

Psychological Deficits Associated with the Hyperkinetic Syndrome

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Abstract

The study aimed at assessing the psychological deficits associated with the Hyperkinetic Syndrome. The variables studied were attention, memory, intelligence, impulsivity, visuo-motor co-ordination, social maturity, and spatial perception and organization. The sample consisted of 30 children in the age range 4-9 years, comprising three groups, i.e., hyperkinetic, overactive and normal with 10 children in each group. The children were screened on the Rutter B Scale and Conners Abbreviated Rating Scale. A battery of psychological tests was administered on each child. The hyperkinetic group was found to perform poorly on all the variables assessed, whereas the pattern of psychological deficits in the overactive children resembled more that of the normal group than that of the hyperkinetic group.

Key words -

**Hyperkinesis,
Psychological deficits**

Hyperkinetic children constitute a small part of the primary school class, but effects on peers and demands on teachers are far out of proportion to their numbers. These children are always on the go and for ever getting themselves into more than their share of squabbles with peers and adults.

First described by Bradley [1] the hyperkinetic syndrome is characterized by attention weakness, distractibility, over-activity, irritability, impulsiveness, low frustration tolerance and poor school performance.

Studies on hyperkinetic children have mostly been related to drug effects. Studies on the associated psychological deficits are relatively rare. Thus an exploration into the hyperkinetic syndrome and the pattern of psychological deficits in these children becomes an important issue in correct diagnosis and intervention.

The aim of the present study was to assess, if any, the psychological deficits associated with the hyperkinetic syndrome of childhood. More specifically to study attention, memory, intelligence, impulsivity, visuo-motor co-ordination, social maturity and spatial perception and organization of hyperkinetic children.

Procedure

Sample : The sample consisted of 30 children in the age range 4-9 years, selected in 3 groups of 10 children each.

I - hyperkinetic group

II - overactive group

III - normal group

The first group consisted of 10 children diagnosed as 314.0 simple disturbance of activity and attention on the ICD - 9. Children registered at the Child Guidance Clinic, NIMHANS, were included in this group. This group excluded children who were mentally retarded on clinical assessment, children with history suggestive of organic involvement and those already on medication.

The second group consisted of 10 over- active children described by their teachers as being overactive and unmanageable in class, from a total population of 400 children.

Subjects forming the normal group were randomly selected from the same school population of 400 children. These 10 children were screened on the Rutter B Scale, scoring below the cut-off point of 9 and matched in age and sex with the hyperkinetic group. They also rated low on the Conners Abbreviated Rating Scale rated both by the teachers and the investigator.

't' test revealed that the difference in ages was not significant ($t=2.06$) and hence the three groups were comparable.

Tools

1. Rutter B Scale [2] was administered on the overactive group and normal group.
2. Conners Abbreviated Rating Scale [3] was administered on all 3 groups.
3. A brief biographic data questionnaire for information on birth history, developmental milestones and medical history was administered to the hyperkinetic group (Ref: Notes on Psychiatric History - taking for child patients, CGC, NIMHANS).
4. The Colour Cancellation Test [4] as a measure of attention span.
5. Seguin Form Board [5] and Binet Kamat Test [6] - as measures of level of intellectual functioning.
6. The PGI Visual Recognition Test [7] as a measure of immediate visual memory and the Digit Span Test as a measure of immediate auditory recall.
7. Porteus Maze Test [8] as a measure of impulsivity.
8. Bender Visuo-Motor Gestalt Test [9] as a measure of spatial perception and organization and visuo-motor coordination.
9. Vineland Social Maturity Scale [10] - as a measure of social adaptability.

Results

The performance of the three groups of children, i.e., the hyperkinetic, overactive and normal groups, on the different tests was compared in order to see the patterns of psychological deficits.

On the Colour Cancellation Test the hyperkinetic Children tended to miss out more red dots, cancel

more wrong dots and get a lower total correct score when compared to the overactive and normal Children. Their attention span was short and they were impulsive.

The performance of the hyperkinetic children on the Seguin Form Board was significantly poorer than the performance of the other groups. On the Binet Kamat Test ANOVA showed a highly significant difference between the three groups (Table 1).

Table 1 - Distribution of mean IQs on the Biner Kamat Test for the three groups

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F=14.80 Significant at 0.01 level.

Hyperkinetic children were found to perform poorly on intelligence tests when compared to normal children.

On the PGI Visual Recognition Test no significant difference between correct recalls of children in the 3 groups was found. Taking into account the number of items recalled wrongly, a highly significant difference was found on ANOVA (F=10.18). Hyperkinetic children tend to make more errors on the Visual Recognition Test than their controls.

On the Digit Span Test, the overactive and normal children were found to get a significantly higher score than the hyperkinetic children.

Comparing the performance of children in the different groups on the Porteus Maze Test, the average level reached by the hyperkinetic group was 2 years ; the average level reached by the overactive group was 6 years, and the average level reached by the normal group was 7 years.

On the Bender Visuo-Motor Gestalt Test, the visual perception and spatial organization of the hyperkinetic children was found to be impaired when compared to the normal children.

On the Vineland Social Maturity Scale it was found that most of the children in the hyperkinetic group had a social maturity age below their chronological age, while in the other groups, all the children had social maturity ages above their chronological age (Table 2).

Table 2 - Mean social maturity age on VSMS for children in the three groups

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Fischer's Exact Probability Test $p= 0.000007$.

Discussion

It is interesting to note the difference in ratings on the Conners Abbreviated Rating Scale of the overactive group, when rated by their class teacher and when rated by the investigator. Teachers rated all these children above the cut-off point of 15, while the investigator rated only one child to be so. The difference between the two sets of ratings for the same children was found to be highly significant ($t=6.82$). As stated by Lambert et al [11], the prevalence of hyperactive children varies according to who defines the disorder. We seem to have a group of children who are normal to the investigator who has not more than two hours contact with them, but who, to their teachers, who see more of them seem disturbed to a certain extent.

Regarding the performance of these children on the tests also, that of the one child rated high on the

Conners Abbreviated Rating Scale by the investigator was consistently poor when compared to the others in his group and his performance was similar to that of the hyperkinetic children. The other nine children in this overactive group, on the other hand, performed more like the normal children.

This leads one to speculate upon what made the teachers rate these children so high and whether they are justified in doing so. Hyperactivity describes those aspects of a person's behaviour which annoy the observer. This thinking follows the sociological model of Schefflin and Opton [12] which holds that hyperactivity is not a genuine disorder but just a label which provides comfort to parents, teachers and peers. We have a group of children who don't seem to be understood by the people around them. Labelling a child as 'overactive' does not mean he fits into a diagnosis of the hyperkinetic syndrome of childhood. The present study did not find any associated cognitive deficits in the overactive children. Whereas the hyperkinetic children who have cognitive deficits along with over activity, impulsivity and distractability need to be referred to specialists for medical and psychological management. An assessment of the pattern of deficits associated with this syndrome could form a baseline from which remedial work could be evolved as hyperkinetic children have a distinct profile of psychological deficits as different from overactive children. Educational authorities should be encouraged to play a greater role in the handling of hyperactive children particularly through lines of behavioural management.

The sample size in this study is small hence generalizations should be made with caution. Comparing the children along biological parameters as well as along psychological parameters would yield interesting results.

Conclusions

Comparing the performance of the hyperkinetic, overactive and normal children on the various tests, the following conclusions were drawn :

1. Hyperkinetic children in comparison to their controls were more impulsive and unable to sustain their attention ; had lower IQs; performed poorly on tests of visuo-motor co-ordination; had impaired memory for both visual and auditory stimuli; had impaired spatial perception and organization ; and had lower social maturity ages.
2. The pattern of psychological deficits in the overactive children resembled more that of the normal group than that of the hyperkinetic group although the behaviour of these overactive children was rated by their teachers to be a similar to that of the hyperkinetic children.

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