of emotional disturbance present in the children, a questionnaire of 15 items was drawn up based on the list of signs and symptoms of emotional difficulty given in Appendix I of the report of the National Association of Mental Health (1955) on Periods of Stress in the Primary School. This questionnaire was given to the mother of each child immediately before the start of treatment and again at the end of treatment, the second questionnaire being completed without reference to the first. Answers to the questions were also obtained from the mothers of 27 children in the same age group who were selected at random from the files of the practice, thus giving a control group. The score obtained on the questionnaire is referred to as the disturbance score, the higher the score the greater the amount of emotional disturbance.

Treatment. Before treatment began, parents of four children no longer wished to take part in the study, two being from each treatment group. Thus 15 children received hypnotherapy and 13 received psychotherapy. These 28 children were seen three times, the first

attendance lasting 45 minutes and the other two 20 minutes each. The second treatment took place one week after the first and the third treatment three weeks after this.

Hypnotherapy. A standardized procedure, adapted from Weitzenhoffer (1957), was used but, as recommended by Stafford-Clark (1957) no challenges were given. In the presence of the mother in an undarkened room, after a brief explanation, the child was asked to lie on a couch and the suggestions were read to him without pauses according to a strict timetable. Thus each child received, as it were, a measured and standardized dose of suggestions. The suggestions were given for the induction of an hypnotic state and they continued for deepening the hypnosis and then for giving blanket suggestions to increase motivation for reading, produce expectation of improvement, reduce test anxiety and resistance to reading, to increase pleasure in the task of reading, increase rapport with teacher and to give a general sense of well-being.

To assess the hypnotizability of each child, three measurements were recorded at the first treatment session: the time it took for eye closure to occur after the first mention of this at the fourth minute from the start of the reading of the suggestion, the degree of flaccidity of the arm at the twelfth minute, and the effect of a simple posthypnotic suggestion given at the twenty-second minute.

Psychotherapy. The child was first given a short visual retention test (Benton, 1955) the opportunity during this being taken to establish rapport and put the child at ease. The remainder of the interview was taken up with a superficial discussion of the child's interests in books and reading with a request towards the end of the interview to think about and discuss next time any problems or difficulties he came across in the meantime. An attitude of stimulating interest was taken, no reading material being introduced and no teaching being attempted.

Results

Personality inventory. The mean scores for the two personality dimensions—neuroticism and extraversion-introversion—of the 32 backward readers, of the control group and of the standardized population are shown in table I. The differences are not significant.

TABLE I
SCORES ON JUNIOR MAUDSLEY PERSONALITY INVENTORY

	<i>Standardized population</i>		<i>Kent controls</i>		<i>Backward readers</i>	
	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>
Extraversion	12.39	3.46	12.21	2.31	11.66	2.83
Neuroticism	7.35	3.54	7.69	4.0	7.62	3.58

Hypnotizability. The results of the measurements made during the first hypnosis treatment are given in table II. No measurements of depth of trance were made but ten of the 15 children carried out the posthypnotic suggestion, two of them with amnesia for the suggestion, which indicates that in these children a deep trance was achieved. The two children in whom there was failure at the first session, achieved an hypnotic state at the second session in one case and only at the third treatment session in the other.

TABLE II

RESULTS OF MEASUREMENTS MADE DURING FIRST TREATMENT SESSION BY HYPNOSIS

Case	Eye closure (mins.)	Arm not held up	PHS	Hypnosis score
SBA ..	1½	*	†	4
JBA ..	3½	**	†	4
SBR ..	4	*	0	2
TCL ..	2½	**	†	5
MDE ..	3½	**	†	4
DGE ..	3½	*	0	2
CGO ..	1¾	**	†	5
TJO ..	1½	**	†	5
CNO ..	2½	*	†	4
KPE ..	0	0	0	0
ASA ..	4	*	0	2
MSE ..	1	**	‡	6
CTH ..	0	*	0	1
LWE ..	3½	*	‡	4
KWH ..	1¾	*	†	4

* = some muscular control maintained

** = complete flaccidity of arm

† = post-hypnotic suggestion carried out

‡ = with amnesia

Emotional disturbance. As expected, the mothers' answers to the questionnaire before treatment showed a significantly higher disturbance score ($p = <.01$) in the backward readers than in the controls (table III). More than twice the number of backward readers than controls were reported as being nail-biters, showing off a great deal, hardly ever doing what they were told, and as having frequent

TABLE III

DISTURBANCE SCORES OF BACKWARD READERS AND CONTROLS

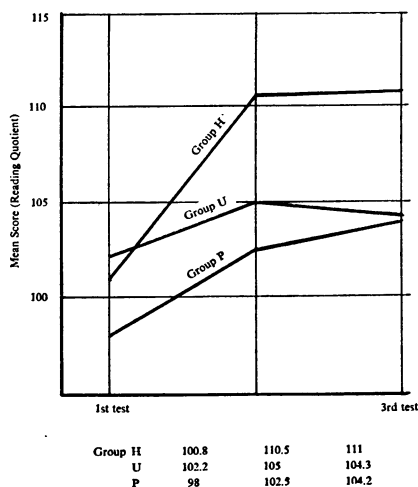
	Controls	Backward readers	
		Before treatment	After treatment
Mean	8.67	10.85	6.93
S.D.	3.35	4.20	3.13

headaches with bad tempers, restlessness and irritability. Nearly all the children, including the backward readers, were reported as liking school and there were no differences between the two groups of children in the amount of daydreaming, poor appetite, biliousness or in the occurrence of nightmares.

At the end of treatment, the mean disturbance score of the treated children showed a significant drop ($p = <.05$) compared with the controls. The improvement occurred after both types of treatment, but it was greater in group H than in group P, the mean group scores being 5.73 and 7.67 respectively. All but one child in group H had a lower disturbance score at the end of treatment and nine of group P had improved, two were unchanged and one had a slightly higher score. The answers to the second questionnaire showed that treatment had produced a considerable reduction of nail-biting, showing-off, headaches, daydreaming, irritability and bad temper. The only increases in any of the individual symptoms occurred in the psychotherapy group, two of the children showing greater defiance and one of them a deterioration in temper control.

After treatment had been completed each mother was asked how her child was getting on. In the psychotherapy group, only two mothers thought their child had shown any real improvement. On the other hand, five mothers were enthusiastic about the effects of the hypnosis, remarking that the child was much happier and more cheerful or that he had developed an improved interest in books and reading or was worrying less about school. None of the mothers of the hypnotized children reported any deterioration but about half saw little change in their child's behaviour.

The pre-treatment disturbance scores of the backward readers bore no relationship to their neuroticism scores on the junior M.P.I. The two measures are probably concerned with different aspects of the child's personality; neuroticism is probably a more or less enduring characteristic while the disturbance score reflects more temporary relationships between the child and his environment and measures a disturbance peripheral to the main personality. One



SCORES IN READING COMPULSION TESTS

would expect, therefore, that after a reduction of this disturbance by treatment there would be a closer equivalence between the two scores and this indeed occurred, there being a greater movement in the expected direction in the hypnosis group.

Reading tests

The graded word test. All three groups of children improved between the first and the second and third tests. Because of the usual test-retest phenomenon this was expected but there were no significant differences between the groups. The effect of either form of treatment on the test of mechanical reading was nil.

The silent reading (comprehension) test. Between the first and second test of reading comprehension, 13 of the 15 hypnotized children improved while only nine of the 13 children in the other treatment group and only eight of the 15 untreated children showed improvement. The average gain in reading comprehension in the hypnosis group was 14 months; this was nearly double the gain in the psychotherapy group and nearly three times the gain in the untreated children. A mean improvement score for each of the three groups was calculated and the score of group H was significantly greater ($p = <.05$) than that of the untreated group, there being no significant difference between the psychotherapy and the untreated groups. The difference between the two treatment groups was just not significant at the .05 level. At the third test, the advantage of treatment in group H was maintained, the average gain being 19.4 months compared with 9.4 months in the untreated children. The mean scores for each of the groups on each occasion of testing are shown in the figure. The greatest improvement occurred between the first and second tests as an immediately posthypnotic spurt, but the improvement was maintained at the third test. Indeed, the figure does not fully show the effects of the hypnosis, as three of the hypnotized children obtained the maximum score in less than the time allowed for the test, whereas none in the psychotherapy group and only one in the untreated group did this.

Although group H had both a greater drop in disturbance score and a greater improvement in reading comprehension than group P, there was no evident correlation between these two factors. There was a closer relation between the drop in disturbance score and the gains between the first and second comprehension tests than between this drop and the changes between the first and third tests. This might have been due to the spurt in improved test results following the sudden improvement in emotional disturbance as a result of the treatment given.

The individual differences between the first and third comprehension scores were compared with the hypnosis score at the initial

treatment session. There was an obvious correlation between these two scores; the average gain in the five children with hypnosis scores of two or less was 14.8 months while that for the children with a hypnosis score of four or more was 21.9 months. Thus treatment by hypnosis was most effective in those children who were most easily hypnotized and who achieved the greatest depth.

Discussion

Reading disability is a common deviation from the normal, round which, unfortunately, numerous other disabilities often develop. Though learning to read is not essential for survival, our western civilization attaches great value to its accomplishment and an individual who cannot read faces many problems; his capabilities are restricted and his self-esteem may be undermined. For a child, difficulty in learning to read may become associated with scorn, embarrassment and other unpleasant experiences. Failure in this central activity at primary school easily leads to discouragement and over-sensitiveness to criticism and a vicious circle may develop which can play havoc with the child's schooling. Among children of average or super-normal intelligence this may lead to a child-guidance problem (Schonell and Ward, 1949) and reading disability is commonly found in delinquents (Roman *et al.*, 1955). Many of the children in this study would perhaps not normally have been regarded as in need of remedial education, but compared with normal readers they were certainly underfunctioning and also handicapped by their many symptoms of emotional disturbance.

The selection of the children was made on the basis of a discrepancy between their reading attainment and their intelligence score. This is not, perhaps, an ideal method particularly as Tanner (1961) has cast doubt on the whole basis of selection of children by means of intelligence tests. No significant differences have been found between the effectiveness of selecting children for remedial education by teachers' judgment and their selection by test results (Lytton, 1961); nor is remedial education more beneficial in pupils selected on the results of intelligence and attainment tests than in pupils selected simply by class teachers (Curr and Gourlay, 1953).

A higher than average incidence of reading disability has been found in children from families of low socioeconomic status or who come from broken homes (Hallgren, 1950; Malmquist, 1958), though as Caplan (1961) points out, so-called 'stable' homes may well be emotionally very unstable. Having made an epidemiological study, Miller and his colleagues (1957) regard reading difficulties as a pointer—a 'coliform count'—to problems of family mental health. The present study was made in a community which is socially and economically homogeneous. The families of the backward readers are typical of the families in this community except that the mothers

of these children have a higher score for neuroticism on the M.P.I. as compared with the mothers of a control group of children. There was no such difference between the fathers of the two groups (Tuckman, to be published). If neuroticism in the mother is an important cause of children's difficulty in reading, it may be that the children could best be helped by the provision of psychotherapy for their mothers. In an allied sphere, that of onset enuresis, such treatment given to the mothers has been shown to be effective in removing the disability from the child (Paulett and Tuckman, 1958).

There are numerous reports of the value of remedial education in retarded readers but Vernon (1957) pointed out that there have been few controlled studies although some have been published more recently (Friedmann, 1958; Hillman and Snowdon, 1960). On the other hand, Curr and Gourlay (1960) claim that their studies show that remedial instruction as practised at the moment has no permanent benefit. Their view is supported by the fact that remedial teachers have long recognized the importance of associated emotional difficulties and many of them have reported a lessening of the child's emotional disturbance solely as the result of the remedial teaching itself (Preston, 1940; Fernald, 1943; Johnson, 1955). Many attempts have been made to improve reading by psychotherapeutic techniques (Axline, 1947; Redmount, 1948; Roman *et al.*, 1955; Mann, 1957) and in general use, Kennedy (1960) put forward strong arguments for shorter methods of psychiatric treatment, including hypnosis.

It is difficult to measure the effects of such treatment and in the present study this has been attempted by using not only a measure of emotional disturbance but also standardized reading tests which were not done at the place where treatment was given, nor by the doctor who gave the treatment; he remained in ignorance of the results of the tests until after all treatment had been completed and bias was thus eliminated.

The child's motivation greatly influences the facility with which he can be taught to read (Wall, 1955) and Roberts (1960) found that a remedial teaching programme was most successful when the motivation came from within the child. The most easily motivated children are the more emotionally stable (Davids and White, 1958) but Lynn (1955) considered that increased anxiety is required to motivate children to learn to read and that a reduction of anxiety could lead to a poorer achievement on tests. However, he admits that excess of anxiety could lead to impaired performance.

It is possible that any improved results in reading tests shown by the treated children did not follow from any actual improvement in reading but occurred only because treatment mitigated test anxiety. The changes in the disturbance score and the mothers' comments on the effects of treatment indicate, however, that the effects of treat-

ment were not confined to test anxiety but also produced an all-round improvement in the child's emotional state. In addition, it is likely that the direct suggestions given during the hypnotic trance were of value as the most suggestible children showed the greatest improvement in reading.

The finding of excessive emotional disturbance associated with normal personality dimensions indicated that the former is a superficial one outside, as it were, the basic structure of the child's personality and caused by environmental stress. The consequent frustration produces various symptoms which have the overall effect of making it even more difficult for the children to cope with the problems of life and school. If their confidence can be restored and a respite given to them, albeit temporarily, this should enable them to break the vicious circle and they should then be able to improve with only normal help from teacher and without additional help from doctor. No doubt there will always be a residue of children who will require further treatment and indeed, this would certainly be indicated in those cases that did not respond to a simple form of treatment.

Summary

1. Backward readers at primary school were found to have the same personality dimensions as normal readers.
2. They were more emotionally disturbed than controls.
3. Treatment by hypnotherapy or psychotherapy reduced the amount of emotional disturbance.
4. In a double-blind controlled trial, hypnotherapy produced a significant improvement in reading comprehension.

Acknowledgements

I am deeply indebted to the three head teachers, Mr Howitt, Mr Smith and Mr Taylor for their co-operation and for carrying out the reading tests; to my four partners for their help; to Dr A. Eppingstone for the tests of refraction; to Dr W. D. Furneaux for his advice; to the late Dr William Moodie for his stimulating views and encouragement. I am especially indebted to Dr H. B. Gibson who carried out the personality tests and did the statistical analyses.

REFERENCES

- Axline, V. M. (1947). *J. cons. Psychol.*, **13**, 61.
 Benton, A. L. (1955). *The Revised Visual Retention Test*. University of Iowa.
 Caplan, G. (1961). *Prevention of Mental Disorders in Children*. London.
 Curr, W., and Gourlay, N. (1953). *Brit. J. Educ. Psychol.*, **23**, 45.
 — — (1960). *Ibid.*, **30**, 155.
 Davids, A., and White, A. A. (1958). *J. Personality*, **26**, 77.
 Fernald, G. M. (1943). *Remedial Techniques in Basic School Subjects*. New York.
 Friedmann, S. (1958). *Brit. J. Educ. Psychol.*, **28**, 258.
 Furneaux, W. D., and Gibson, H. B. (1961). *Ibid.*, **31**, 204.
 Hallgren, B. (1950). *Specific Dyslexia*. Copenhagen.
 Hillman, H. H., and Snowdon, R. L. (1960). *Brit. J. Educ. Psychol.*, **30**, 168.
 Johnson, M. S. (1955). *J. Educ. Res.*, **48**, 565.

- Kennedy, A. (1960). *Lancet*, **1**, 1257.
- Kline, M. V. (1951). *J. clin. Psychol.*, **7**, 283.
- Lynn, R. (1955). *Proc. roy. Soc. Med.*, **48**, 996.
- Lytton, H. (1961). *Brit. J. Educ. Psychol.*, **31**, 79.
- Maher-Loughnan, G. P., Macdonald, M., Mason, A. A., and Fry, L. (1962). *Brit. med. J.*, **2**, 371.
- Malmquist, E. (1958). *Reading Disabilities in the First Grade of the Elementary School*. Stockholm.
- Mann, H. P. (1957). *J. genet. Psychol.*, **90**, 167.
- Miller, A. D., Margolin, J. B., and Yolles, S. F. (1957). *Amer. J. publ. Hlth.*, **47**, 1250.
- Moodie, W. (1959). *Hypnosis in Treatment*. London.
- Morris, J. M. (1959). *Reading in the Primary School*. London.
- National Association of Mental Health (1955). *Periods of Stress in the Primary School*. London.
- Paul, J. (1958). *J. clin. exp. Hypnos.*, **6**, 71.
- Paulett, J. D., and Tuckman, E. (1958). *Brit. med. J.*, **2**, 1266
- Perchar, S. (1955). *Modern Trends in Psychosomatic Medicine*. Ed. by D. O'Neill. London.
- Preston, M. I. (1940). *Amer. J. Orthop.*, **10**, 239.
- Redmount, R. S. (1948). *J. Educ. Psychol.*, **39**, 347.
- Roberts, G. R. (1960). *Brit. J. Educ. Psychol.*, **30**, 176.
- Roman, M., Margolin, J. B., and Harari, C. (1955). *Amer. J. Orthop.*, **25**, 25.
- Schonell, F. J., and Ward, W. D. (1949). *Educ. Rev.*, **2**, 3.
- Sinclair-Gieben, A. H. C., and Chalmers, D. (1959). *Lancet*, **2**, 480.
- Stafford-Clark, D. (1957). *Relaxation under Light Hypnosis*. Unpublished.
- Tanner, J. M. (1961). *Education and Physical Growth*. London.
- Vernon, M. D. (1957). *Backwardness in Reading*. London.
- Wall, W. D. (1955). *Education and Mental Health*. London.
- Weitzenhoffer, A. M. (1957). *General Techniques of Hypnotism*. New York.

The Evolution of the Health Team. J. FRY, J. B. DELANEY and M. M. CONOLLY. *Brit. med. J.* 1965. **1**, 181.

This paper describes the effect of a year's attachment of a health visitor to a London suburban practice of 7,250 patients. Both doctors and the health visitor were enthusiastic about the association which was regarded initially as experimental by both sides. In all about 1,500 visits were done by the health visitor in the course of the year, and about 1,500 patients were seen in the surgery. Children accounted for a large proportion of the work and about 12 per cent of all the visits were to the elderly. The view is expressed that within ten years this concept of general practitioner health visitor attachment will spread so quickly that it will be accepted as the normal pattern of work for both doctor and health visitor.