

## Group Intervention with Hyperkinetic Boys in the School Setting

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### Abstract

A group intervention programme in the school setting was developed for children having hyperkinetic-conduct problems. The sample consisted of ten boys in the age range of six to nine years. The pre and post assessment tools used were: (a) Conners Abbreviated Rating Scale (CARS), (b) Bartley's School Situations Questionnaire (SSQ), (c) Barkley's Home Situations Questionnaire (HSQ), (d) Seguin Form Board Test (SFB), (e) Colour Cancellation Test (CCT), (f) Bender Gestalt Test (BGT) and (g) Porteus Maze Test (PMT). The children were divided into three groups. The Intervention aimed at (i) enhancing attentional skills, (ii) facilitating prosocial behaviour, (iii) eliminating problematic behaviour. Results revealed that parents and teachers both observed the children to be more compliant and less stubborn. The post assessment of the children showed significant improvements on the BGT, SFB, PMT and CCT. At a three months follow-up, eight of the ten children were still maintaining the gains of intervention.

Key words -

**School based,  
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Epidemiological studies show that hyperkinesis is the single, most chronic behaviour disorder in the preadolescent age group, being more common in boys than in girls, with the ratio ranging from 5:1 to 9:1 and the prevalence ranging between 1 to 6% [1]. From India, Gada [2] and Chawla et al [3], have reported the prevalence rate of hyperactivity in school going children to be 4.67% with boys being 4.7 times more hyperactive than girls. The primary symptoms of this disorder are an excessive level of motoric activity, distractibility and impulsivity that bring the child into conflict with his/her environment. Along with these are associated a number of secondary symptoms such as low self esteem, aggression, difficulty in peer relations, fluctuations and deficits in academic performance, learning disabilities and perceptual motor deficits [4]. It has also been found that both in clinic and more so in the community, the symptoms of hyperkinesis and conduct disorder covary to a high degree [5]. Abikoff and Klein [6] have reported the rate of attention

deficit hyperactivity disorder (ADHD) to be as high as 90% among children referred for conduct disorder. This high rate of comorbidity between hyperactivity and conduct disorder has significant implications for understanding the social consequences that the child suffers.

As behaviour problems mainly emerge in the home and school settings, these are the two major spheres wherein different kinds of pharmacological and non-pharmacological therapeutic interventions have been attempted. Presently, the most important non-pharmacological management strategies include those employing operant conditioning principles, modelling techniques, cognitive-self control strategies, parent training programmes and classroom intervention programmes. Since the last four decades, with the emerging awareness regarding the school's role in the overall development and socialization of the child, school intervention programmes for these children have attained increasing importance. Three major trends have dominated school intervention programmes for these children in the past two decades. These are

- (i) Open Classrooms emphasizing individual instruction and activity, freedom of movement, flexibility [7].
- (ii) Teacher / Parent training programmes in which educational and psychotherapeutic interventions are [8], [9].
- (iii) Short term cognitive self control training programmes designed to teach the child self control techniques [8], [10], [14].

From India, with the exception of a few case reports, no intervention programmes in the school setting, for this group of children have been developed. Thus, the present study was an initial attempt at developing a group intervention programme, in the school setting, for children with hyperkinetic-conduct problems.

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## **Material and Methods**

### **Sample**

From a total population of 1988 children in the age range of 6 to 9 years, teachers rating, in four different schools in Bangalore, on the Conners Abbreviated Rating Scale (CARS) were obtained for all those children whom they considered as problematic. Those children who obtained a total score of 15 and above, were defined as having hyperkinetic-conduct problems. Further it was ensured that none of these children had a history of mental retardation, head injury or epilepsy and that none had received any pharmacological or non-pharmacological treatment for their problems earlier. Ten boys who fulfilled the above cited criteria formed the study sample. Their age ranged between 6 to 9 years and they had either 1, 2 or 3 years of schooling. Most of them came from a middle or low socioeconomic background. All had a core attentional deficit, were motorically overactive, had moderate to severe degree of behaviour problems and some were aggressive. They had interpersonal difficulties and were rated to be doing poorly in studies by their teachers. (The finding that, from amongst the children screened, none of the girls had scores of 15 or above on the CARS, appears to be in accordance with the available literature which indicates the prevalence of hyperkinesis in boys to be more as compared to girls, (4:1 to 9:1 [1] and 4.7:1) [3].

### **Measures**

#### **1. Conners Abbreviated Rating Scale (CARS)**

Developed by Conners [15], this scale consists of ten overlapping parent and teacher items from the 39 Conners Teacher Rating Scale, Trites et al [16] and Oomen [17], [18] agree that a mean item rating of

1.5 or a total score of 15 for the ten items is satisfactory for classifying a child as hyperactive.

## **2. Barkley's School Situations Questionnaire (SSQ)**

Developed by Barkley [8], it is a teacher completed rating scale designed to assess situational variation in child behaviour within the school setting. Teachers are asked to note the presence and severity of child misbehaviour on a nine point scale, in twelve specific school settings.

## **3. Barkley's Home Situation Questionnaire (HSQ)**

Developed by Barkley [6] it is a parent completed rating scale designed to assess situational variation in child misbehaviour within the home setting. Stability estimates for HSQ summary scores range from 0.83 to 0.89 for mothers and 0.60 to 0.63 for fathers.

## **4. Bender Visuo Motor Gestalt Test (BGT)**

The BGT as a test of visuo motor integration consists of nine cards with abstract designs on them; the subject has to copy these designs one at a time. In the present study Koppitz [19] scoring system was employed. Hyperactive children have been found to perform poorly on the BGT.

## **5. Seguin Form Board (SFB)**

Developed by Cattell [20], the SFB consists of a large wooden board from which ten geometrical shapes are cut. The subject has to replace the blocks in their right places as fast as she/he can. Oomen [17], [18], found it useful to calculate the mental age as well as the visuomotor coordination and functioning of hyperactive children.

## **6. Porteus Maze Test (PMT)**

Developed by Porteus [21] the PMT places a premium on planning, foresight and inhibition of impulsive responses. In the present study, the Vineland Revision series was used. The test scores intent to reveal any haphazard impulsive or over confident habits of action [21].

## **7. Colour Cancellation Test (CCT)**

Developed by Kapur [22], the CCT is used as a measure of attention, concentration and impulsivity. There are two parts of the test: simple (single) colour cancellation and complex (double) colour cancellation. The test has been used with hyperactive children and while performing on it, they were found to be distractable and impulsive [3], [17].

## **Procedure**

The study was conducted in four phases:

Ist phase: Screening

IIInd phase: Pre-intervention assessment

IIIrd phase: Intervention

IVth phase: Post-intervention assessment

The screening phase has already been discussed while describing the process of procuring the study sample. In the second phase, i.e, the pre-intervention assessment phase, teachers rating on the SSQ and parents rating on the HSQ were taken. The pre-intervention assessment of children consisted of each child being assessed on (a) BGT, (b) CCT, (c) SFB, (d) PMT.

As intervention was attempted in a group setting, after pre-intervention assessment, the ten children were divided into three sub groups. This division was based on the similarity of their scores on the

teacher's rating, parent's rating and the child's actual performance on the four tests. Two groups consisted of three children each, in the third group there were four children. Though the severity of problems varied across groups, yet the nature of the deficits was similar, hence a uniform intervention package was developed for all the three groups. The major focus of intervention was three fold:

- (i) enhancement of attentional skills,
- (ii) enhancement of pro-social behaviour
- (iii) reduction in problematic behaviour.

Attempts to improve the attention span were made by employing simple tasks, such as, colouring exercises, scanning of numbers and beading exercises. The complexity level of the tasks was gradually raised over the sessions. Toward the latter few sessions, functional tasks that closely approximated the real life situations of the children were incorporated into the over intervention programme. In addition, role play, story telling and games were slowly introduced into the group sessions. Based on the hypothesis that these children tend to respond impulsively, as they are "unable to stop, look and listen" . Training in cognitive self control strategies, which included self instruction, self monitoring and self reinforcement was imparted to the children.

The target of enhancing pro-social behaviour was met by creating an atmosphere in which the children realized that it was the total group activity that brought about positive reinforcement. As far as possible, group tasks were selected. Sharing of experiences and problems was encouraged in the session. To facilitate reduction in undesirable behaviour, such as stubbornness and defiance, differential reinforcement was effectively used. Time out and response cost were rarely employed, as the focus was on maintaining a warm and positive group atmosphere.

Each session would commence with an exchange of initial greetings, followed by the presentation of the agenda for that particular session. Following this, the first fifteen minutes would be devoted to the daily discussion in which the rationale for cooperative and collective work and play were highlighted. The children's role as responsible individuals was stressed upon. Problematic situations, as indicated on their CARS, BSQ and HSQ profiles were taken up and alternative ways of behaving in these situations were deliberated upon. Colouring was the next task to be undertaken. A large cardboard was spread on the floor and the children would take different positions around it. Initially they began colouring simple geometrical figures, however soon they went over to colour similar smaller and more complex figures, as the task complexity increased, demands on systematic, accurate and cooperative drawing were emphasized upon.

Beading tasks were next on the list. Each child was provided with a string and beads were kept in the centre, at a distance, which was equally accessible to all the children. Over the sessions, the size of the beads was reduced and the required number to be beaded increased. After beading, a short break of 5 - 10 minutes was provided to allow the children to relieve the motoric pressure that was built up. The task taken up after the break was visual scanning. On a piece of paper, numbers would be randomly placed. The task required them to strike off the numbers in the serial order. The complexity level of the exercise was raised by reducing the size and boldness of the numbers and by increasing the total numbers to be cancelled. In the third week, story telling was introduced. As the activity closely resembled the class room tasks, it was hoped that practice in it during therapy, would lead to an improvement in the actual study situation.

Twice a week they were allowed to play games. The purpose of these games was two fold. Firstly, they acted as positive reinforcers. Secondly, they had to be played according to rules, adhering to which

indirectly helped them to learn to wait for their turns and to play co-operatively in a group situation. From the eighth session onwards, specific problem situations were focused on the role playing attempted to provide alternative modes of behaviour during difficult interactions. As the children's participation in this activity was minimal after a few attempts, the use of this technique was discontinued.

Before ending any session, feedback was provided to the group. On the motivational chart stars were given. Other reinforcements included sweets and small gifts. They were encouraged, praised, patted and verbally reinforced. If misbehaviour occurred, the reasons for its occurrence were discussed in detail. Before closing the session, each child would summarize how they were expected to behave, at school and at home.

Individual sessions were taken up for those children who expressed difficulties (e.g. learning, emotional or behaviour problems) which could not be adequately handled in a group setting. Sessions were also held with each child's teacher, in order to sensitize her to the needs of the child, to accept him and also to increase her competence to deal with his misbehaviour. Likewise three-four sessions were conducted with each child's parents. The focus was on counselling the parents about the nature of the child's problems. In these sessions they were sensitized about the special needs of the child for a better self esteem and confidence. Positive parenting styles and reinforcement principles were discussed with them. In the last session with them, tasks were chalked out that were to be continued at home, after the completion of the school intervention programme.

The continuity between the school and home programme was maintained by an understanding between the teacher and parents that stars given on the motivational chart by the teacher would be exchanged for actual rewards by the parents.

Hence, in the initial phase of intervention, the major focus was on helping the children understand and recognize the nature and consequences of their problematic behaviour. During the middle phase, the emphasis was on strengthening the children's motivation to overcome their attentional and arousal modulating deficits. In the final few sessions, the work initiated in the previous days was continued with added emphasis being laid on improving their attention by organizing and focusing it on every task they attempted. The entire intervention programme was spread over a total duration of 30 to 45 days, with either three to four sessions being held each week, the duration of each session ranging between eighty to ninety minutes.

During the fourth phase, i.e. the post intervention assessment phase, teacher's ratings on CARS and on 550 were obtained. Parents rated their children on the HSQ and the children, themselves, were assessed on all the four pre-intervention assessment tests, i.e. on the BGT, SFB, CCT, PMT.

Three months after the completion of the programme, a follow up was done. It was found that eight of the children were still maintaining the improvement. At the time of the follow-up, two booster sessions were held with each of the three groups so as to further consolidate the gains from the intervention programme.

## **Results**

An analysis of the intervention process revealed that as the sessions progressed, qualitatively the children's performance on the various tasks improved and reduction in their behaviour problems, both at school and at home gradually became evident. To test whether these improvements were statistically significant, the paired-t-test was employed to compare the scores of the entire sample, on various

pre-post assessment measures. The efficacy of the intervention programme was evaluated on the basis of the comparison between the pre and post-intervention assessment scores obtained by

- (i) the teacher's ratings,
- (ii) Parent's ratings,
- (iii) Performance of the children.(i)

### **Teacher's ratings**

Table I shows that a significant decrease in the children's misbehaviour across various problematic school situations was reported by the teachers during post assessment. The teacher's observations also revealed that the children were disturbing other children much less, during class hours, and were themselves considerably less restless. Changes such as their maintaining a more stable mood were accompanied by a significant reduction in the frequency of temper tantrums.

*Table I - Efficacy of the intervention programme as evaluated by the teacher*

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(ii)

### **Parent's ratings**

Table II shows that parents reported considerable reductions in child misbehaviour during post assessment. These reductions were significant at the 0.001 level. On HS overall improvement was reported for all the ten children. On preassessment the most common situations in which difficult behaviour occurred were:

- (i) while playing with other children
- (ii) during mealtimes
- (iii) when parents were on the telephone
- (iv) when father was at home.

On post assessment reduced scores on situations such as

- (i) while playing with other children
- (ii) during mealtimes
- (iii) when visitors came home and
- (iv) while doing homework were recorded.

The difficulties faced in the remaining problem situations as, when father was at home continued more or less as earlier. This could perhaps be partially understood as six of the ten children had punitive parents, of whom they were afraid. Posture changes, significant enough, for children to feel comfortable while interacting with their parents, would occur only after the children began experiencing a qualitatively richer interaction that would ensure them of a changed parental style of functioning. The one month duration of the intervention process was too short a period to reflect on these changes.

*Table II - Efficacy of the intervention Programme as evaluated by the parents: Comparison of pre and post intervention ratings on Barkley's Home Situations Questionnaire*

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(iii)

### **Performance of children**

The children showed significant reductions in the number of errors made on the BGT. Increased maturational age on this test was attained at post-intervention assessment. On the SFB reductions, in time taken for the total trials was significant, but not for the shortest trial. On the double cancellation test, the results obtained were not statistically significant, but a trend towards improved performance was seen. Reduction in number of blind alleys entered and qualitative errors made during post-assessment was observed. A shift towards a more systematic and orderly style of functioning was observed in some but not all the children. (Table III)

*Table III - Efficacy of the intervention programme as determined by a comparison between the children's pre and post assessment performance*

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## **Discussion**

The results reveal that on most of the pre-post measures, the improvement was significant. Even where the results were not statistically significant, they were in the positive direction. The major inferences that can be drawn from the children's performance at post-assessment are indicative of increased ability to attend on the simpler tasks, with difficulties in maintaining attention on the more complex tasks. Shifting from a haphazard, ill planned and hurried manner of responding to a more systematic style was seen in only some of the children. This finding implies the need for additional training, which would focus on helping these children to specifically organize each activity, scan it carefully item by item and progress slowly and systematically. Although attempts in this direction were initiated yet they could not be fully consolidated. This can be understood, as the core attentional problem, the children had, required more intense inputs before it could be successfully tackled. On the other hand, the fact, that a few children spontaneously used verbal self instructions, worked more systematically and were aware of their own mistakes, reflects that teaching them to organize themselves may not be ultimately impossible.

It is worthwhile to observe that both parents as well as teachers noticed positive changes toward the children's adjustment in small group activities. Inculcating the ability to relate positively with one's peers was a major target that intervention aimed at. By the end of the programme, the three groups showed different degrees of success in the attainment of this goal.

The effective handling of problematic behaviour was due to the combined efforts of the children, parents, teachers and therapist. The practice of dealing with specific problems as revealed on their Conner's and Barkley's profiles was particularly helpful as it made the problem content clear to them. Previously, Douglas et al [10] had also speculated on the effectiveness of handling conduct problems in this way. Despite the effects of intervention, in certain areas, conflict between the children and their environment still continued. This highlighted the fact, that while intervention was successful in initiating positive behaviour, continued inputs and efforts of both teachers and parents were essential if these improvements were to be maintained over time. Various researchers in the past [1], [8], [9] have

all shared the belief that teaching parents and teachers, a more consistent, immediate and appropriate use of consequences following appropriate or inappropriate child behaviour is the best method to deal with the problem situation. In recognizing the importance of these findings, the study attempted to involve both teachers and parents into the main intervention programme. However, their participation was possible only to a limited extent. One reason being that it was not possible for the teachers to find time to participate in the actual intervention sessions, their time constraints often made it difficult for the investigator to interact with them or discuss in detail about the children. Results show a clear relation between the child's improvement and his teacher's sensitivity and motivation. The positive effects of the teacher's efforts were reflected in the children's expression of happiness on being hugged, patted and praised by their teachers. On the other hand, teachers who continued to hold a negative attitude toward the children induced feelings of rejection and unhappiness in them. Bornstein and Quevillion [14] have reported similar observations, wherein hyperactive and high active boys reported being aware and feeling unhappy because their teachers disapproved of them.

As the primary goal of intervention was to develop a programme in the school setting, the work done with parents was brief and only a few sessions could be held with them. The finding, that eight of the parents used inconsistent disciplining and in addition that six of the children had interactional difficulties with their parents are significant in themselves. It is speculated that Michenbaum's [11] suggestion of training both the children as well as their parents to deescalate negative encounters may in fact be worthwhile to be incorporated in programmes for children with hyperactive-conduct problem.

This programme had several similarities with that of Douglas et al [10]. The selection of tasks was made in keeping with Bornstein and Quevillion's [14] design, the tasks suggested by Ross and Ross [1] were also included into the daily sessions. Based on Barkely's parent training programme, the work with the parents and teachers was undertaken in this study.

One of the major reason contributing to the success of the programme was the fact that these children had problems which were less severe than those found in clinical samples. This in itself made it easier to work with the children and their parents. They were children with problems in the hyperkinetic - conduct dimension, as identified with the help of CARS. It is important to clearly distinguish them from those fulfilling the clinical criteria for hyperkinesis or conduct disorder. This distinction highlights the fact, that in non-referred samples, investigators using tools such as the CARS, are more likely to pick up children who are comorbid on the hyperactivity - conduct dimension. Hence, there is need for extensive, integrated school programmes for comorbid children [23]. Perhaps what is needed are treatment programmes which are broader in scope and time and which take into consideration both the hyperactivity any conduct related problems of these children. To conclude, there is need to develop programmes that will aim at improving the child's social, academic and organisational skills; enhance his/her self esteem and simultaneously provide changes in his / her home and school environment by training parents and teachers to handle the child effectively and to work in close cooperation with one another.

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