HYPERACTIVITY IN CHILDREN:

SOME CONCEPTUAL ISSUES

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ABSTRACT

The literature on hyperactivity in children was reviewed and a theoretical discussion on underlying issues of brain damage, population samples, sociological and contextual variables followed, citing further literature in relevant areas.

Some clinic cases were reviewed as instances of the discussion centering on contextual variables. The implications arising from these case histories were discussed.

PART I

CHAPTER I

INTRODUCTION

To study the 'Hyperactive Syndrome' in terms of hard experimental research, a homogeneous population of hyperactives and normals is required to provide meaningful, statistically contrasting data. Another requirement is that of an operational definition of every component part of the syndrome, so that a population of 'hyperactives' could be reliably assembled by an investigator. Since many different professionals have engaged in research in this area, meaningfulness and clarity of terms and labels seems desirable. To aid replication, objective measures and techniques are preferred and data collection would be preceded by studies of inter-observer agreement yeilding high positive intercorrelations.

The initial literature survey showed that the hyperactive child was well documented and that much agreement existed between investigators about which children could be so classified. Since little was known about the parents, or about the interaction of parents and the hyperactive child (King 1969), a preliminary research project of a descriptive type was envisaged, to check an observation (Ounsted 1955) that the parenting of the hyperactive child was quantitatively and qualitatively different to that of "the normal child".[1] The initial design was to consist of a

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1. Ounsted coined the label Hyperpaedophilia as a description of the parental behaviour observed in his clinic.

pilot project to map out types of interactions between parent and child which took place in the home situation. It was hoped to sample the complete daily waking cycle of one diagnosed hyperactive child.

The sampling would consist of two hours of observation at a time, spread over a period of two weeks. On the basis of the results obtained, it was hoped to replicate this type of sampling with a larger population of hyperactives and normals, matched on the usual variables, such as I.Q., age, sex, socio-economic grouping, and if possible on place in family, i.e. birth order. On the basis of the pilot study, it was intended to systematise the observations and their analysis. Several strategies for observation and analysis of data were available as options, (Bugental et al. 1972, Foster 1969, Stern 1973, Wimberger et al. 1972, Winter et al. 1969). The pilot study would elicit what kinds of problems would modify the cited design in the literature.

However, the project was not undertaken as planned (see Chapter VI on case studies) as several problems became manifest. The most important yet least attended to in the literature on hyperactivity was the problem of homogeneous populations, both normal controls and hyperactives. Chassan (1967, 1970) outlined some of the problems.

Macfarlane et al. (1954) summarized the incidence of problems of over 100 normal children as reported by their mothers in a 35 item open-question interview. Some of the problems were reported so frequently at certain ages that they appeared to be 'normal' in the development of children in a Western-type culture. The incidence of some problems appeared to increase or decrease with age, while others occurred with high frequencies at more than one developmental period. The authors report that at about three to three and a half years of age children behaved in such a way that their mothers reported speech difficulties, temper outbursts and specific fears. Mothers reported that at the age

of five, overactivity and destructiveness (observed far more in boys than girls) reached their peaks and then declined.

Bakwin and Bakwin (1972) speculate that children who are over-controlled or restrained tend to react by hypermotility. At around the four to five period many children (boys more so than girls) in our type of culture get the first taste of restraints applied by adults. Girls especially tend to have exercises in restraint at earlier ages.

The requirement of replicability of research demanded that the signs and symptoms which make up the syndrome of hyperactivity be operationally defined. However, despite reports in the literature of objective measures of activity levels and other reports which showed the doubtful validity of such measures and the equipment used, there remained a vast number of signs and symptoms which had no objective measurements or techniques to define them validly or even reliably. It became clear that the unstated assumptions and theories underlying the large amount of research done in this field needed clarification and exposition and that the already described design might prove totally unsuited as 'hard experimental' research was not feasible at this stage.

In developing this investigation a literature survey on selected aspects of hyperactivity was followed by an investigation into the methods and theory of the minimally-dysfunctioning brain and the postulated reasons for such dysfunction. It became clear, on theoretical ground, that many of the observed discrepancies and contradictions in the literature could be attributed to a neglect of taking into account sociological, contextual and functional variables. A further survey of related areas of research was made to see if postulates already existed for these observed discrepancies and this was recorded.

Finally, some case studies were recorded to illustrate the discussion on theory and research developed in previous chapters.

CHAPTER II

A SELECTED LITERATURE REVIEW

Ounsted (1955) in a classic paper carefully described many symptoms which he grouped under the heading of hyperkinesis. He built up a picture of the child exhibiting this syndrome.

In a clinic situation, the child may resemble a miniature tornado; rapidly flitting from one object to another, pulling all the books off the shelves, and repeatedly interrupting the conversation between parents and Doctor with questions such as "what is this?". He may fiddle with an object such as a key in a door and lock and unlock it rapidly for about 25 - 30 seconds. The child may play with objects but his play is fragmented; each episode or theme seems to be unrelated to a preceding one, though each activity itself seems to be precise and well co-ordinated, but of short duration. The child seems to lack fear of the situation and of the new adults he meets. He is hyperexcitable and may have destructive outbursts. There may be rapid transitions from euphoria to rage and back again, with euphoria as the abiding background. The child may perseverate on a simple test of visual motor co-ordination or even with a question "what's that?". He may ask this several times even though he has had a satisfactory answer. He may show excessive interest in running water and turn on and off the tap of the basin in the room. The rate of activity he exhibits may have a narrow spectrum and he may exhibit a short attention span, which may last up to 40 seconds in duration, but which shows

little variation round the mean. One might well conclude that such pathologic excess of energy expressed by motor activity can be described as hyperkinesis.

On the other hand Werry and Sprague (1970) state:

> "Hyperactivity is a conspicuous complaint made by adults about children's behaviour."

This appears a more valid description, since the activity described by Ounsted, above, was not only locomotion, but that of any movement or motor response. The typical restlessness and low threshold for frustration tolerance on the part of the child and the adults around him, and more relevant, the inappropriateness of the activity to the situation and age level make the label "Hyperactivity" more suitable for the purpose of this discussion.

It must be noted, that usage of the label "Hyperactivity" increased the problem of definition and of the description of the population of children who exhibited this syndrome. Thus, unless there was a specific symptom or set of symptoms to focus on, one could expect to find children who were referred to Child Health Clinics for behaviour problems, to be referred most often for hyperactivity (Patterson et al. (1965).

Another way of looking at it, was to view hyperactivity as the most common symptom of psychopathology in childhood. The child who expressed a pathology in an overt manner might show many of the behaviours grouped under the syndrome of hyperactivity. Many psychotic, autistic, schizoid, neurotic behaviours thus qualified, as did the behaviours exhibited by brain-damaged children. It was easy enough to use the "Strauss Syndrome" as a synonym for hyperactivity, since it is characterized by hyperactivity, destructiveness, agressiveness and poor inner controls. Kahan (1971) in a study of children in a residential treatment centre observed:

> "It was also found, however, that many general descriptions of behaviour such as 'overactivity, destructiveness or temper tantrums' appeared in the case notes of a very wide range of disturbed children." (Pg. 15.)

Similarly Battle and Lacey (1972) stated:

> "It has been observed that clinically hyperactive children often display emotional and behavioural symptoms such as defiance, agressiveness, unpopularity with peers, temper tantrums, inability to complete projects or follow directions, and unresponsiveness to discipline."

Given this type of overt behaviour, a clinician might have problems of adequate testing and of making a thorough differential diagnosis; especially since much of the early literature associated this type of hyperactive behaviour with some kind of brain damage or minimal cerebral dysfunction or inferred impairment of psycho-neurological function or the Strauss Syndrome. Birch (1959) summed it up thus:

> "A whole group of people came to define brain-injured individuals as a stereotype of hyperactive, distractable, perceptually disturbed children. Nothing could be further from the truth."

Stella Chess (1969) came to a similar conclusion:

> "There has been a persistent tendency to refer to all minimally brain-damaged children as a unitary group characterized as hyperkinetic and to diagnose any hyperkinetic child as brain-damaged, often through circular reasoning."

John Werry (1972) in a review of the literature on Organic Factors in Childhood Pathology wrote in his conclusion:

> "On the basis of present evidence, it seems most reasonable to conclude that brain damage or dysfunction is simply one of several variables such as temperamental proclivity, familial, social and educational experiences that interact in a complex multivariate fashion in determining personality and behaviour. In this interaction brain damage appears in the vast majority of instances to be a variable of relatively weak effect, the action of which is further complicated by its psychological as well as its physiological impact."

Logically then, organic dysfunction or damage was neither a necessary nor a sufficient cause for the many behaviour components in the hyperkinetic syndrome or in hyperactivity. The literature showed that an appalling lack of definition of the construct of "hyperactive" or "hyperkinetic" exists. Keog (1971) stated that most investigators had focused on symptomatology of the condition; a descriptive approach.

Drug Studies

In this group, the construct was assumed to be valid and there was an assumption that a given pattern of symptoms, e.g. an abnormal high level of motor activity, a short attention span, marked distractability, irritability, and hyperexcitability, characterized the hyperactive/kinetic syndrome.(1) (Burket (1955), Burks (1964), Zrull et al. (1964), Rapaport et al. (1971), Knight et al. (1969), Horenstein (1957), Satterfield et al. (1972), Krakawski (1965)

Some authors had simply investigated the effects of a variety of drugs on the behaviour components of children diagnosed as hyperactive.

Others, Werry and Sprague (1972), Werry et al. (1966), Weiss Sykes et al. (1971), Weiss et al. (1968), Conners et al. (1963, 1964, 1967), Barcai (1971) had sought to study the effects of various drugs on behaviour and the ability to learn; this ability being measured by intelligence tests. These groups of authors reported various measures of success with different stimulants and anti-convulsants and depressants, although each type of drug studied seemed to work for some but not all of the population so studied. Some children became worse or had to drop out of the experiments. Sprague et al. (1970) did a study on Methylphenidate and

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1. The two words may be considered as synonymous and subsequent discussion will refer to the 'hyperactive syndrome'.

Thioridazine and measured the effect of each on learning, reaction time, activity and classroom behaviour in disturbed children. He reported that Methylphenidate significantly increased correct responding, decreased reaction times and hyperactivity and significantly increased attention and co-operative behaviour in the classroom. Behaviours observed were generally operationalized by observer ratings (dealt with in the next group of studies.)

Randrup et al. (1969) studied the stimulating and inhibiting effects of amphetamine and M.A.O. inhibitors in combination with thymoleptics and the effect of D.O.P.A. given after monoamine oxidase inhibition is observed in rats. Millichap et al. (1967) studied both rats and children in laboratory and clinical evaluations of drug treatments.

Studies which attempt to quantify behaviours

Some authors (Schulman et al. (1959)) have attempted to measure objectively the activity of clinic and normal control populations by way of an automatic watch which was strapped to an arm or leg, or both. The watch was so modified that it recorded the movement of a limb in terms of frequency. Johnson (1971) found the 'actometer', as the watch is called, unreliable and questioned the relationship of the motion which the actometer quantifies, and the behaviour of the hyperactive child.

Behaviour rating scales which quantify certain components of the syndrome have been developed by many. Kupietz et al. (1972), Conners (1969), Bell et al. (1972). Interobserver reliability co-efficients as reported were impressively high between teachers, parents, and clinicians. It seemed that all could pick such child when they saw one, although it was harder to define hyperactivity 'a priori'. Similarly, agreements when averaged out were higher, than if taken case by case. Nevertheless rating systems show promise, in that actual behaviours, rather

than a syndrome, were rated. The difficulty of the method lies in the fact that normal children also exhibit such behaviours, but perhaps to a lesser degree and in situations which are context and age appropriate. Bell et al. (1972) at least built in a continuum in their scales, which allowed the behaviours of both hyperactive and withdrawn children to be plotted.

Other methods employed have varied widely from using photoelectric cells (Ellis et al. (1958)) to deviation from normal play patterns in a play therapy room (Ginott (1961)) and to a multi-dimensional model of temperament (Chess (1969)).

Studies of the management of hyperactive children

Operant conditioning techniques have been employed successfully by Dourbros et al. (1966), Brown et al. (1965), Patterson et al. (1965), Buehler et al. (1966).

Scott (1970), making use of background music, exercised some control over hyperactive behaviour. Cruickshank (1967) reported the use of training booths and the reduction of stimulation. Harris et al. (1970) reported on the integration of disturbed preschoolers in a normal nursing school, basing his techniques on social learning theory and modelling of behaviour.

Diagnostic and descriptive clinical studies

Several groups of authors, Knobel et al. (1959), Waldrop et al. (1971), Brandon (1971) and Stewart et al. (1966), have made definite attempts to relate physical factors in the aetiology to the syndrome of hyperactivity.

Some clinicians, Jenkins (1970), Fish (1971), Kenny et al. (1971), Howell et al. (1972), Burks (1960), Ounsted (1955) and Chess (1960),

have described the symptom pattern used in diagnosis and also the treatment methods (mainly drugs) employed.

More general descriptions of the syndrome and a possible theory of organicity were found by Laufer et al. (1957), Silver (1958), Kahan (1971), Chess (1969), Conners (1970), and Eisenberg (1964). Many theories have been advanced, especially those implicating the diencephalon and the reticular activating system. These theories were based on the response of some hyperactive children to stimulants which implicate these brain structures. Yet other children similarly responded to anticonvulsants. This lead to a conclusion of lesions in the temporal cortex region, especially as some E.E.G. recordings indicating focal temporal epilepsies had been observed. Others who have had success with depressant type drugs favour a psychopathological theory. Such reasoning was based on a diagnosis which in turn was based on the outcome of a behavioural reaction to drugs, a spurious and suspect method to base a theory on.

Pope (1970) has made a distinction between the intensity of motor activity of minimally brain-injured children and their restlessness; i.e. the excessive proportion of time spent in motion. He suggested that the total motor activity level of such children did not differ from normal controls, but that their restlessness was significantly greater. This has been observed in the studies which have attempted to quantify motoractivity of normals and hyperactives. The observation that hyperactives differed in their behaviour qualitatively rather than quantitatively was researched by Battle et al. (1972). Marwit et al. (1972) delineated two patterns of hyperactivity, which if viewed macroscopically, appeared as one pattern. They suggested that each pattern had its own aetiology and associated behaviours. Pattern I had factors of organic brain damage, maturational lag and constitutional factors. Pattern II had aetiological factors of emotional disturbance and anxiety. Pattern I was

managed best with pharmacological methods while Pattern II was managed with therapies based on the principles of learning theory.

These two patterns seen as one, may have accounted for many of the conflicting results in studies on hyperactive children. The authors cited agreement on a list of behaviours which included overactivity, impulsivity, low frustration tolerance, short attention span, distractibility, overaggressiveness and associated these with variables of sex, age and ordinal position (it was more prevalent in firstborns than in laterborn children).

Longitudinal studies

Retrospective case study has been a method employed by Chess (1960, 1969), Cruickshank (1967), Thomas et al. (1968) and Birch (1964). The prognosis for the syndrome came mainly from such studies, e.g. Eisenberg (1966):

> "Hyperkinesis typically shows a developmental course, diminishing in later childhood and usually disappearing by adolescence."

Two followup studies of note were firstly by Minde et al. (1971) which showed hyperactives to have a significantly higher failure rate in all academic subjects than normal controls and the hyperactives were rated by their teachers as displaying far more behavioural problems than their controls. An increase in learning disorders was also noted for hyperactives, although I.Q. alone was ruled out as the main contributor to their academic failure.

Secondly, Battle et al. (1972) studied 74 subjects, predominantly middle class, drawn from the Fels Longitudinal study. The authors reported mothers of male hyperactives to be critical, disapproving, unaffectionate and severe in punishment but mothers of female hyperactives had no such pattern. Males were rejected more often than females by their peers. Males showed negative achievement striving in general, and specifically in

intellectual-academic areas, but positive in physical skills areas where they were aggressive and unconcerned with bodily harm. Females tended to show positive striving in both intellectual-academic and physical skills areas. About the activity of females in the 3 - 6 year age group they stated:

> "It would seem that the hyperactivity of females in the 3 - 6 year age group is channeled in the socially acceptable direction of achievement behaviour, while that of the boys is concentrated on a resistance to adults which eventually appears as part and parcel of their avoidance of most achievement activities."

Studies of psychological assessment

Several studies showed significant correlations between neurologic findings and psychological test results (Diller et al. (1964), Klatskin et al. (1972), Reitan (1968)). Ross (1968) discussed the conceptual issues in the evaluation of brain damage, commenting on the lack of adequate psychological tests available.

Studies on selected aspects of hyperactive behaviour

While in this group the studies were more diverse, though provocative and interesting, some subgrouping was possible. Neurological appraisals of hyperactives and comparisons of hyperactives and normals and other categories make up one such group (Anderson (1963), Werry et al. (1972), Kaspar et al. (1971), Klinkerfuss et al. (1965)). Neurological studies usually included psychologic assessments and aetiologic comparisons. Difficulties associated with each were discussed. E.E.G. findings were hard to assess and findings were contradictory. The psychologic tests were seldom normed for developmental sequence and tended to sample perceptual tasks, e.g. visuo-motor tasks.

Shetty (1971a) studied alpha rhythms in hyperactive children and concluded that they have a basic disorder of inhibitory mechanisms

in the C.N.S. which results in the children being stimulus-bound. Stimulants seemed to strengthen these inhibitory mechanisms; an increase in alpha rhythms was seen in those who responded well to such drugs.

Shetty (1971b) also studied the photic responses of such children while being injected with C.N.S. stimulants and found a decrease of photic response and a raised photometrazol threshold. There was also a decrease in photomyoclonic response when subjects were injected with stimulant drugs. Normal controls showed no such decreases with placebo or stimulant drugs.

Palkes et al (1972) and Dykman et al. (1970) studied task performances and intellectual abilities of hyperactive children. Palkes found that hyperactive children had intellectual as well as behavioural handicaps, but that they learned at the rate normal for their level of intelligence. Dykman showed that hyperactives on the average take .10 of a second longer to process information than do controls.

Mofenson et al. (1972) wrote that in their clinic, they had employed an Abdominal-Tickle-Test, to alert them to potential hyperactive children. These children were reported to be excessively ticklish as a response to tactile examination of the trunk.

Barcai (1971) reported success with the Finger-Twitch-Test to sort out which patients were likely to respond to amphetamine drugs. Children were asked to hang their hands between their knees and their heads forward on their chest and to leave their hands in a normal position with fingers moderately flexed. An interval (as measured by stopwatch) between start and onset of a finger twitch (an abrupt jerky movement) of less than 20 seconds duration was an index of a good responder to amphetamine. 21 - 25 seconds was an index of an equivocal responder. While those who could delay the response, or not show it for a full minute, were shown to be non-responsive.

This test was supplemented with six items of a mental status test (excessive body movement, ability to abstract and use imagination constructively, ability for future planning, sense of perspective and the ability to transcend, good language ability and planning, correlation between future occupation and the three wishes). The non responders scored lower in excessive body movements but higher in the hext five categories. Taken together, Barcai reported good prediction. He predicted 21 out of 23 drug responders; 15 out of 16 non responders and 9 out of 14 equivocal responders.

Studies summarizing the literature

In a very comprehensive summary of the literature, Werry et al. (1970) concluded that hyperactivity was a disorder of movement which resulted in conflict with the social environment due to amount of movement and/or its inappropriateness to the situation.

They observed in their conclusion:

> "To this date, however, the role of cerebral status in the aetiology of hyperactive behaviours and more importantly in their response to therapy is quite unclear."

They also noted that:

> "Pharmacotherapy appears able in certain instances to reduce the emission of hyperactive behaviours and thus should prove a valuable integral part of behaviour modification procedures . . . It does seem established, however, that when given in normal clinical dosage, sympathomimetic amines and phenothiazines can be successful in reducing hyperactivity without simultaneously significantly impairing cognitive functions."

The authors reviewed studies where hyperactive behaviours had been viewed as operants, i.e. a functional analysis of the syndrome and use of behavioural modification techniques, but stated that:

> "It is readily acknowledged that there is little evidence for the efficacy of behaviour modification procedures."

They continued:

> "As in the case with most sumptoms of psychopathology, this review of hyperactivity has revealed clearly the lack of a firm knowledge base and the prevalent substitution of clinical lore for knowledge."

Keog (1971) reviewed hyperactivity and its relation to learning disorders. She attempted to summarize and clarify the evidence relating hyperactivity and learning problems and to propose some reasonable theoretical explanation for the learning disturbances of hyperactive children. Keog made the point that:

> "It is not just the amount of motor activity, but also the character of the activity which defines hyperactivity."

She noted the behaviour to be situationally and socially inappropriate and proposed that a high rate of emission of behaviour increased the probability of inappropriate behaviour. However she also observed:

> "Chronic high activity levels may also be characteristic of some high achieving individuals."

Her review noted the confounding of symptoms with other behavioural, psychological, neurological and medical conditions:

> "Hyperactivity and cerebral dysfunction are neither synonymous nor mutually exclusive."

Descriptive terms were for the most part negative and reflected adult irritation:

> "Professionals and parents apparently react to similar behaviours."

She summed up the characteristics of learning problems as follows:

> "It seems safe to say that there is agreement that hyperactive children often have learning problems. It is also safe to say that the educational expression of these problems is unclear and needs investigation."

Keog proposed three theories:

I Neurological impairment

> "Evidence does not allow acceptance of this hypothesis as a definitive and broadly encompassing explanation for the learning problems of hyperactive children."

II Information acquisition

> " . . . excessive, extraneous movements, especially of the head and eyes, appear associated with learning difficulties. Heightened motor activity may disrupt learning by interfering with the accurate intake of information."

III Decision process

This related to disturbed and speeded up decision making processes. Keog reviewed the literature on impulsivity/reflectivity, speed of response, effect of reinforcement and ambiguity. She quoted Kagan et al. (1964) as stating that cognitive impulsivity (which tends to be incompatible with school learning requirements) may have been part of a larger syndrome of impulsivity which included high motor activity and short attention span. She noted that reflective children made more eyemovements than did impulsive children in comparing the standard stimulus figures to the possible choices. This supports Maccoby et al. (1965) who postulated an interrelation of conceptual style and motor regulation.

Keog also quoted Palkes et al. (1972) and Meichenbaum et al. (1969) who trained hyperactive boys to use self-directed verbal commands to "slow down" while solving problems. Training resulted in improved performance and increased ability to "stay put" and pay attention to the task. Speed of response was thus important in learning situations. Luria (1961) had similar results in training cerebro-asthenic children.

In studies of reinforcement effects, hyperactive boys were found to be as successful as normals under 100% reinforcement but were debilitated under a 50% reinforcement schedule.

Keog quoted Kagan et al. (1966) as suggesting that impulsive children failed to evaluate their choices or other possible solutions. One hundred percent reinforcement not only served to increase attention to the task but reduced the number of possible alternatives to consider. Finally, under the heading of ambiguity, Keog stated:

> "If impulsivity is heightened in situations of high response uncertainty, the hyperactive child may, indeed, be caught in a circular situation: his hyperactivity disrupts the development of consistent and stable percepts and concepts; lack of stability of percepts and concepts leads to heightened motor activity; and heightened motor activity increases the disruption of stability of percepts and concepts. Much of the touching, manipulating behaviour of hyperactive children may be efforts to achieve perceptual confirmation or constancy and thus reduce ambiguity."

This survey showed that quantifying studies and careful aetiological studies on the subject have yielded much contradiction and 'clincial lore'. It is concluded that a more promising approach lies in the search for environmental factors which are potent in the creation of an maintenance of a behavioural/conceptual style, given a predisposing pattern of temperamental characteristics.

CHAPTER III

MODELS OF BRAIN DAMAGE

In this chapter, underlying assumptions and theoretical models employed by a variety of other groups of researchers will be examined and evaluated. It should be noted, that the title of this chapter refers to the deviance of the child as perceived and defined by adults, for on the whole, the child does not perceive himself as "brain-damaged". Further, the locus of the deviance is perceived to reside in the child's brain, thus excluding the influence of any interpersonal dynamics and other functional variables. If one reviews the literature in terms of locus of causality, then the literature is more consistent, for the brain has consistently been implicated. The fact that the bulk of the research has been done by the medical profession no doubt plays a major part in this. The secondary effects of this deviance, were also focused on the child, who behaviour:

> "almost always produces difficulties between himself and his parents and between himself and his siblings." (Wender, 1973).

However, the conceptual framework surrounding or supporting the belief about the locus of causality evolved substantially since children were first classified this way. In part this is due to the fact that brain diseases have generally been studied via aetiology, and a general disease model has been employed. This has meant that when the association between the post encephalitis syndrome and behaviour was made, the basic strategy for research in this area was laid down as a pattern.

Whenever a child was considered extremely active by any adult authority who complained of this behaviour and wished to have it treated, if a possible connection between that behaviour and a trauma to the brain could be established, then a diagnosis of brain dysfunction could be made. The emphasis evolved only slightly as educators brought to bear the dimension of learning difficulties associated with this hyperactive behaviour.

Table I shows the historical evolution of some of the labels associated with the syndrome under study. It summarises at the same time the refinement in research and some of the questions which have been asked. For example, psychologists brought the question of perception into the research area.

TABLE I

Labels of the hyperactive syndrome found in the literature

post-encaphalitis syndrome
a "strauss syndrome" child
child with a neurological deficit
child with neurogenic/organic contributing features to his behaviour
diffuse neurological injury
neurologically disordered
neurologically handicapped/dysfunctioning
organically impaired
organic/pathology
sensory/motor dysfunction
perceptually confused/disabled
"catastrophic" reaction
hyperkinetic
children with learning disabilities/difficulties
psychoneurological learning disorder
perceptually handicapped/disabled
brain injured child
brain damaged child
minimal cerebral dysfunction
minimal neurological handicap
child with specific learning disabilities
subclinical neurological impairment
hyperkinetic lowered frustration/stress threshold
hyperactive emotional lability
disinhibited
child with language disorders

TABLE I Continued

profound central language disorder
child with special learning problems
child with developmental imbalances
child with uneven developmental profile
child with cognitive/language defects
child with a maturational lag
central nervous system dysfunction
cerebral dysmaturation
neurologically impaired child

The extensive quotes in the literature showed that there was a general dissatisfaction with brain-damage as the locus of causality for hyperactive behaviour. Nevertheless, the early labels and their corresponding connotations remain, despite the recognition of the inadequacy of the brain-damage model. The stereotypic profile of a known brain-damaged child is the Down Syndrome child, who is depicted as a music-loving, happy, smiling and obliging child. Parental and medical conceptions of the hyperactive child are only one step removed in some cases from saying that a child was visited or possessed by the devil, as brain-damage was the next best explanation. What better way to conclude that the child was brain-damaged, than by using the analoguous reason that the child resembles a Down Syndrome child in behaviour, ergo he is brain-damaged.

> "Despite their annoying behaviour the children are usually kind, obliging and eager to please."
> (Bakwin and Bakwin (1972) p.387)

Little attention has been paid to the possible social-functional utility of the child in the family group. The stigma of the brain-damaged friendly idiot, "he can't help it and nor can we", has utility, as was demonstrated by Daniels et al. (1964).

The model from which the equation 'nonadaptive behaviour equals brain-damage' derived, was described by Benton (1967):

> "As the primary integrative mechanism of the total human organism, the central nervous system (C.N.S.) mediates mental processes, complex behavioural reactions, and somatic and vegetative responses. Consequently, disease or injury at the higher levels of the C.N.S. is likely to be reflected in disturbances in mentation, feeling and conduct."

Those interested in formally educating the child, tended to invoke the 'learning difficulty' derivative of the model described above. Others (Bakwin et al. (1972), Werry (1973)) tended to invoke a developmental model, based on the evidence that children tend to grow out of the hyperactive phase after puberty. However, while the brain was not exactly conceptualised as damaged, it was seen as structurally immature; short of the necessary neural pathways, which would develop in time. In essence, the developmental or maturational-lag hypothesis was only a variant of the brain-damage model.

Other ways of describing the same syndrome have been to utilise a behavioural trait, e.g. clumsy child syndrome to infer brain-damage. Again Benton (ibid) put it well:

> "It is very popular today to make the diagnostic inference of brain-damage to explain entirely or in part the deviant behaviour of many children. In the majority of cases, the inference is made on the basis of behavioural observation (for example, hyperactivity, distractibility, motor-akwardness, destructiveness) and is not substantiated by infrabehavioural, clinical or laboratory findings."

Clements (1966) listed 99 symptoms of 'minimal brain dysfunction' generated by a review of the literature and cited the ten most frequently emphasised deviant behaviours usually included in the list of necessary symptoms which makes a diagnosis possible. Activity level (that old brain-damage correlate), emotional liability, perceptual impairments, disorders of attention are a few of the traits which were thought to be symptomatic with brain-damage, providing that they all occurred together.

However, the escape clause for faulty reasoning and misuse of the diagnostic label was well stated by Wender (1973):

> "Diagnosis of minimal brain dysfunction must be made by history. Psychological or neurological examination may be corroborative, but absence of suggestive findings does not rule out the presence of the syndrome."

Wender's statement presumably was based on the logic of 'false negatives' (see Figure 1 below).

FIGURE 1

True positive	True negative
False positive	False negative

Diagram showing the logic of inclusion and exclusion criteria for a diagnosis of brain dysfunction.

However, Wender neglected the possibility of 'false positives', a point which Kahan (1971) observed might be harder to evaluate than 'false negatives'.

Related to the discussion of false positives and negatives, is the problem of inclusion and exclusion criteria. The literature showed that subjects included in the sample of hyperactives studied tended to be of average or above average I.Q., although a few studies included those subjects whose I.Q. was below minus one standard deviation. The behaviour of the subjects so selected had to conform to a stereotypic behaviour of brain-damaged children,[1] a behaviour syndrome which has often been

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1. The New Zealand Child Health Clinic referrals for 1972; this shows 12 cases over the age of 20, the oldest being 60.

standardised on the observed behaviour of institutionalised child and adult mental defectives. Ross (1968) observed:

> "The well-known syndrome of the hyperactive, distractible and poorly socialised child so many have used to 'diagnose' brain-damage, is largely based on observations of severely retarded institutionalised individuals, some children and some adults. It is interesting that this syndrome is not at all typical in the careful study by Graham and her associates (1963) which used noninstitutionalised, brain injured pre-school children." (p.24)

The score of an I.Q. test which falls outside the range of +1 S.D. served as an exclusion criterion. But some children who scored below one standard deviation had results on certain tests which were difficult to interpret. Because the Bender Visual Motor Gestalt test is partly a measure of a general intellectual factor, those children who scored in excess of + 1 S.D. tended to be excluded, because their results tended to negate in part what this test was designed to measure. Reitan (1968) has argued that if brain-damage leads to impairment of abstract reasoning, a highly gifted person could, on testing, perform like an average one, thus hiding the fact that he was brain-damaged.

Ironically, most of the studies reviewed preferred to exclude the obviously brain-damaged children, such as the cerebral palsied and the mentally defective. The idea of a continuum of brain-damage was evoked, with the minimally dysfunctioning brain being closest to that of the normal brain. The problem with this approach was, that the population included was as heterogeneous as the population excluded. By trying to get a finer differential diagnosis, researchers have tried to rely more on psychological tests, some of which (those used in the test batteries) were themselves cross validated on neurological tests, these in turn use some subtests of a similar nature and format to psychological tests (although they are seldom normed). Thus by a process of circular reasoning, results of doubtful

validity have been obtained. Neurologists have only comparatively recently begun to construct age-related norms for some of their tests, so that the everpervasive developmental factor could be accounted for. Grant et al. (1973) studied the finger to thumb apposition and rapid alternating supination and pronation of the forearms and hands in order to deliniate, by age and sex, the developmental pattern of these two motor functions. An attempt was made to standardise the examination procedures and to use an objective and quantitative method of measuring performance. A developmental pattern was found. Citing other authors these researchers noted:

> "The establishment of a normal level of function for each age group before full development of the skill has been attained avoids the possibility that abnormal 'soft signs' may be taken to be merely 'maturational lags'. (Twichel et al., 1966, Cohen et al., 1967.)

In medicine two great analogues about the functioning of the brain have prevailed, the oldest one probably being the 'point to point' analogue which deduces the brain functioning from anatomy and physiology. The other analogue was that of the hollograph, which pictured a spread of impulses over the cortex as being associated with a simple motor act. The concept of 'organic driveness' (Kahn and Cohen (1934)) has been invoked to explain hyperkinesis, hypermotility inattention or generally it has been equated with hyperactivity. In the review of the literature one can detect that the hollograph analogue has been the dominant one disguised as the organic driveness metaphor, while the point to point analogue has been favourite with the psychologists. The method of reasoning has also been shaped by the training the medical researchers have had in applying the acute viral disease model to the problem of explaining hyperactivity (Maher, 1970).

By viewing the brain of the child as a deficient bio-chemical organ and by correcting certain chemical imbalances introduced into the body, if a behavioural effect which was deemed an

improvement followed, then a deficient biochemical structure had been medically demonstrated. This line of reasoning of course could also apply to anyone who got high on amphetamine, one of the drugs which was found to work. It was also one of drugs which proved to be embarrassing to the medical investigators since the organic-driveness metephor postulated an overwhelming series of impulses on cortical level, activated by an over-active damaged subcortical system. Yet it was known that amphetimines or those drugs which mimic the action of amphetimines have the effect of increasing cortical activity. The literature summed up the contradiction with the phrase of 'paradoxical effects' although no reference could be found to a more logical explanation of a hypoactive subcortical system.

Some researchers have viewed activity levels as normal variation of temperamental factors (Chess (1969), Forsythe (1973)). Palmer (1970) has speculated that higher activity levels could also be symptomatic of a healthier and bigger child, a product of better pediatric services.

It would seem reasonable to conclude, the underlying models, theories and assumptions in the literature, which have been employed to explain the deviant activity level of the child against whom a complaint has been made, are inadequate for the purpose of trying to label children as hyperactive, in order to assemble a homogeneous group for research purposes.

CHAPTER IV

THE EDUCATIONAL PSYCHOLOGIST'S APPROACH

The concept of the problem child as one who 'is mentally ill' or whose behaviour 'is disordered' has sometimes been dangerous for the child. Psychosurgery has been performed in some cases to help the child with his 'malfunctioning brain', that total adaptive organ of the body (Older, 1973). The concept of treating hypothesised lesions with further lesions stretches the imagaination. At the moment, only gross tumors and lesions can be detected if they represent mechanical obstructions or altered composition of the cerebro-spinal fluid. Minimal structural defects or electrochemical malfunction within any substrata of the brain are not easy to detect nor are their effects well known and understood.

Psychologists as a group do not 'care' for children in the same way doctors and educators are asked to care for them. Both doctors and educators have enlisted the support of psychologists in the research on minimal cerebral dysfunction. The educators bias in this field was easy to understand. It was reasoned that if an average intellectual potential in a child could be demonstrated, but the child underachieved and at the same time proved to be a behaviour problem, then possibly he could not help gimself, because his brain was at fault. Coupled with this was another line of reasoning, which parents and diagnosing doctors tended to employ. If a child received the same treatment, i.e. was exposed to the same set of parents or

teachers or curriculum or socialisation as other children, and if the other children of similar intelligence appeared to benefit from this exposure, but not the patient, then his brain was thought to be malfunctioning. Since the tests of psychologists could give an index for general intelligence it was thought that similarly tests could be constructed which could give an index of brain damage of dysfunction.

The methods of psychology have been derived from medicine, physics and philosophy, so that the approach to the question of brain dysfunction tended to be three-fold. From physics came the requirements of rigorous experiment, so that psychometricians were asked to include data on the variance of such factors as age, sex, socio-economic grouping, standard procedures and measurements, operational definitions, reliability and validity criteria and so on. From medicine, the point to point analogue of the brain was used to determine which psychological functions would be affected by dysfunction; a question which was analogous to that asked by medical researchers about the effect dysfunction would have on the cranial nerves. From philosophy came important questions about the nature of the research enterprise itself, and about the methods of research employed. There have been distinctions made between learning and performance factors. Further questions about the nature of variability of human behaviour have been raised.

The testing movement since its inception has been able to deliniate variability on learning and performance factors so that 'individual differences' became central to measurement. Variability holds true for temperamental factors and personality traits. Cultural and socio-economic grouping were known to account for much of the variance of these factors. Conceptual style has also been related to socio-cultural influences (Cohen, 1969). Psychologists then, traditionally have come to expect variability in human behaviour, and experimenters have had to explain variance first in terms of these factors before resorting to newer explanations such as brain damage.

Since John Locke introduced the concept of 'tabula rasa', the idea of a perceptual deficit as a cause for poor performance due to inability to 'take in' ideas has been popular. Diller and Birch (1964) stated:

> "For many psychologists the term 'perceptual disturbance' has become almost synonymous with brain damage to the point where such disturbance is regarded as a primary behavioural criterion for the existence of brain damage."

These authors also noted that the diagnosis of brain damage overlaps that of infantile autism and childhood psychosis if only the behavioural criteria for each are considered.

Psychometricians sometimes confuse test results with explanatory causes or fail to distinguish between a defect and the adaptation to that defect, or forget the possibility of an adaptation to a pathologic environment. In terms of actual brain damage, the age at which the damage occurred, the duration of the insult, its location, the type of insult and the age of the subject at the time of testing, tended to be factors for which no adequate provision was made in experimentation. Similarly, the stimuli to which the subjects were asked to respond were generally contrived. Diller and Birch noted that a multiple chain of inferences was necessary to arrive at the label brain damage, or perceptual dysfunction.

Nevertheless, the tests constructed to give an index of brain damage or those which demonstrate the presence of brain damage have in the main been perceptual motor tasks, and more specifically visuo-motor tasks. Reitan (1969) noted the motor task to be essentially a performance which incorporates all sorts of possible contaminating factors such as fatigue, varied premorbid ability, maturational factors and so on. Also, the performance levels themselves were usually measured and normed by measures of central tendency which would tend to cancel out inter-individual differences. Since psychologists sought tests which would predict the presence of brain damage or dysfunction (preferably the locus of the damage as well)

intra-individual qualitative and quantitative changes were utilised as pathognomic signs. Reitan showed that this approach used by Goldstein (1940) proved of no predictive validity and could not always demonstrate pathognomic signs in groups of known brain damaged persons. Reitan showed too, that the use of differential score comparisons was based on the assumption that any brain lesion would manifest its principal effect in the same way. In any case, the method of statistical prediction was suspect, for Reitan observed:

> "Awareness is growing that the meaningful variability within groups characterized as 'brain damaged' is so great that generalizations about such groups are often not very informative."

However, the method of studying the ipselateral differences of motor performance and perception offered more promising rewards, for intra- rather than inter-individual differences were compared.

The brain itself has been studied in terms of its functional organisation and hierarchical structure by Luria (1970, 1973) and Straus and Lehtinen (1947). These last two authors cited Goldstein's work on brain-injured soldiers to support their assumptions about the behaviour of brain-injured children. The first assumption was that brain-injured people (children or adults) would show a deficit in functioning: the subtractive hypothesis based on neural destruction. This would normally include perceptual deficits, and deficits in the ability to adapt, e.g. perseveration and resistance to changes in routine. The second assumption was that of additive elements. 'Organic driveness' was derived as a hypothesis from this assumption, as was hyperactivity. The hierarchical functional structure of the brain assumption implied that damage at a primary, secondary or tertiary level of functioning would have concomitant changes in the other levels. The concepts of differentiation and integration during development had to be integrated into this framework too. Lebovitz (1968) summed up the complexity of the position outlined:

> "Psychological diagnostic information is 'nth' order inferential data filtered through the following complexities: central nervous system structure; unique development experiences: the hardware of the tests themselves; and the contaminations of the examiner."

When Routh and Roberts (1972) investigated the validity of the clustered behaviours, signs and symptoms which together make up the minimal brain dysfunction syndrome, they proclaimed in the title of their report, 'failure to find evidence for a behavioural syndrome'. These authors noted that the components of the syndrome lacked clear definition, tended to be related to each other, and those symptoms which were related to each other tended to be rated 'reliably' by the same people. Thus pediatricians rated fine and gross motorskill deficits while teachers rated attention and concentration as disordered. With respect to inter-symptom relationships, statistically significant relationships disappeared when the effects of age and I.Q. were partialled out. The authors pointed out that a syndrome implies by definition that in the affected children the behavioural deviations which are part of the syndrome cluster together with each other more than with other symptoms not included in the hypothesised syndrome. Their study did not support this requisite.

The point about the activity of raters, who usually have high inter-rater agreements, especially when they are aware that inter-rater reliability checks are run, is interesting. A 'halo effect' could operate. Teachers might rate children who have poor ability to memorise material or who are inattentive or who fail to concentrate. The poorly socialised child might be rated as a aggressive and uncooperative because teachers and doctors have role expectations conflicting with those held by the child for himself.

The other important point to note from the above study, is that apart from the doctor who makes the diagnosis and formulates the treatment plan, parents tend to participate in the diagnosing.

As do teachers, for the literature shows clearly that they are the other main agents who lodge the complaints about the child's behaviour.

Psychologists then, by helping to objectify the research on the syndrome by psychometry have merely diversified the issues and increase the difficulty of assembling a homogeneous population of 'hyperactives'.

CHAPTER V

NUTURE ISSUES

It was argued in two previous chapters, that researchers have tried to establish brain damage or perceptual dysfunction in hyperactive children using different assumptions about the functioning of the brain. A popular method used to assess the validity of such assumptions about dysfunction, has been to apply a remedy (drugs or remedial teaching) to correct this specific dysfunctioning. Similarly, those researchers who assumed that the locus of the cause was environmental have been able to show the correctness of their approach. Pathological hyperactive behaviour has been viewed as an operant, or behaviour which in principle could be modified by altering the reinforcement contingencies which controlled it. Thus hyperactive behaviour has been modified in the laboratory setting (Patterson et al. (1965), Dourbois et al. (1966)) with operant techniques. Luria (1961) showed that it could be done by classical conditioning techniques, while Edgar et al. (1966) showed that the oft noted sign of perceptual dysfunction (usually a visual motor defect) could be modified by operant methods.

Even the method of having to pre-empt the learning situation of distracting stimuli has been challenged, for as Scott (1970) showed, background music in the learning situation reduced hyperactivity. Brown et al. (1965) and Germak et al. (1973) made use of social learning theory and showed that group members

could effectively reshape hyperactive behaviour of one of its members. Even parents have been trained in the techniques of behaviour modification to act as therapists in the home situation, with quite some success (Berkowitz, 1972).

Alberman (1973) argued that:

> "There is a marked reluctance to label individuals in social or economic difficulties, although we do not have the same hesitation about labelling individuals with purely medical problems. It is because of this attitude that attempts at assembling children thought to be at high-risk of learning difficulties are still mistakenly based on a largely medical categorisation, derived from 'aetiological' studies."

The concept of children 'at risk' was derived from the hypothesis, proposed by Knobloch and Pasamanick (1962), of the 'continuum of reproductive casualty'. Other researchers took up the idea and tried to find significant correlations between minor physical (congenital) anomalies and hyperactivity and/or learning disability, aggressiveness and unmanageableness. Waldrop et al. (1971) suggested that an inverse relationship existed between the number of physical anomalies and intellectual functioning in children at age 7½. The behavioural characteristics in children with high counts of such stigmata were similar to those commonly cited as representative or symptomatic of minimal cerebral dysfunction. Rosenberg et al. (1973) in their study found that:

> "The number of minor anomalies in any particular child was not related to his performance I.Q., motor ability or classroom behaviour, but that there was an inverse relationship with verbal performance."

They concluded that:

> "It would appear that the agents responsible for the appearance of physical stigmata may also be responsible for an inability to cope with academic situations."

While they noted that there were some anomalies that were not readily discernable to the naked eye, the agents of which they spoke were not identified. What have been specified are variables such as a preponderance of first born boys or later

born girls; variables which do not have to be explained by the reproductive casualty continuum hypothesis. Conners (1970) found that such physical signs were also present in the control groups he studied. Thus the reasoning behind the physical sign hypothesis was suspect because anomalies seemed common to children in general, due to all sorts of factors. Even when children were specifically referred for hyperactivity, i.e. their behaviour was considered abnormal, results were in doubt. Kenny et al. (1971) could only diagnose thirteen children out of 100 referred for hyperactivity, despite three independent observations per child (medical, psychologic and E.E.G.). More than fifty eight children could not be judged to be overly active by any of the staff.

Kelman (1964) conceptualised the research in terms of attributes of the disorder, attributes of the child and attributes of the family. Since the attributes of the disorder have been described already at length it was necessary to look at the other research evidence concerning the attributes of the child and of the family.

In what appeared to be similar to a nature/nurture controversy, some researchers have sought to explain the signs and symptoms which were commonly cited in the literature concerning hyperactivity, in terms of learning. This has included those who noted that brain disease generally included a psychotic overlay, especially in those people who had poorly adjusted or predisposing premorbid personalities. Naturally, researchers turned to the nature of the learning experiences which were supposed to be common to hyperactive children. These favoured the 'reproductive casualty continuum' assumed that the lack of successful learning experiences due to perceptual dysfunction, would help the child to acquire a low self-concept and hence increase the latent aggression caused by the brain damage or dysfunction. Other derivations of this hypothesis were that the child was motivated to learn, but found he could not and therefore would become exasperated.

Those who favoured a more dynamic hypothesis looked for common attributes within the family of hyperactive children. Logically one could assume that if all the component requirements of a family were intact and no deviation present in any one component, one would get a balanced neutral homeostasis. If one now altered the weighting of any component by making its influence more dominant and if again a homeostasis would result, it would be able to be described in terms of characteristic behavioural and attitudinal typographies. Thus it would be possible to have normal parents, normal siblings and a disturbed child whose behaviour created secondary disturbances in the family: or disturbed parents, or one disturbed parent and so on. The permutations are extensive. However, in practice researchers in this area mapped out the sociological contextual variables of families of disturbed children and tended to find that such families would share a core of legal, social and psychological experiences. From these kinds of observations it has been possible to argue that certain social, legal and psychological experiences were conducive to disorders. However, one large source of bias in such studies was the fact that only the users of clinics tended to be studied, rather than random samples.

Frommer et al. (1973) and Murray et al. (1969) showed that in families where a 'problem child' (as complained of by the parents) existed, one could expect to find a parent in conflict with an assigned or changing role pattern, or find two parents in conflict with each other. Bugental et al. (1972) using video-tape, studied control families and families containing a disturbed child, in terms of family interaction. They found that fathers of 'disturbed' children showed 'controlling' and/or 'dependent' behaviours. Fathers of 'distractible children' were 'evaluatively extreme and talkative'; fathers of 'withdrawn' children were 'neutral, non-directing and talkative'; while fathers of 'aggressive' children were 'negatively extreme, directing and untalkative'.

Sanders (1972) studied disturbed children, their families and controls. The disturbed children perceived the voice of the parent who was the more loving and protecting more effectively than that of the other parent, but this relationship was not found in controls. It was also found that for all children affectively-toned content was differentially perceived in progressively decreasing amounts as one went from negative to positive to neutral material. For the disturbed child, a generalisation effect was observed, in that voices of adults of the same sex as the preferred parent were also differentially perceived, i.e. more readily than voices of adults of the same sex as the least preferred parent.

Wimberger et al. (1972) studied the correlations of the frequencies of mothers' high status (dominant) behaviours with the frequencies of their children's high and low (submissive) status behaviours. A child psychiatric clinic population was compared to a non-disturbed control group. The authors found that in the control group the mothers' high status behaviour was correlated with high status behaviours of their sons and low status behaviour of their daughters. Whereas, in the clinic group, boys tended to have low status behaviour correlated with their mothers' high status behaviour. There was no real absolute difference in the frequency of high status behaviour between boys and girls, indicating that the study did not measure any biological determinants to behaviour. The authors speculated that since:

> "Clinic mothers did show more high status ratings in absolute numbers it may be that this high total number of dominant behaviours is not compatible with the expression of high-status behaviours in the boys and forces them into submission."

The authors associated these submissive behaviours in boys with pathological symptomatology.

Messer (1971) speculated that a deviate serves as a scapegoat in a social system, such as a family, to help the members explain

the stresses which occur within the system. Becker (1964) and Goffman (1963) have noted and described the functional aspect of deviance in a social system. Parsons (1951, 1952) defined the attributes of the 'sick' role. This concept has been extended by Pilowsky (1969) and Mechanic (1962) who have described the conditions on which intervention by prescribed social agents was warranted and obligatory. Szurek (1942) noted about parents of children who misbehave that they:

> "unconsciously . . . encourage the amoral or anti-social behaviour of the child."

He also pointed out that the neurotic needs of the parents were vicariously gratified by the child's behaviour. Scott (1973) talked about the parents of 'mentally ill' patients who behaved as if their lives literally depended on the continued illness of the patient (a life line).

One study which summarised many of the arguements described so far and some others was by Brandon (1971). He hypothesised that if hyperactive children were separated out from controls and emotionally disturbed children, the hyperactive group should show a greater concentration of organic or constitutional factors. This would strengthen the temperamental differences, the reproductive casualty continuum, and the contributing minimal cerebral dysfunction hypotheses. However, no statistically significant differences were found with respect to the predicted items between the residual emotionally disturbed group and the group of hyperactives. When the three groups were contrasted with each other, the following items were significantly commoner in the hyperactive group, with the greatest difference occurring when the contrast was made with the control group:

- poor marital relationship
- poor mother/child relationship
- poor father/child relationship
- excess of broken homes or never established families
- poor physical standards in the homes
- younger mothers (more under 25 years of age)
- psychiatric disorder in the mother

Brandon argued that if the items, yielded by a comparison between hyperactives and controls were accepted at face value, they could not be regarded as possible consequences of the child's postulated constitutional abnormality or because of his hyperactivity, however caused. These items were:

- comparatively young parents (more who were under 25 years of age)
- excess of subsequent births
- mother's loss of a parent before she was aged eleven
- family living with relatives during the first five years
- emotional stress during pregnancy
- mother's own childhood unhappy

The next group of items, Brandon argued, would require considerable credulity to be accepted as consequences of overactivity:

- poor marital relationship
- excess of broken or never established families
- psychiatric disorder in the mother
- poor physical standards in the home
- excess of separations from the mother
- excess of hospital admissions

Finally there was a group of items which could not be dismissed as possible consequences of hyperactive behaviour:

- poor parent/child relationships
- father more often reported as never playing with the child
- smacking as the main means of control
- speech disorder in the child

On checking it was noted that the reported emotional stress in pregnancy and the unhappy childhood of the mother were based on retrospective reports and not substantiated by contemporary records, but that emotional disturbance during pregnancy was strongly correlated with psychiatric disturbance of the mother and her own report of an unhappy childhood. Brandon concluded:

> "That whilst the behavioural individuality described by Chess and her colleagues and the minimal brain damage occurring as a consequence of obstetric and other insults may modify interaction with the infant the majority of behaviour disturbances in childhood arise in association with a range of environmental stresses. It seems likely that the pattern of family life is the major determinant in childhood behaviour disturbances."

PART II

CHAPTER VI

SOME CASE STUDIES

From the statistical summary sheets of the files of the Children's Unit of the Palmerston North Hospital a possible total of nine diagnosed hyperactives were extracted.(1) Two cases were excluded, because the diagnosis of hyperactivity was a subsiduary one to that of Grand Mal Epilepsy. The individual files were then searched for the presence or absence of nineteen of Brandon's criteria plus one related variable. Variable 14(2) was added because it was related to Brandon's variable - "family living with relations during the first five years."

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1. Names and some details have been altered to protect the anonimity of the persons cited in this chapter.

2. See number 14 in Table 2.

TABLE 2

Summary of seven cases of diagnosed hyperactives who were seen at the Palmerston North Children's Unit

		N = 7
1.	First born?	5
2.	Number of children greater than 3?	1
3.	Excess of separation from mother?	5
4.	Poor marital relationship?	7
5.	Poor mother/child relationship?	7
6.	Poor father/child relationship?	7
7.	Broken or never established family?	5
8.	Poor physical standards in the home?	2
9.	Young mothers (less than 25 years of age)?	7
10.	Psychiatric disorder in the mother?	7
11.	Psychiatric disorder in the father?	6
12.	Mother's loss of a parent before age 11?	4
13.	Family living with relations during first 5 years?	1
14.	Family takes in boarders in first 5 years?	4
15.	Emotional stress during pregnancy?	7
16.	Mother's own childhood unhappy?	5
17.	Father's own childhood unhappy?	7
18.	Excess of hospital admissions?	4
19.	Father more often reported as never playing with child?	6
20.	Smacking as main means of control?	6

The small sample from which no statistical inferences can be drawn consisted of one girl and six boys, of whom the girl and one boy were not first born children.

Variable fourteen and thirteen expressed the importance that finances play in hyperactivity in childhood plus the fact that during the more intensive phase of case study and treatment, it seemed that these boarders represented a screening mechanism for the couple so that they could hide their initial poor marital and emotional adjustment. It also seemed that mothers in these circumstances would become extra restrictive of their first born sons in order that the paying lodger would not be disturbed.

All seven cases were seen by the same child psychiatrist and the information was obtained from his assessment and treatment interviews. In two cases, a father of a hyperactive child had also suffered loss of a parent before the age of eleven.

Several variables seemed related to each other, for example, poor parent/child relations and smacking as the main means of control. Frequency of hospital admissions of the child and an excess of separation of the child of its mother in the first year of life seemed related as were psychiatric disorders in the parents and the quality and stability of the marital relationships.

A marital breakdown is often followed by loss of income and deteriorating physical standards in the home (Wynn, M., 1964). This was true for two cases. In three other cases, boarders in the first five years seem to have been necessary to supplement the family's income and as already noticed there was a strong suggestion that the boarder was cast in the role of a physical barrier to prevent emotional outbursts.

Of the seven cases, which represent less than 3% of cases seen in 1972, the author saw five cases either in therapy or in consultation with the playtherapist of the Children's Unit. In two cases the author also worked with the parents, and in one of these two, the child, his parents and his siblings were observed as a case study of a hyperactive child in the family.

The study was premised on the assumption that if the structured clinical situation did not provide a true sample of the child's behaviour as was suggested by Ounsted (1955) then observations of the behavioural pattern in the home situation might give a more accurate picture of the dynamics involved. Ounsted also suggested that the qualitative behaviour of the parents was unusual and he coined the label 'hyperpeadophillia' to describe the overstructuring, restricting overattentive and involved manner of parenting of these children.

It was assumed that after an initial period of observer effects on the family dynamics[3] strongly established habits and interaction patterns would again dominate and hence be observable and able to be recorded. In order to minimise these effects of the observer on the observed, the author discussed with the parents and the identified patient, in advance, that he might come in unexpectedly to observe the family; this was after permission had been sought first from the parents to make the family available for such a study. The family was instructed to ignore the observer as far as possible and to ignore social conventions with respect to visitors.

Case I

At the start of the study, Paul was nearly five and the referring doctor described him as 'overactive, impulsive and unbiddable'. Paul was being treated for enuresis with amitryptyline and the doctor had prescribed Tegretol for the hyperactivity, but this was changed to Ritalin after the initial psychiatric interview. The hyperactive pattern had been evident to the mother shortly before Paul had his second birthday. An educational psychologist who had observed and then tested Paul at play centre diagnosed him to have 'subtle neurologic dysfunction' expressed behaviourally by low impulse control and distractibility. Paul was observed to obtain an average I.Q. on the Stanford-Binet revised Form L. and M. and he had a history of delayed expressive development.

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3. The author is indebted to Dr. E. Levitt of the Otago School of Medicine for his descriptive title for the observation in the home; the mouse on the wall technique. Here the observer avoids all eye contact with all the subjects. All approaches verbal or otherwise are ignored.

The psychiatric interview generated a history of a toxemic pregnancy and a surgically induced birth.[4] Paul was reported as a colicky baby and a demanding toddler who needed a lot of attention and who became enuretic with any excitement. A brother was born when Paul was nearly two and while this study was in progress. In fact while Paul was in treatment, a baby girl was adopted into the family. Paul was judged to be reactive to the pressures and the rejection, frustration and intolerance of his parents. At an observation period at the play centre, Paul's play patterns were judged to be normal by the play therapist who also noted the intrusiveness of Paul's mother.

After permission for the study to proceed had been obtained from the parents, the duration of Paul's average daily waking cycle was obtained by direct questionning of the parents. A two hourly division of such an average cycle was drawn up and study days were allocated at random to sample the complete cycle (see Table 3).

TABLE 3

Sampling times and dates

	Time of Day	Date	Day of Week
a.m.	6.30 - 8.30	February 3	Saturday
	8.30 - 10.30	February 6	Tuesday
	10.30 - 12.30	January 30	Tuesday
p.m.	12.30 - 2.30	February 4	Sunday
	2.30 - 4.30	February 7	Wednesday
	4.30 - 6.30	February 11	Saturday
	6.30 - 8.30	February 2	Friday

One extra day, Monday, February fifth, was used to observe Paul being enrolled for primary school.

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4. Colman et al. (1971) discuss the mechanisms and meanings of pregnancy for certain women at risk and note the associated complications such as toxemia and hyperemesis gravidarum. They cite literature which suggests strong positive correlations between emotional disturbance in the woman and complications in pregnancy.

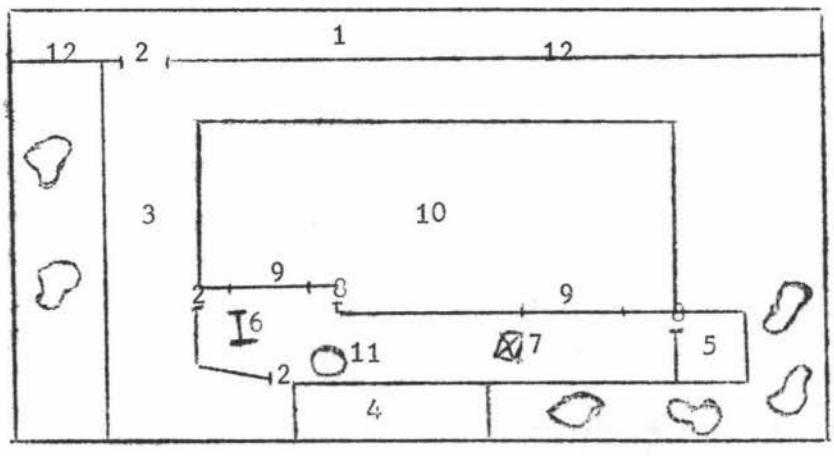
Pencil and notebook only were used to record observations, as previous visits had shown Paul to be fascinated by mechanical gadgets, and it was hoped to reduce the observer/subject interaction to a minimum. Using a wristwatch, each segment of behaviour was timed and noted down. A segment was defined as an episode which to the observer seemed to have a clear beginning and end. As much of verbal interaction as possible was noted down verbatim. To familiarise Paul and the rest of the family with the procedure, two dummy runs were made on January 25th and 29th, and any further questions about the procedure were answered.

The first day of observation confirmed the effect of observer presence and of Paul's reactivity and the average duration of each episode was two minutes. This was not true for subsequent days, when average duration increased to 11 minutes, with some sequences lasting as long as twenty minutes. During that first observation Paul initiated and made contact with the observer on three occasions, but did not do so on subsequent occasions. The second contact elicited observer interaction, but the context of the episode itself illustrates Sanders' (1972) monograph on differential perception nicely.

Paul was in the toolshed with his brother and his mother (see Figure 2).

FIGURE 2

Site plan of house and grounds



Key

1. Main Road
2. Gate
3. Gravel drive
4. Garage
5. Tool shed
6. Swing
7. Clothesline
8. Door
9. Window
10. House
11. Table
12. Fence

11.05 a.m. Mother to Paul: "Are you getting out all dad's stuff? Put it all back." She goes outside.

Paul to observer: "Open this." He holds out a tin of glue which his mother previously has taken from him and in no uncertain terms told him not to touch.

Observer: No.

Paul: Why

Observer: Mum said not to touch it.

Paul: Ididn't hear her.

Observer: I did.

Paul: I don't.

His mother came back into the shed and observed that the mess was still there.

Mother: Are you going to clean up this mess?

Paul: No.

Mother: Well, if you are not, there will be no lunch for you.

11.07 a.m. She goes outside again.

Another small segment which confirmed the underlying hostility to and rejection of Paul happened shortly after the episode in the shed. Paul and his mother and brother were in the backyard shelling peas. After his mother had scolded Paul for playing with a beach umbrella which she had brought outside and which he was trying to open, there was much residual anger left in her.

11.40 a.m. Paul to mother: Cut it up. (Refers to a peapod and indicates by gesture that he wants the peas out)

Mother: What for?

Paul: To get that bit out. (Indicates a pea)

His mother then cut the pod lengthwise, thereby cutting all the peas in the pod in half.

Paul was also observed to switch quickly from imaginary activity to another. He chased a bit of floating thistle-down around calling it a 'flying fairy' and while doing this spotted some excrement of his pet dog on the concrete. He ran to the shed and came out with a shovel and carefully 'stalked' the heap, skilfully scooped it up and threw it over the fence. These two sequences lasted five minutes.

Paul was confined to the backyard or the inside of the house and this led to frequent conflict. Paul had taken an electric light fitting attached to a long lead from the shed. His mother had taken this from him at 11.48 a.m. and forbidden him to play with it. He was pretending to spray the plants with it.

11.52 a.m. Paul to observer: I am going to get the rain thing out. (he goes inside the shed) Mummy knows I get it out. (He looked at the observer) Yes she does. (He pretended again to be spraying flowers).

Paul rolled up the cord and walked with the lamp to the gate by the metal drive. He opened it and together with his little brother who was now with him went down the drive toward the road, pretending to spray the grass edge. They went around the front of the house. By this time his mother had come out and took the lamp from him. She marched Paul and his brother back to the backyard, concentrating her admonishment only on Paul. They were back inside the yard at 11.57 a.m.

The mother/child interaction tended to come in cycles of about ten minutes. Usually a solo play period of ten minutes would be followed by an interaction, usually initiated by the mother. During observation day four, when the focus of the observation was on the mother, she would tend to stop work every ten minutes or so and look out of a bedroom window to check on Paul. When he was not visible to her, she would say "I'll bet he is up to something" and then go outside and demand to know where he was and what he was doing.

Some episodes would consist of a three-way interaction between mother and sons. It was possible to observe the differential treatment of each son when the three people were in close proximity to each other and interacting. Contrary to Wender (1973) this mother did not treat her sons in a neutral fair way, giving neither one of them more than the other. This postulate of "I treat all my children equally" has often been accepted by diagnosticians, who were then forced to explain the behaviour of the 'odd' one by assuming the cause to lie in the child. Pollock (1970) showed one possible cause for differential treatment of each child in terms of the unconscious transaction between the parent and the child.

Several observations confirmed this differential treatment of the children. When the mother was laughing and joking with the younger son, she reacted to Paul who asked for a glass of Jungle Juice with an immediate frown and looked stressed. When the two boys were bathed together in the evening, the younger son was the recipient of gentle interaction and handling and his mother joined in with some waterplay. Paul, in the same bath, at the same time, was forbidden any waterplay and when in turn he was washed, it was brisk efficiency if not rough handling, and no waterplay. When bedtime stories were read, and both boys were in the same room, Paul's story was read quickly and mechanically, pauses only occurring when Paul interrupted with a question. When the younger boy was read to, the rate of reading was slower, there was frequent eye-contact between mother and son and also body-contact and smiles. This boy sat on mother's lap, while Paul had to sit beside her.

In one afternoon's episode, Paul had been sent to bed for a variety of misdemeanours, such as not eating all his sandwiches at school and trying to take over the management and feeding of the baby. The younger son, who had just been woken up before Paul was sent to bed, had gone to the toolshed and tipped a pot of glue all over his father's tools and splashed some on the walls. When the mother had come out to check on him and

spotted the boy, her eyes widened (with surprise). She then said smilingly to her son who was standing on a workbench, "Look at all the pretty glue pictures you made on the wall." She then invited him to jump in her arms.

The younger son was certainly aware of this difference and when slightly frustrated would give a loud scream which would bring his mother to the scene. On her way to the scene of the cry she would generally yell out Paul's name. She only once asked what had happened. Paul, in his turn, when made to go to bed or when punished would say: "Make HIM do it." Paul was also cognizant of his mother's resentment and mounting anger. When he'd notice this he would remark, "Why are you looking at me this way?".

The attitude of the mother was: "He tries me out more than his father", while his father felt that, "He just ignores you". Both parents felt that they should not put up with that kind of behaviour, the mother saying, "We don't muck around with him", and his father saying, "In the end you have to belt him." " . . . I stand over him till he does it, smack him if he doesn't. I don't think I am terribly hard on him." Yet as shown in their behaviour neither parents lived up to these beliefs about their own actions. His father would more often than not ignore a situation where he had instructed Paul to do something and in which Paul refused. Thus, "Come to the table" was met with silence and inaction and the adults ignored it. However, when sufficient anger had mounted then his mother would react with, "Right now, I've had it. Now I mean it." Thus many situations led to interactions between parent and child when negative feelings were intense.

Part of the mother's hostility seemed derived from the fact that she saw herself constantly having to look after Paul and to correct him. At the initial interview she thought that she and her husband had been difficult as children and felt that Paul was just like that.

Paul was also frequently sent to bed because his mother felt that, "He gets silly when he is overtired and does things he shouldn't do." It also meant that from then she could stop the hyperparenting for a while. If Paul was out of sight, either in the yard or in his bedroom, she would have to ckeck on him. "If he shuts the door, he's up to something." She would then state a condition in which she promised to leave him alone for a while: "Show me when you've finished, then I'll leave you alone." However, shortly afterward she could not resist and was compelled to interrupt, making the observation about the quietness of the activity, "It might be a cover for something else." She was angry with her son for these frequent demands on her time. "Quickly now, pick out your story or you won't get one. Come on I want to read it to you tonight, not tomorrow night."

Paul, since the time he was born had shared his mother and father with boarders, one of whom had a "mental breakdown" when Paul was about four years old. Paul had to share his room with his little brother until just before the study commenced. Paul's father was away frequently doing overtime or working at a second job at night. It seemed that children had come too early in his career and he was trying to make enough money to pay off his house and car and other conveniences all within the first ten years of marriage. In the marital relationship the partners seemed to expend more energy into the roles of provider and mother/housewife rather than give each other satisfaction.

In the summary of the case studies, the relative youth of the parents has been noted as has the frequent presence of boarders in many of these families. Six of the seven children studied were born within the first two years of marriage, yet the "poor physical standards in the home" criterion was not significant in three-quarters of the cases studied.

A pattern emerges then of ambitious young married people, who have their first child early, thus fulfilling the first social ambition. However, the drop in income, which occurs because the wife stops working leads the couple to take in boarders and the husband to take a secondary job or spend longer at the first job. There is a drive to buy a house, car and modern appliances, and to finance them all with short term loans. The child, usually a boy, is born into a family in which the financial sources are as strained as the emotional bonds. Generally the boarders make it difficult for the wife and husband to freely interact and psychological distance between them increases. Individually the husband tends to be immature and rejecting the role of father. Many may not have had a good father/son relationship themselves, since many of the husbands in the study had absentee fathers. Their wives equally seem to have difficulty with accepting the role of mother and tend to resent the first born child.

Case II

Alan aged three, was first referred at the tender age of two for hyperactivity, restlessness and destructiveness and for being difficult to manage. The referring doctor described Alan as "Not a good mixer, resists learning, very destructive." He was reported to have no sense of fear, was noisy, uncommunicative and, "He laughs oddly." The mother had been instructed to give the child his share of love and security. Alan was the only boy in the sample who was the second child in the family. But although the referral letter stated that the mother had "bent over backward to give" to her son, he was "impervious to this and not in the least cuddlesome". (Another feature of the mother/child relationship is that the child is held responsible for giving or not giving the mother security in her role as mother and for giving her role satisfaction.) The psychiatric interview showed the possibility of Alan being a part of the 'reproductive casualty

continuum', for his mother had a toxemic pregnancy. Furthermore, Alan's mother described herself as not being ready for this pregnancy as she had just had a miscarriage. Alan's father reported having an unhappy childhood with an aggressive father, and a mother who was in and out of mental hospitals.

Alan's father tended to be critical of his wife in her role as housewife and mother. The child psychiatrist conducting the interview noted that a 'mutually overdependent relationship' existed between mother and son. Alan's father was over-controlled towards his son, fearing his own anger. While his wife was undercontrolled in her relationship to her son, very much like Paul's parents.

Alan was observed in play therapy nine times and his parents were seen for six interviews. There was a general improvement in Alan's behaviour. Seven months later Alan was presented again as much deteriorated. He had been diagnosed by an educational psychologist as "neurologically impaired" and his parents had been invited to join a parent group of those who had similar 'problem' children, to gain some emotional support for themselves. Both parents, but especially Alan's mother were quick to vent their anger and rejection of their son at these meetings. Near the time of readmission Alan's parents had also sought help from a marriage guidance counsellor but Alan's father finally hit his son so hard that his wife had to intervene, and they sought help from the Children's Unit again. Upon readmission all three were sedated. In the interview there was much evasion of the underlying marital conflict and a determined effort was made by the parents to focus on Alan. After several reminders of this evasion the parents could finally look at their mutual problem. Alan was briefly seen in play therapy for a further two sessions and his parents were also seen in treatment in their own right.

Alan's father and mother in therapy came to understand that neither one of them knew whether the other loved him/her. This state of affairs had existed even when they were first engaged. The early part of the marriage was marked by frequent absences of the husband, and by the mess that resulted in living in a house that was being remodelled. There was a lack of space, lack of territory to establish a relationship, because of the presence of several boarders. Some of the boarders went so far as to comment on the frequent absence of the husband remarking to the wife that, "It is better with him not here." Eventually the boarders were asked to leave. As with Paul's parents, there were many people to advise the couple on the management of the difficult child. These included close relations like mothers and sisters, and much of the advice was contradictory, causing frequent quarrels between husband and wife and their relations.

General observations

These case studies were one way of demonstrating the effect of some sociological variables on family dynamics. The child who was more sensitive to the unconscious parent/child transactions or to the uncertainty and low self-esteem of the parents and to their lack of warmth and above all to the overstructuring of the mothers involved in the study, tended to over-react. All the children responded to the lack of structure in the play therapy situation by age appropriate play and with spontenaity and yet responded without destructive behaviour or tantrums when firm boundaries were set and adhered to.

The pattern of the studies did not lend themselves very well to statistical analysis of data. Yet, as a psychosituational assessment, (Bersoff et al., 1971) it worked quite well, for even as each study was in progress there was a subtle attitude change in the mother which led to more positively reinforcing

parent/child interactions. The constant presence of an observer no doubt led each mother to monitor her own behaviour more frequently and by thinking back over her own actions and those of her son's, she came to realise that she was an effective change agent at times and not a helpless mother of a brain-damaged son. However, as an assessment method it was uneconomic, since it demanded many manhours, which could have been utilized in therapy. One fact, however, remained and that was that by asking a set of questions about the dynamics and the actual behaviour of hyperactives in the home situation; these components were shown to be as explanatory of hyperactive behaviour as were the concepts of minimal brain damage.

Similarly, the case studies as a whole revealed that by starting off with different assumptions about what to study, different questions were generated and different possible explanations were found.

One other issue is worth noting, and that is the lack of subjects in the sample. Only the diagnosed hyperactives were studied, although this does not imply that these were the only children whose activity was complained of. However, in the cases not so diagnosed the hyperactivity had a more apparent psychodynamic explanation.

The case studies were included as illustrative material for some of the points raised in the discussion on the syndrome of hyperactivity.

CHAPTER VII

CONCLUSION

What is hyperactivity? One would imagine that after an exhaustive survey of the literature, such a question would be easy to answer. A thesis which purports to examine conceptual issues, has by definition no closure. Yet the title of this chapter is not misleading because it is now possible to evaluate what is known and what still needs to be researched or considered. Nevertheless with respect to the first question, one can conclude that the answer is still very elusive.

This thesis shows that 'hyperactivity' is a label which has been applied to children by adults. It does not represent an irrevocable result of brain damage, however caused. Neither is hyperactivity synonymous with brain dysfunction.

Hyperactivity and the related concept of hypoactivity, imply an optimum level of activity for an individual. Given an optimum range within such a level, a deviation of more or less activity is thought to be abnormal or 'sick' behaviour. Thus hypo- or hyper- activity is behaviour thought to be deserving of the attention of a medical practitioner. The discussion in previous chapters has shown that the person who exhibits such behaviour does not complain of feeling 'sick' or of being abnormal, but that a referral agent such as a parent or teacher perceives the person as an incipient patient.

When one studies the complaint itself, the level of activity is seldom the main focus. Rather it is the destructiveness of the child and his hypothesized inability to attend to tasks set by the referral agent which is at issue. The child complained of is unco-operative, does not listen, or does not sit still when asked or commanded to. Worst of all, (from the referral agent's point of view) the child seems impervious to the corrective attempts by the adult, to make him conform. Bribery, smacking and deprivation are the means which have been tried and which have failed. The referring adult therefore complains of having an abnormal or 'sick' child, because the child is unpredictable and does not behave in accord with currently held beliefs. The child cannot be managed easily by the adults who must care for him, although the adults can often demonstrate that they are capable of child rearing and good management because they have other children who are manageable and predictable.

When one looks at what happens once the complaint is lodged, an interesting sequence of events takes place. A history of development of the child is taken, with a focus on possible prenatal or postnatal events which could be linked with brain damage. An abnormal E.E.G. finding and psychometric data which support possible brain dysfunction will all point to such a conclusion. If the child then reacts favourably to an amphetamine, by changing his behaviour to that which his caretakers approve of, then a diagnosis of minimal cerebral dysfunction or hyperactivity is confirmed. Medication may continue till well into puberty, for 'clinical lore' supports a belief that such symptoms and signs which make up the syndrome disappear at that time. However, follow-up studies also show that symptom substitution takes place and that delinquency, psychosis and character disorders take their place. Often, when an amphetamine fails to work, other medications are tried but the diagnosis is rarely changed.

Through an extensive literature survey and extended discussion of the models which underly the assumptions on which such procedures are based, it is possible to conclude that the hyperactive syndrome is at best a pseudo syndrome. Children diagnosed as hyperactive respond to a variety of different medications, such as phenothiazines, amphetamines and neuroleptics. Several other therapies such as psychotherapy, playtherapy, music therapy, operant conditioning, social learning and group therapy have all been used with success. The point being, that methods other than pharmacological are effective. Thus if hyperactivity is abnormal, it is not necessarily 'sick' behaviour, in the sense that it needs a medical cure. Nor does responsiveness to amphetamine therapy 'prove' the medical model to be valid, for there are enough drug users around to show that amphetamines can produce altered states of consciousness, without their brain being repaired or made more functional.

The line of questioning which is directed to finding a correlative link between reproductive casualties and abnormal or 'sick' behaviour is biased, in that only the patient is focussed on. A woman who has a toxemic pregnancy with one child is just as likely to have a second or third pregnancy with similar complications. Some of the patient's siblings might also be 'reproductive casualties'. But they do not feature in the line of questioning and no statistical data are gathered about them.

Because interpersonal interactions are exceedingly difficult to assess objectively, mother/child interactions are not focussed on; nor are father/child, husband/wife or patient/sibling interactions probed. This thesis demonstrates by way of illustrative case material that these aspects can be relevant. An explanation for the symptom substitution which occurs in adolescence in children who are diagnosed as hyperactive, is thus possible. Variables of human interaction become relevant in this respect. If therapies other than pharmacological alone are contemplated, then usually a change in interaction patterns

is established. In the long run that may be of more benefit to the child. However, it means that other questions and investigations will have to be made. It means that new ways of conceptualizing hyperactive behaviour will have to be found.

The case studies illustrate that the data gathering process in psychotherapy is adequate for the task of assessing the interactional variables. It is also possible to utilize the data gathering methods for establishing baselines of behaviour as are used in behaviour modification techniques. Moreover, the case studies illustrate that it is possible to re-conceptualize hyperactivity in terms of an interaction matrix, with assigned roles and unconscious transactions. Hyperactive behaviour can be conceptualized as a family problem, rather than a problem peculiar to the child.

The literature on hyperactivity clearly shows that boys rather than girls are so diagnosed, in ratios as high as 7 : 1. The explanations of brain damage due to reproductive casualty or cerebral irritability, or to temperamental factors are not explanatory of this sex difference. Nor is the high incidence in the age group of three to seven explained by these assumptions. If, however, the concept of early socialization is invoked, a concept which in principle takes into account interactions and psychodynamic formulations, then such differences could be accounted for.

Boys are expected to be more active, rough and boisterous than girls, and hence they receive less stringent impulse inhibition training than do girls. This type of training also starts at a later stage than for girls.

By searching for variables employed in psychodynamic formulations, factors such as parental-economic circumstances at the time of conception, the circumstances in which a child was conceived, the previous socialization experiences of the parents, the amount of stress present in parents at that time, take on new significance.

The limited search for meaningful sociological and psychodynamic variables which have explanatory power has given the medical conceptualization of hyperactivity a status of diagnostic precision which it does not deserve. For example, it is known that the incidence of many antenatal and neonatal problems are strongly correlated with the socio-economic status of the parents.

A strong case can be made for arguing that hyperactive behaviour is not a synonym for a 'sick' brain. It may be abnormal behaviour, in the sense that it can be changed to what the caretakers of the hyperactive consider normal. However, as such, its definition is inextricably bound up in the definition of the level of tolerance of the caretakers. Mention has been made of the mothers of 'normal' children (those children who were not complained of), many of whom considered their child hyperactive between the age of three and six. Because of the increasing lack of opportunity to grow up in an extended family, the modern parent does not have the background experience to evaluate what levels of activity are normal for a certain age group.

It has also been described by Jenkins (1972) that children have less tolerance for a parent who is least preferred. It is quite possible that the child perceives which parent is intolerant of him, no matter how subtley this is expressed. Often such intolerance is expressed by over-restrictiveness or other types of rejection. If the child is sensitive to this, he in turn will reject the parent. Alternatively, the child may be perceived as being the first to reject his parent and the parental care for him, by being 'difficult' in the womb, or a poor feeder or clumsy. An oversensitive parent, who has a low self esteem may then 'counter reject'. Each may then 'over react' to the behaviour of the other and such acts may become synonymous with 'hyperactivity'.

This thesis is not an argument against the existence of brain damage or cerebral irritation. But given the inclusion and exclusion criteria for labelling 'hyperactive' children, it is an argument for reconceptualizing hyperactivity as an index for faulty parent/child interaction. This line of reasoning has been based on an examination of the conceptual issues and some illustrative material from the case studies. If valid, then it becomes difficult to see how previous researchers could validly contrast populations of 'hyperactives' with 'normals'. As was stated in the introductory chapter, the initial research design was dropped, because of the doubtful validity of such contrasting populations.

The final conclusion is, that if the vital ingredients in any explanation of a complex set of phenomena are the questions which attempt to delineate what is observed, then all the questions about what constitutes hyperactivity have not yet been posed.

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