

Part Four
Results and conclusions

9 Final analysis: junior and senior schools*

Summary

This chapter presents the results of our evaluations of treatment effectiveness in two forms: in terms of *outcome* and *improvement*.

Considering *outcome for junior children*, no significant differences emerged between the groups for antisocial behaviour, at either midline or final follow-up. On neurotic behaviour, the playgroup children did significantly better than the at-risk controls and parent counselling-teacher consultation group at midline, and better than all three other groups at final follow-up. No differences were apparent on overall severity at midline but, at the final follow-up, nurture work and playgroup children did significantly better than the at-risk controls, and playgroup children also did better than the parent counselling-teacher consultation group.

Broadly similar results were apparent for *improvement*. Considering measures of neurotic and antisocial behaviour, plus general maladjustment derived by factor analysis, no significant differences were apparent at the midline comparison. By the final follow-up, the playgroup children did significantly better than the at-risk controls on all three measures, and also did better than the parent counselling-teacher consultation group on general maladjustment. On the aggregate score on the Devereux Classroom Behaviour Scale both playgroup children and the parent counselling-teacher consultation group did significantly better than the at-risk controls at the midline comparison, and all treatments did better than the at-risk controls at the final follow-up. We discuss each treatment separately in terms of its performance in relation to the at-risk controls, the pattern of change over time (across follow-ups), and whether or not changes occurred in home as well as school settings.

* All Tables and Figures are grouped at the end of the chapter; see p. 281.

Considering *outcome for senior children*, both behaviour modification and group therapy children did significantly better than the maladjusted controls on neurotic behaviour at the midline, and better than both maladjusted controls and parent counselling-teacher consultation children at the final follow-up. On antisocial behaviour, group therapy children were superior to all other groups at midline, but at the final follow-up all treatments were significantly better than the maladjusted controls. On overall severity, group therapy children did better than the maladjusted controls at midline, and both group therapy children and the behaviour modification group did better than the maladjusted controls and the parent counselling-teacher consultation group at the final follow-up.

With regard to *improvement*, group therapy children and the behaviour modification group generally did best, and the maladjusted controls or parent counselling-teacher consultation group did worst. This pattern was also evident when summary maladjustment scores were derived from multiple data sources. Much of behaviour modification's impact was demonstrated in school-based measures, whereas with group therapy this was not quite so marked. The pattern of change over time and performance in relation to the maladjusted controls is also considered for these two treatments.

There was some evidence, taking senior and junior data together, that girls showed better outcome than boys, and that children with neurotic disorder showed better outcome more often than did those with conduct disorder. Improvement data showed similar patterns.

None of the treatments conducted with junior children produced significant improvements in relation to at-risk controls on cognitive or achievement measures. With the seniors, behaviour modification and group therapy children were the most successful on ability measures but only at the midline comparison. Where differences existed on these measures between children with neurotic and children with conduct disorders these were always in favour of the former.

No interaction effects were observed between the four regimes (i.e. three treatment and a no-treatment regimes) and type of disorder, nor between treatment and sex. However, with junior children interaction effects were found between treatment and patterns of behaviour, with playgroups and nurture work regimes having been more effective with antisocial than with neurotic behaviour. The pattern of effectiveness observed amongst the junior treatment regimes was not affected when children were separated into those with mild and those with severe disturbance.

Of the therapeutic qualities studied in relation to group therapy and parent counselling-teacher consultation, therapists' assertiveness,

extroversion and openness had some positive associations with outcome and improvement.

Introduction

OUTCOME EVALUATIONS

As previously described, two types of evaluation were used: the first was outcome and the second was improvement. The outcome scores were based on severity of disturbance as rated clinically at three points in time – the beginning of research (baseline), the eighteen-month (midline) follow-up, and three-year (final) follow-up. A formula was applied to pairs of ratings (i.e. base to midline and base to final) and the scores obtained from the use of the formula allowed us to derive three categories of outcome – good, moderate, and poor (Sainsbury 1975; see also Chapter 3 and Appendix 2). We were, therefore, able to calculate the percentage of cases falling into each of the above three categories. This was a crude way of comparing progress but had the advantage of presenting data in percentage form and, furthermore, gave added reassurance that the changes had clinical as well as statistical significance. The progress of the children was rated in three ways: in terms of disturbance of emotion (neurotic behaviour), disturbance of conduct (antisocial behaviour), and general disturbance (overall severity). It should be noted that all the children were scored on each of these three ratings of disturbance. To put it another way, we examined three measures or dimensions of behaviour: neurotic behaviour, antisocial behaviour and overall severity. Within these three dimensions we looked at severity of disturbance.

IMPROVEMENT EVALUATIONS

Improvement was a more rigorous method of evaluation in which statistical allowance was made for the initial differences between the groups in terms of social and family background and the children's behaviour.

Both outcome and improvement were studied at two points in time irrespective of the length of treatment – eighteen months and at three years from the start of the research. Moreover, in the case of the senior school children improvement was also assessed at the end of treatment.

Using the above forms of evaluation, two primary hypotheses were tested: (a) that the four regimes (i.e. the three treatments and the controls) differ in effectiveness from each other; and (b) that one or

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more of the treatment regimes is better than the no-treatment regime (the controls). Five other hypotheses are listed, in Chapter 3, which relate to comparisons of mutually exclusive categories (i.e. male or female; conduct disorder or neurotic disorder) and the varying effectiveness of regimes on different patterns of behaviour (i.e. in reducing neurotic or antisocial behaviour).

Outcome – junior level

Our findings are presented, in percentage form, as good or poor outcome in *Figs 9(1a)* and *9(1b)* and more fully in Appendix 3. In addition, simple comparisons have been undertaken of each regime with every other regime, using a X^2 technique (*Table 9(1)*).

NEUROTIC BEHAVIOUR

At the midline the beginning of a pattern emerged with children in all the regimes showing a general tendency to improve, the highest percentage of cases with a good outcome being the playgroup children followed by the nurture work ones (*Fig. 9(1a)* and Appendix 3). At the final follow-up this pattern was more pronounced: the nurture work cases had a higher percentage with good outcome and a lower percentage with poor outcome than earlier, but the most notable change occurred in the case of playgroup children where more than 70 per cent had a good outcome and only 7 per cent a poor outcome (*Fig. 9(1b)*). On this occasion the playgroup children did significantly better than *each* of the other three groups (*Table 9(1)*).

ANTISOCIAL BEHAVIOUR

At the midline (*Fig. 9(1a)*) there were no major differences between the groups in terms of good outcome. However, at the final follow-up (*Fig. 9(1b)*) we saw what could have been a repeat of the pattern with neurotic behaviour, with very little change being recognizable in the at-risk controls and the parent counselling-teacher consultation children, but some change having occurred in the nurture work children (where 61 per cent presented a good outcome and only 23 per cent a poor outcome) and in the playgroup children (where the picture was almost identical to this). None of the differences in outcome between the four regimes was significant with regard to antisocial behaviour, but we will return to this category in the section on improvement.

OVERALL SEVERITY

Overall severity was a measure based on clinical judgement, taking all information into consideration. From base to final assessment (Fig. 9(1b)) both the playgroup and the nurture work children did significantly better than the at-risk controls (Table 9(1)). It should be noted that there was a trend towards better outcome by the nurture work children on the other outcome measures. In addition, the children in the playgroups did significantly better than those in the parent counselling-teacher consultation regime.

As far as juniors were concerned therefore, it seems that there were some differences between the four regimes with regard to outcome, particularly at the second follow-up.

Improvement – junior level

In Chapter 3 and Appendix 2 the theory underlying making allowances for the initial differences of behaviour of the children and differences in social and family environment is discussed. Although these techniques constituted a far more sophisticated analysis of the data than that carried out in the case of outcome the findings were broadly similar to the outcome results. Table 9(2) summarizes the significant differences between the regimes and shows the source of the data upon which these findings were based. The differences in improvement on the various measures between pairs of regimes were also tested, using a technique that makes allowance for the fact that when comparing any two of a number of *pairs* of groups there is an increase in the likelihood of differences occurring by chance (Table 9(3)). Details of these techniques and results are provided in Appendices 2 and 3.

A statistical technique that allowed us to isolate the important components in a large number of measures of behaviour was employed. The technique is called factor analysis. Three such components were obtained from the ten measures studied. These were as follows:

- (i) A *neurotic behaviour* score (Fig. 9(2a)) was derived by adding the standardized score (this was simply a means of giving equal weight to the relevant measures) of the following five measures: parents' reports of children's emotional and psychosomatic disturbance; isolation as perceived by peers; and of neurotic behaviour derived from parent checklists (Rutter A scale) and from teacher checklists (Rutter B2 scale). It was found that by the final follow-up all the treatment regimes appeared to do better than the at-risk controls on this measure, but this was significant for playgroups only.

- (ii) An *antisocial behaviour* score (Fig. 9(2a)) was derived by adding the standardized scores of the following five measures: parents' reports of the children's antisocial behaviour; antisocial behaviour scores from the parent and teacher checklists (Rutter A and B2 scales respectively); rejection by peers; and, finally, moodiness as reported by parents. Here a different picture emerged. While the children in the playgroups eventually showed a significantly greater improvement than those in any of the other three regimes, there was no evidence that improvement after parent counselling-teacher consultation was any different from that shown by the at-risk controls. In addition, it will be seen from Fig. 9(2a) that the spread of mean improvement scores in antisocial behaviour was greater at both the midline stage and the final follow-up than occurred in the case of neurotic behaviour. We tested these differences and found them to be significant. This implied that the differing effects of treatment was more marked in the case of antisocial than neurotic behaviour.
- (iii) *General maladjustment* (Fig. 9(2b)) was represented by the summation of the standardized scores on the above ten measures. At the mid-point of the research there was a non-significant trend suggesting that any of the treatments led to a better improvement than no treatment at all, but it was interesting to note the direction in which the different regimes appeared to be moving (Fig. 9(2b)). By the final follow-up, which was eighteen months later, it was evident that the trend continued and became significant in the case of the playgroup children. Thus, gains continued to occur after the end of treatment. The playgroup children did significantly better than the parent counselling-teacher consultation children. Further, the nurture work children improved more than the at-risk controls, but the difference was not significant.

Devereux (aggregate score). We have not yet described progress measured globally in different situations, using measures specific to those situations. An example of such a situation is the school, and an important scale in this respect is the Devereux, which reflects classroom-related behaviour. A factor analysis demonstrated that a general component of maladjustment could be derived by adding the separate item scores of the Devereux. For technical reasons, we summed the standard scores of thirteen Devereux items so as to produce an aggregate Devereux score of general maladjustment (see Appendix 3). On this aggregate score, at first follow-up, the parent counselling-teacher consultation and playgroup children did signifi-

cantly better than the at-risk controls, but by the second follow-up all children in all three treatment regimes had improved significantly more than the at-risk controls (Fig. 9(2b)).

RE-ANALYSIS OF THE DATA

An analysis of progress, measure by measure, such as outlined above, constitutes one way of looking at the improvements that occurred on the multiple sources of data and multiple instruments used in the study. *We have described our measures according to the following system: (a) aggregate or sum measures, derived by adding together two or more main measures or scales; (b) main measures that provide a substantial description of behaviour: those derived from such scales as the Rutter ones, for example, conduct and neurotic scores; and (c) individual measures, for example, individual scales on the Barker Lunn and Devereux.* Another way of analysing the data is in relation to the following five questions:

- (i) on how many measures did children in the treatment regimes do significantly worse than the controls?
- (ii) on which measures was there improvement that revealed itself at the mid-point and was maintained right until the end of the study?
- (iii) on which measures was there improvement that revealed itself at the mid-point but then washed out or was lost?
- (iv) on which measures was there latent improvement, namely improvement occurring for the first time at the end-point of the study (i.e. the final follow-up)?
- (v) on which measures was there spread or extension of improvement from the school to the home?

In this type of analysis we confined ourselves to those dimensions on which there were significant differences.

The playgroup children did not do significantly worse (i) than the at-risk controls on any measure. Initial improvement at mid-point was maintained right until the final follow-up (ii) on the following measures: the total and also antisocial sub-scale of the Rutter B2 scale, the sum score of the Devereux scale, and two items on this scale. Initial improvement only (iii) occurred on two Devereux items. However, latent improvement (iv) was very common, being found on the total, antisocial, and psychosomatic scores derived from parent interview; on the temperament measure of mood; on the neurotic score of the Rutter B2 scale; on all three global scores, i.e. total, neurotic, and antisocial; and on two Devereux items. Finally, there was an extension of improvement from the school to the home on scales based on the parent interviews, i.e. antisocial, psychosomatic, and total scores.

Again, the nurture work children did not do significantly worse (i) than the at-risk controls on any measure. Maintained initial improvement (ii) occurred only on the antisocial sub-scale of the parent interview and two items of the Devereux. Initial improvement that was lost (iii) occurred only in the case of two Devereux items. Latent improvement (iv) sometimes occurred, for example, on the neurotic sub-scale of the Rutter B2 scale, on two Devereux items, and, finally, the sum score of the Devereux. Again, there was a spread of improvement to the home (v) on behaviour scales based on parental interviews, but it was confined to antisocial behaviour.

On no measure did parent counselling-teacher consultation children do significantly worse than the at-risk controls (i). Only on the Devereux scale was there initial improvement that is maintained (ii), on measures of 'impatience', 'comprehension', and the sum score. As found with the playgroup and nurture work children, improvement that washed out (iii) occurred only on the Devereux (on items relating to 'inattentiveness', 'needs closeness', and 'slow at work'). On no measure was there latent improvement (iv) and there was no spread of improvement to the home (v).

Yet another way of looking at the data is by studying the source of the measures on which improvement occurred. By and large it seemed that on the aggregate measures the playgroup children were most effective no matter what the source of the data (home or school) and this is well illustrated by *Figs 9(3a) and 9(3b)*. However, when the main measures from the parents were studied the playgroup children did better than the nurture work children, and both were more successful than the parent counselling-teacher consultation children and the at-risk controls. However, most of the significant differences were achieved by the playgroup children when the source was the school (excluding the Devereux scale). On the individual measures of the Devereux the children in the three intervention regimes showed significant differences from the at-risk controls in an equal number of instances (four) from base to midline; from base to final follow-up the picture changed slightly, with playgroup children showing greater improvement on four measures, nurture work children on four, and parent counselling-teacher consultation children on two measures.

Outcome - senior level

Figs 9(4a) and 9(4b) show, in percentage form, the outcome of treatment for senior children with different types of disorder. *Table 9(4)* compares the significant differences in outcome of the various regimes.

NEUROTIC BEHAVIOUR

On neurotic behaviour, from base to midline (*Fig. 9(4a)*), group therapy and behaviour modification children did significantly better than the maladjusted controls. From base to final (*Fig. 9(4b)*), each did better than both the maladjusted controls and the parent counselling-teacher consultation children, with performances that were particularly impressive by this stage.

ANTISOCIAL BEHAVIOUR

On antisocial behaviour, from base to midline, there were no significant differences between the maladjusted controls, parent counselling-teacher consultation children, and behaviour modification children. However, the group therapy children had much better results than all three (*Fig. 9(4a)*). Nevertheless, from base to final assessment (*Fig. 9(4b)*), the children in each of the three treatment regimes did significantly better than the maladjusted controls, and this was particularly true for those who had undergone group therapy.

OVERALL SEVERITY

On overall severity, from base to midline, the group therapy children did better than the maladjusted controls (*Fig. 9(4a)*), and, from base to final, both they and the behaviour modification children did significantly better than the maladjusted controls and the parent counselling-teacher consultation children (*Fig. 9(4b)*).

Improvement – senior level

As previously explained, improvement scores were based on a more sophisticated analysis of data than that used in the case of outcome, but, again, the findings using both methods were broadly similar. *Table 9(5)* indicates on which measures the children in the four regimes differed in relation to improvement at the two main follow-ups. *Table 9(6)* shows significant differences between pairs of regimes, including comparisons with the maladjusted controls.

BASE TO END OF TREATMENT

As treatments were of different duration it may well be more fair to consider progress from the beginning to the end of treatment (*Table 9(6)*) rather than to the two other follow-ups. This is particularly relevant in the case of behaviour modification where it has often been found in other studies that changes tended not to be maintained beyond the treatment phase. For this analysis we used all the cases on

whom data had been gathered at baseline and at the end of treatment. This meant that we had rather more cases than had we used only those on whom we had complete data at the other follow-up points. The measures on which data were available at this point in time were the JEPI (personality), sociometry, Rutter A scale, the Devereux (Classroom Behaviour), the Barker Lunn scale (Children's School Attitude Scale), and cognitive data.

Tables 9(6) and A3(13 and 14) (p. 370) show that, when looking at improvement at the end of treatment, the behaviour modification and group therapy children only did well on some measures in relation to the maladjusted controls or the parent counselling-teacher consultation children (behaviour modification on six measures and group therapy on two measures), but no clear-cut pattern emerged. With regard to behaviour modification there was an increase in the treated children's popularity, and on this measure they did better than all the other regimes. On the classroom-related measures there was an expansion of creative initiative and an increase in the behaviour modification children's 'needing to be closer to the teacher', which reflected the extent to which the teacher was positively valued by the child and which, we believe, constituted improvement. However, this need of closeness washed out, and there was no transfer of this improvement to the home situation; on the contrary, the parents reported increased disturbance. Where group therapy children were concerned there was improvement on one classroom-related measure (the children needing to be closer to the teacher) but this, similarly, washed out. Also, on a parental questionnaire method (Rutter A scale) the behaviour of group therapy children improved significantly in comparison with that of behaviour modification cases.

BASE TO MIDLINE AND FINAL FOLLOW-UP

Here, data were available on the full range of measures (details of significant results are provided in Appendix 3) and hence there were many more opportunities for differences to emerge than in the previous analysis. First, the improvement scores of the four regimes were compared to see whether or not there were significant differences (*Table 9(5)* and Appendix 3). These are listed both for base to midline and base to final. It was found that there were significant differences from base to midline on 37 per cent of the main measures and on 42 per cent when comparing base to final assessments.

Table 9(6) provides some important supplementary information because it indicates where there were significant differences between pairs of regimes. Two patterns were evident: the group therapy children, closely followed by those in the behaviour modification

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group, usually did best, and the maladjusted controls or the parent counselling-teacher consultation children did worst.

Another way of studying the data in an attempt to identify patterns is by producing a summary table of the aggregate or main measures on the different instruments on which treated children showed significantly greater improvement than the maladjusted controls. For these purposes we have concentrated on the behaviour modification and group therapy regimes. *Table 9(7a)* reveals that while there was an almost equal number of main measures on which change occurred in children in both these treatment regimes, it was apparent that behaviour modification's impact was particularly demonstrated in school-based measures, while with group therapy this pattern was not quite so marked.

Figs 9(5a-b), 9(6), and 9(7a-b) present the findings for improvement in the senior children as a series of graphs. On the scale using behavioural information derived from parental interviews (behaviour A + B + C shown in *Fig. 9(5a)* and Appendices 2 and 3) it will be seen that, from base to midline, the group therapy children improved most and, while this improvement was maintained, the behaviour modification children appeared to catch up by the final follow-up. A study of the temperamental dimension of activity showed that, again, behaviour modification and group therapy children did well at both midline and final follow-up. However, when we moved to withdrawal, it was apparent that this was one of the few occasions when parent counselling-teacher consultation seemed to be most effective (*Fig. 9(5b)*). Turning to school data when the source was the teacher (Rutter B2), we saw that group therapy children did best at both follow-ups, but when the source was the child (JEPI - 'N') the behaviour modification children did best (*Fig. 9(6)*).

We thought it essential to try to get an overall view of these findings from multiple sources (see *Fig. 9(7a-b)*). For this purpose we derived a maladjustment score based on fourteen of the above-mentioned items. *Fig. 9(7a)* shows that the pattern was broadly similar to that already found, with behaviour modification and group therapy children doing roughly the same by the final follow-up. This was true, too, for the antisocial behaviour measure, based on five items (*Fig. 9(7b)*). In the latter case, it was seen that the group therapy children initially did extremely well, but were subsequently caught up with by those in the behaviour modification regime and that, at the final follow-up, there were no significant differences between them.

RE-ANALYSIS OF THE DATA

Again, it is worthwhile attempting to answer the five crucial questions posed previously in relation to improvement in the junior regimes:

- (i) on how many measures did children in the treatment regimes do significantly worse than the controls?
- (ii) on which measures was there improvement that revealed itself at the mid-point and was maintained right until the end of the study?
- (iii) on which measures was there improvement that revealed itself at the mid-point but then washed out or was lost?
- (iv) on which measures was there latent improvement?
- (v) on which measures was there spread or extension of improvement from the school to the home?

Starting with group therapy it was evident that on no measure did the maladjusted controls do better than the group therapy children (i). On the two measures constituting aggregate behaviour scores, A + B + C based on interviewing the parents and the aggregate maladjustment score, there was improvement for the treated children at the midline follow-up that was maintained at the final follow-up (ii). On six measures these children showed improvement at the midline that was subsequently lost (iii): the first centred on the parents' reports of children's psychosomatic symptoms; the second was shown on the aggregate antisocial behaviour scale; the third on the scale of JEPI measuring neuroticism; the fourth in terms of neurotic anxiety about school work on the Barker Lunn scale; and, finally, it occurred in relation to both verbal and non-verbal ability. However, on a number of measures there were latent improvements by the group therapy children (iv) and these consisted of all three Rutter teacher scores (total, neurotic, and antisocial sub-scores); the isolation score based on sociometry; and the global neurotic score based on the summation of nine items. Finally, it was noted that in reports based on parental interviews the improvement described in many areas of functioning appeared to have transferred to the home (v) on two measures.

On two occasions the behaviour modification children did worse than the maladjusted controls (i). Clearly there was no short-term maintenance in the treated children's improvement, i.e. between end of treatment and the midline. Further, on no measure did they show improvement at the end of treatment that was maintained to the final follow-up, nor, indeed, improvement at the midline that was maintained to the final follow-up (ii). However, on four measures the treated children showed improvement at the midline that was

subsequently lost (iii): the first consisted of improvement on the neuroticism sub-scale of the JEPI; the second on anxiety about school work on the Barker Lunn scale; and, third and fourth, in verbal and non-verbal ability. They also showed latent improvement (iv) on five measures: first, in terms of antisocial behaviour as described by parents; second, on the total and neurotic sub-scales of the Rutter B2 scale; and, finally, both in terms of total behaviour based on the summation of fourteen items and neurotic behaviour based on the summation of nine items. Finally, there was a transfer of improvement to the home (v) on one measure, namely, antisocial behaviour as reported by the parents.

Effects of sex of child and type of disorder on outcome (juniors and seniors)

One of the questions we sought to answer was whether or not girls and boys respond differently to treatment. The only patterns that emerged, based on data derived from both senior and junior analyses, showed girls did significantly better than boys twice as often as boys did better than girls. In addition, it appeared that when boys excelled girls it was always on neurotic behaviour; and when girls did better than boys it was always on antisocial behaviour. These findings suggest neurotic behaviour is less deeply ingrained or intractable in boys than in girls and antisocial behaviour less deeply rooted in girls than in boys.

The data were also analysed to ascertain whether children in the conduct disorder categories showed different patterns of outcome to those in the neurotic disorder categories. As would be expected from previous research, children with neurotic disorders showed better outcome than those with conduct disorders on thirteen occasions, while the reverse occurred only on three occasions. Furthermore, when children with neurotic disorders showed better outcome than those with conduct disorders it was, with one exception, on the associated dimension of antisocial behaviour; and when conduct-disordered children showed greater improvement than neurotic-disordered ones, it was only on the associated dimension of neurotic behaviour. From this we inferred that neurotic behaviour in children with conduct disorders was less deeply ingrained than in those with neurotic disorders; and that the same was true for antisocial behaviour in children with neurotic disorders.

Effects of sex of child and type of disorder on improvement (juniors and seniors)

The Devereux Classroom Behaviour Scale revealed some interesting findings. In the junior programme (see *Fig. 9(8)*) there was a clear picture of girls showing greater improvement than boys, but this became significant only at the final follow-up. In addition, children with neurotic disorders did better than those with conduct disorders, but, again, this was significant only at the final follow-up (*Fig. 9(8)*). While the pattern was similar at the senior level, the only significant finding was that children with neurotic disorders had improved more than conduct-disordered children at the final follow-up.

With regard to other data the findings on juniors were similar to those described in the previous section on outcome: boys did significantly better than girls on neurotic behaviour (Rutter B2 scale – base to final; Rutter A scale – base to midline) and girls did significantly better than boys on the antisocial behaviour scale (Rutter B2 scale – base to midline). In addition, children with conduct disorders excelled children with neurotic disorders on scales or dimensions reflecting neurotic behaviour (Rutter B2 scale – base to midline) and also on neurotic behaviour as measured by parent interview (base to final). The group of children with neurotic disorders did better than those with conduct disorders on a number of scales depicting antisocial behaviour (parent interview – base to midline; Rutter B2 scale – base to final; a scale representing global antisocial behaviour – base to midline; and, finally, the temperament scale of activity – base to midline). In addition, children with neurotic disorders showed greater improvement in reading than did children with conduct disorders (base to final).

In the senior programme boys again did better than girls on measures of neurotic and psychosomatic behaviour (Rutter B2 scale – base to midline; JEPI neuroticism scale – both base to midline and base to final; parent interview – base to midline and base to final) and while girls excelled boys on measures of antisocial behaviour this only reached statistical significance on the temperament measure of 'activity' (parent final interview). Children with conduct disorders did better than children with neurotic disorders on measures reflecting neurotic and psychosomatic behaviour and this proved significant on a number of occasions (Rutter A scale – base to midline; parent interview – both base to midline and final follow-up). Finally, the neurotic-disordered children did best on a wide range of cognitive measures, namely verbal and non-verbal ability and reading comprehension (see *Table A3(22)* in Appendix 3).

The interpretations of these findings were similar to those advanced in the case of the outcome measures described above.

Cognitive and educational findings – improvement

In the junior programme there were no significant differences in improvement, on any of the cognitive measures used, between the at-risk controls and the treated children. This was most unexpected and will be commented on in the next chapter. However, as was to be expected, we found that children with neurotic disorders showed greater improvement in reading ability at the midline than those with conduct disorders.

With regard to the seniors there were many differences between the treated children and the maladjusted controls at the mid-point of the study, but all of these had washed out by the end of the programme. Both the behaviour modification and group therapy children did significantly better than the maladjusted controls and parent counselling-teacher consultation children on the measures of general ability, verbal ability, and non-verbal ability. Nevertheless, at the final follow-up only behaviour modification children had done significantly better than those in parent counselling-teacher consultation group on improvement on reading comprehension (see Appendix 3).

Finally, we compared cognitive changes for both junior and senior boys and girls, but found no significant differences. We also compared changes in children with conduct and children with neurotic disorders and found that the latter group always did better than the former. This was significant in the cases of non-verbal ability at the midline, and *all* cognitive measures employed at the final follow-up.

Interaction

We wanted to know whether some regimes (for example, behaviour modification) were most effective for certain types of children (for example those with neurotic disorder) and other regimes (for example playgroups) for other types of children (for example those with conduct disorders). We were also interested to find out if some regimes were most effective for boys and others for girls. These investigations are of great practical importance and are usually described as interaction between regime and diagnostic category, or between regime and sex. We tested the former on all measures and found that interaction occurred only fortuitously both in the junior and senior

programmes. We also studied the interaction between regime and sex of the child and, again, the findings were essentially negative.

As there was no interaction between regimes and diagnostic category or sex the results we have presented deal with the differences between the regimes, between diagnostic categories, and between the sexes quite separately. Further details of the principles of this analysis are described in Appendix 2.

The interaction considered above was between regime and type of child (whether in relation to diagnostic category or sex), but there is another kind of interaction – between regime and pattern of behaviour – whereby some regimes are shown to be more effective in reducing the neurotic component in a child's behaviour and other regimes in reducing the antisocial component in the same child's behaviour (hypothesis 5). We found that in the case of the juniors there was a significant interaction in this respect in that playgroups and nurture work regimes were comparatively more effective in reducing antisocial components of behaviour than neurotic components, particularly at final follow-up. There was no evidence, though, of such interaction in the case of the senior pupils.

Outcome of severely and mildly disturbed children

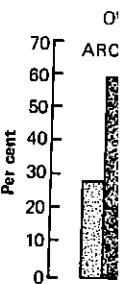
A further analysis was made comparing outcome in the junior children with established disorders to that of children whom, though displaying only mild disorders, we still regarded as being 'at risk'. This showed that the direction of the results was the same for both the established and the dubious disorders – the playgroup and nurture work regimes were associated with better outcome as far as overall severity was concerned. However, none of the differences between outcome scores for severely and mildly disturbed children was statistically significant.

Therapeutic qualities of therapists

With regard to the therapists involved in the senior group therapy regime a range of therapeutic qualities was studied by observation of individual therapists' sessions and from the ratings made by the supervising staff. The only three qualities that appeared to have a positive association with outcome and improvement were therapeutic assertiveness, extroversion and openness. These had a persistent, but not necessarily highly significant correlation with change in relation to both parent counselling-teacher consultation and group therapy regimes. Therapeutic assertiveness had a significant correlation with

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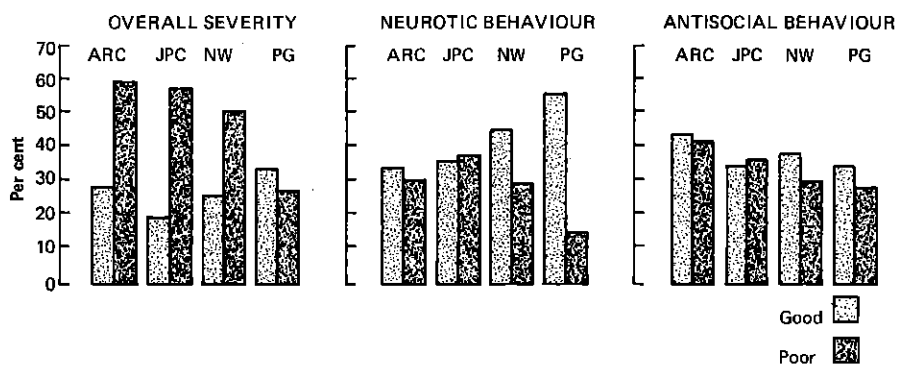
Figure 9(1a)
only)



outcome in antisocial behaviour in our senior group therapy programme, both at the midline follow-up and at the end of treatment. The association was less powerful for neurotic behaviour at the midline follow-up and at the end of treatment. In the playgroup programme there was a reasonably high correlation, at the end of treatment, for assertiveness (0.73), but extroversion was not so well correlated. Concerning parent counselling-teacher consultation in junior schools the correlations for therapist assertiveness were low, and not significant. In senior schools there were, again, moderate but interesting correlations in relation to assertiveness, and lower but also interesting correlations *vis-à-vis* extroversion.

Finally, a large number of different clinical measures were made during the course of the various treatment regimes. These measures related to the treatment processes, to motivation, and to the therapists' subjective estimates of severity of disorder and of change. A summary of these measures would have little meaning outside the context of the individual therapies and we therefore refer the reader to the appropriate chapters for further study.

Figure 9(1a) Juniors: per cent outcome: base to midline (good and poor categories only)



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Figure 9(1b) Juniors: per cent outcome: base to final (good and poor categories only)

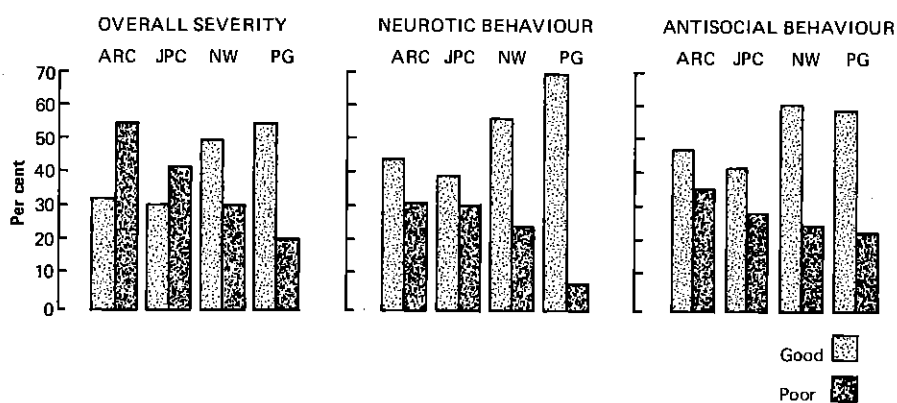
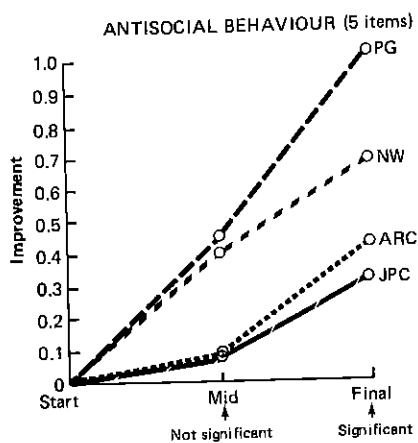
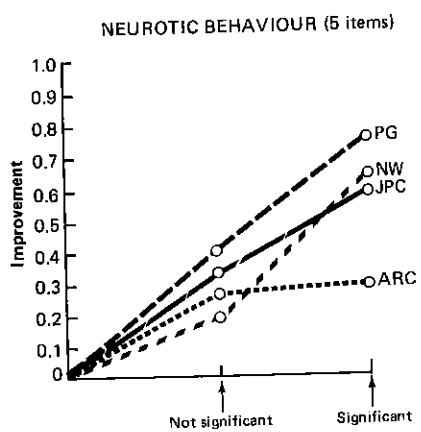


Table 9(1) Juniors: outcome

<i>base to midline</i>		
neurotic behaviour	PG > ARC PG > JPC	p < .05 p < .01
antisocial behaviour		ns
overall severity		ns
<i>base to final follow-up</i>		
neurotic behaviour	PG > NW PG > ARC PG > JPC	p < .05 p < .01 p < .01
antisocial behaviour		ns
overall severity	NW > ARC PG > ARC PG > JPC	p < .05 p < .01 p < .01

Note: ARC = at-risk controls; JPC = junior parent counselling-teacher consultation; NW = nurture work; PG = playgroups; ns = not significant; > means 'better than' in this table.

Figure 9(2a) Mean improvement scores: juniors: aggregate – neurotic and antisocial behaviour



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Figure 9(2b) Mean improvement scores: juniors: aggregate behaviour

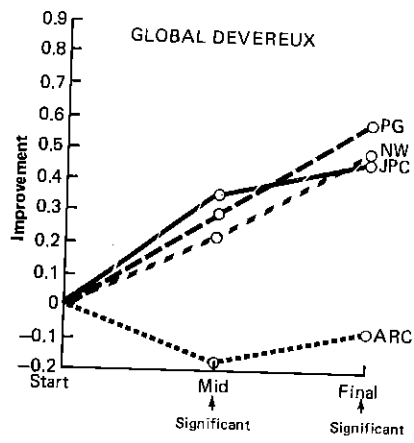
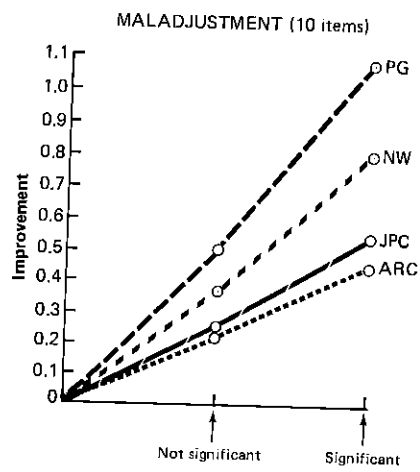
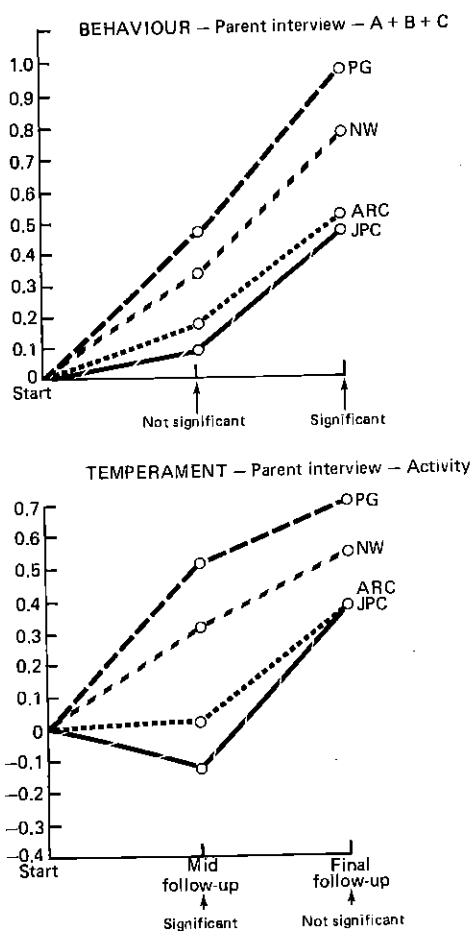


Figure 9(3a)

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Figure 9(3a) Mean improvement scores: juniors: parent interview



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Figure 9(3b) Mean improvement scores: juniors: teacher questionnaire

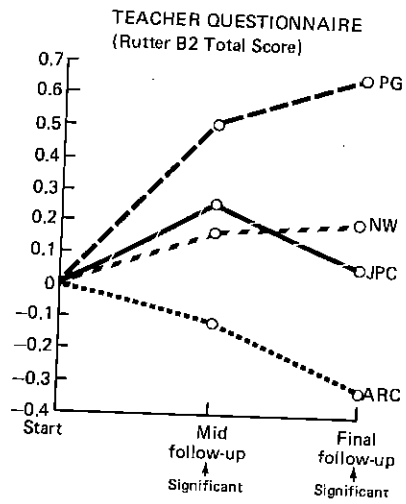


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Table 9(2) *Junior programme: comparison of the four regimes*

<i>measure</i>	<i>statistical significance of the differences between the four regimes</i>	
	<i>base to midline</i>	<i>base to final</i>
<i>home data</i>		
behaviour A = neurotic	ns	ns
B = antisocial	ns	highly significant
C = psychosomatic	almost	ns
A + B + C	ns	highly significant
temperament activity	significant	ns
mood	ns	significant
Rutter A total behaviour	ns	ns
neurotic behaviour	ns	ns
antisocial behaviour	ns	ns
<i>school data</i>		
Rutter B2 total behaviour	significant	highly significant
neurotic behaviour	significant	highly significant
antisocial behaviour	almost	highly significant
sociometry isolation	ns	ns
reading	ns	ns
<i>aggregate data</i>		
maladjustment (sum score of 10 items)	ns	highly significant
neurotic behaviour (sum score of 5 items)	ns	significant
antisocial behaviour (sum score of 5 items)	almost	highly significant
global behaviour (Devereux scale) (sum score of 13 items)	significant	highly significant

Note: this table includes main measures only; other details are available in the Appendices; ns = not significant; 'significant' indicates a difference at 5 per cent level; 'highly significant' indicates a difference at 1 per cent level.

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Table 9(3) Junior programme: comparison of pairs of regimes (significant results only)

measure	base to midline	base to final
behaviour B = antisocial	NW* > ARC	PG + NW > ARC
C = psychosomatic	PG > JP	PG + NW > JPC
A + B + C	ns	PG > ARC
temperament activity	almost PG > ARC	PG > ARC + JPC
mood	ns	PG + NW > JPC
Rutter B2 total behaviour	PG > ARC	PG > ARC + JPC
at school	ns	PG + JPC + NW > ARC
neurotic behaviour	PG > ARC	PG > ARC + JPC + NW
at school	ns	JPC > ARC
antisocial behaviour	ns	PG > ARC + JPC
at school	ns	PG > ARC
sociometry isolation	ns	PG > ARC + NW + JPC
maladjustment (sum of 10 items)	ns	PG > ARC
neurotic behaviour (sum of 5 items)	ns	PG > ARC
antisocial behaviour (sum of 5 items)	ns	PG > ARC + NW + JPC
Devereux scale		
classroom disturbance	PG > ARC	PG > ARC
impatience	JPC + NW > ARC	JPC + NW + PG > ARC
external blame	NW > ARC + JPC	NW > ARC
comprehension	JPC + PG > ARC	PG + JPC + NW > ARC
inattentive withdrawn	JPC + NW > ARC	ns
needs closeness	JPC + NW > ARC	ns
unable to change	ns	PG > ARC
quits early	PG > NW + ARC	NW > ARC
slow at work	PG + JPC > ARC	ns
	JPC > NW	
aggregate (sum score of 13 items)	JPC + PG > ARC	JPC + NW + PG > ARC

Note: * for details of abbreviations see p. 282; > means 'better than' in this table.

Figure 9(4a) only)

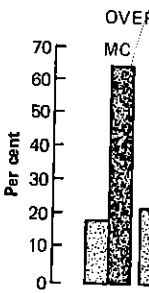
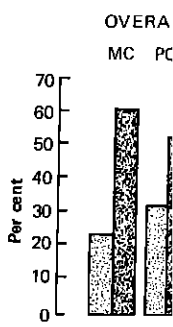


Figure 9(4b) only)



Final analysis: junior and senior schools 289

Figure 9(4a) Seniors: per cent outcome: base to midline (good and poor categories only)

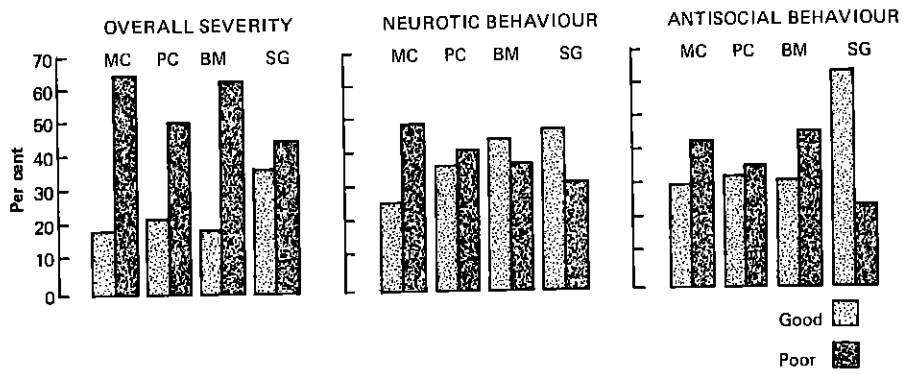
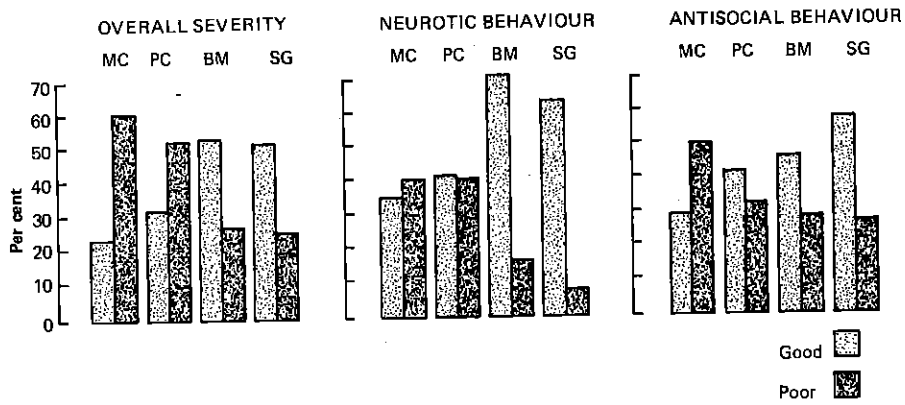


Figure 9(4b) Seniors: per cent outcome: base to final (good and poor categories only)



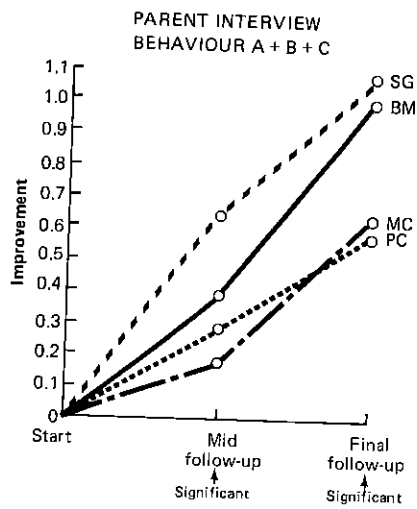
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Table 9(4) Seniors: outcome

<i>base to midline follow-up</i>		
neurotic behaviour	BM > MC	p < .05
	SG > MC	p < .05
antisocial behaviour	SG > MC	p < .01
	SG > PC	p < .01
	SG > BM	p < .01
overall severity	SG > MC	p < .05
<i>base to final follow-up</i>		
neurotic behaviour	SG > MC	p < .01
	SG > PC	p < .01
	BM > MC	p < .01
	BM > PC	p < .01
antisocial behaviour	BM > MC	p < .05
	PC > MC	p < .05
	SG > MC	p < .01
overall severity	BM > MC	p < .01
	BM > PC	p < .01
	SG > MC	p < .01
	SG > PC	p < .01

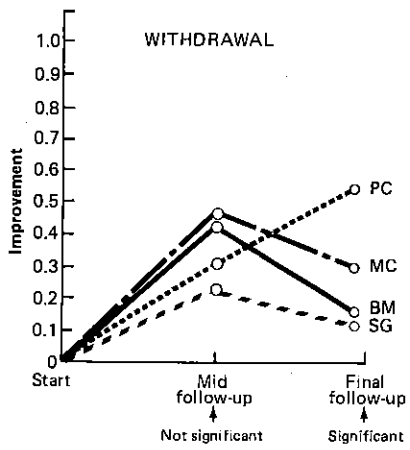
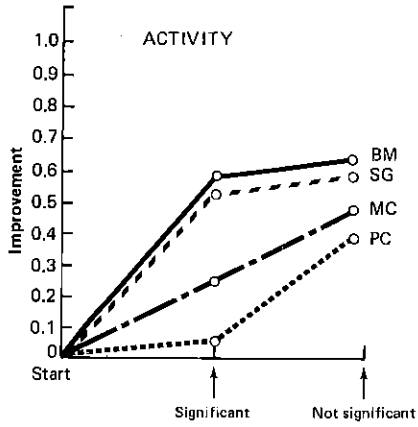
Note: MC = maladjusted controls; PC = parent counselling-teacher consultation; BM = behaviour modification; SG = group therapy; > means 'better than' in this table.

Figure 9(5a) Mean improvement scores: seniors: parent interview, aggregate behaviour



Final analysis: junior and senior schools 291

Figure 9(5b) Mean improvement scores: seniors: parent interview, temperament



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Figure 9(6) Mean improvement scores: seniors: teacher questionnaire and JEPI neuroticism

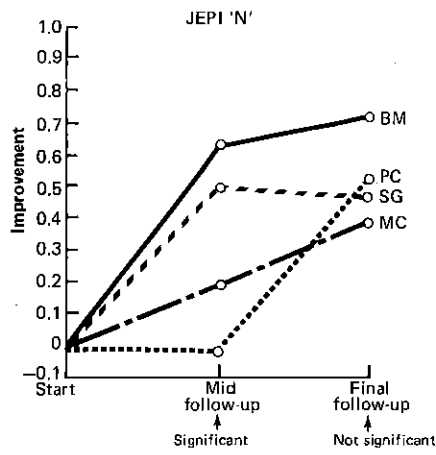
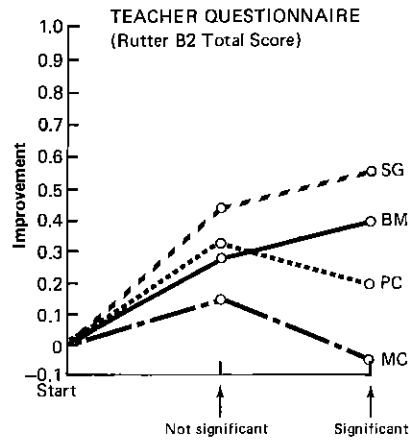
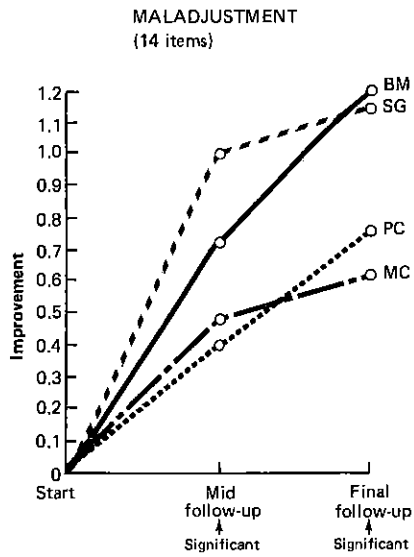


Figure 9(7) at start, r

Figure 9(7a) Mean improvement scores, aggregate behaviour (14 items): seniors: at start, midline, and final follow-up



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Figure 9(7b) Mean improvement scores, aggregate neurotic and antisocial behaviour: seniors: at start, midline, and final follow-up

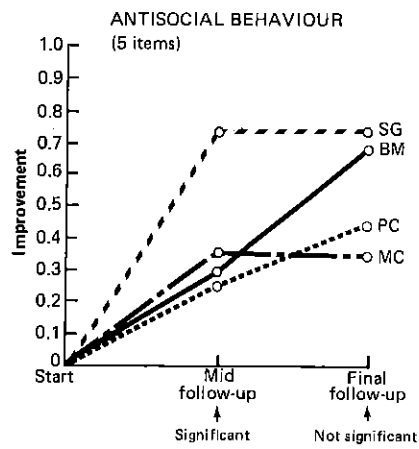
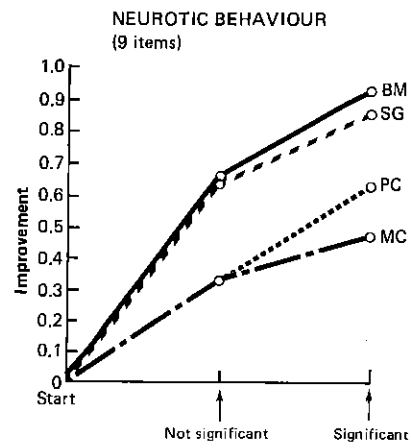


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Table 9(5) Senior programme: comparison of the four regimes

measure	statistical significance of the differences between the four regimes	
	base to midline	base to final
<i>home data</i>		
behaviour A = neurotic	ns	ns
B = antisocial	ns	significant
C = psychosomatic	ns	ns
A + B + C	significant	significant
withdrawal	ns	highly significant
activity	highly significant	ns
mood	ns	highly significant
Rutter A total behaviour	significant	ns
neurotic behaviour	ns	ns
antisocial behaviour	significant	ns
<i>school data</i>		
Rutter B2 total behaviour	ns	highly significant
neurotic behaviour	ns	significant
antisocial behaviour	ns	significant
sociometry isolation	significant	significant
JEPI neuroticism	highly significant	ns
JEPI introversion	ns	significant
verbal ability (NCDS)	highly significant	ns
non-verbal ability (NCDS)	highly significant	ns
total ability (NCDS)	highly significant	ns
reading	ns	significant
<i>aggregate data</i>		
maladjustment (sum score of 14 items)	significant	highly significant
neurotic behaviour (sum score of 9 items)	ns	highly significant
antisocial behaviour (sum score of 5 items)	significant	ns
global behaviour (Devereux scale) (sum score of 14 items)	ns	ns
Barker Lunn scale anxiety about school (sum score of 3 items)	highly significant	ns
attitude to school (sum score of 7 items)	ns	ns

Note: this table includes main measures only; other details are available in the Appendices; ns = not significant; 'significant' indicates a difference at 5 per cent level; 'highly significant' indicates a difference at 1 per cent level; NCDS = National Child Development Study test.

Table 9(6) Senior programme: comparison of pairs of regimes (significant results on main measures only)

measure	base to end of treatment	base to midline	base to final
behaviour B = antisocial	no data	ns	BM > MC
C = psychosomatic	no data	SG > MC	ns
A + B + C	no data	SG > MC + PC	SG > MC
temperament	no data	BM + SG > PC	ns
Rutter A	no data	SG + MC > BM	ns
	SG > BMM(C) > BM		
Rutter B2	no data	SG + MC > BM	ns
	no data	ns	SG + BM > MC
	no data	ns	SG + BM > MC
	no data	ns	SG > MC
sociometry	BM > PC + MC + SG	BM > SG	SG > PC + MC
JEP1 neuroticism	BM > PC	BM + SG + MC > PC	ns
		BM + SG > MC	
verbal ability (NCDS)	ns	BM + SG > PC + MC	ns
non-verbal ability (NCDS)	ns	BM + SG > MC + PC	ns
total ability (NCDS)	ns	BM + SG > MC + PC	ns
reading	ns	ns	BM > PC
maladjustment (sum of 14 items)	no data	SG > MC + PC	SG + BM > MC
neurotic behaviour (sum of 9 items)	no data	ns	SG + BM > MC
antisocial behaviour (sum of 5 items)	no data	SG > MC + BM + PC	ns
Barker Lunn scale	BM > PC	SG + BM > MC	ns
anxiety about school		BM + SG > PC	ns
withdrawal	no data	ns	PC > BM + SG + MC
mood	no data	ns	SG > PC

Note: > means 'better than' in this table; single item data from the Devereux Classroom Behaviour Scale and the Barker Lunn School Attitude Scale have been excluded; NCDS = National Child Development Study test.

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Table 9(7a) *Senior programme: number of different main measures on which change was obtained**

	behaviour modification regime	group therapy (seniors) regime
end of treatment	4	2
midline	6	9
final	4	5
total	14	16
total school-based	13	13
total home-based	1	3

Note: *significant improvement compared with the controls.

Table 9(7b) *Senior programme: source of measures*

	ability		self		peer		teacher		parent	
	BM	SG	BM	SG	BM	SG	BM	SG	BM	SG
end of treatment	0	0	1	1	1	0	2	1	0	0
midline	3	3	3	4	0	0	0	0	0	2
final	0	0	1	0	0	1	2	3	1	1
total	3	3	5	5	1	1	4	4	1	3

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Figure 9(8) Mean improvement scores: juniors: according to diagnosis and sex, aggregate Devereux measure at start, midline, and final follow-up

