5-1981

Diagnostic Considerations in the Identification of the Hyperactive Child

Barbara Jagoda Draheim
Utah State University

DIAGNOSTIC CONSIDERATIONS IN THE IDENTIFICATION OF THE HYPERACTIVE CHILD

by

Barbara Jagoda Draheim

A report submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

Plan B

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1981

TABLE OF CONTENTS

INTRODUCTION

The hyperactive disorder of childhood and the enumeration of its features were described in two papers published in the mid-1950's, by Laufer and his colleagues (Laufer, 1957; Laufer, Denhoff & Solomons, 1956). It was a list that has since become familiar; short attention span, impulsivity, irritability, low frustration tolerance, poor academic achievement, and visual-motor difficulties. Like many who have since searched for definers of the syndrome, Laufer and his colleagues remarked upon the perplexing variability displayed by these children, and they noted that no single symptom could be considered diagnostic. They described the development of "secondary psychological difficulties" due to the irritating effect of the child's symptoms on parents and teachers. Laufer et al.(1956) issued one of the earliest warnings against indiscriminate reliance on medication. They added a cautionary note, which would be resounded and elaborated by Whalen and Henker (1976), about the attributional effects of medication:

> ...symptomatic control of behavior by medication...may make the child feel that he has no responsibility for his conduct... (p. 61).

Between the appearance of Laufer's heuristic papers and the present time, hundreds of researchers have been stimulated into activity by the numerous unanswered questions about the diagnosis, treatment, and prognosis of the so-called "hyperactivity syndrome". Although there are many observers who are made restless and irritable by the continuing ambiguities and persistent controversies surrounding the disorder, the

intervening 25 years have brought considerable additional knowledge of what Laufer and colleagues called the "hyperactive" disorder. Now that the concept has "come of age", it seems appropriate to assess its degree of maturation.

Because the concept of hyperactivity has survived for more than 25 years, there may seem little reason to question its validity. Nevertheless, the existence of the "hyperactivity syndrome" has been questioned in past years on certain grounds.

There are those who believe that the label is misapplied to normally exuberant and lively youngsters by "hyperrepressive teachers and hyperannoyable parents", (Loney, 1980). Although this belief surfaces periodically in both popular media and professional literature, there are few data either to confirm or disconfirm it (Dubey, 1976).

There are those who cite multivariate studies (Langhorne, Loney & Milich, 1976; Routh & Roberts, 1972; and Werry, 1968) in which several symptoms of a presumed HK/MBD (Hyperkinetic/Minimal Brain Dysfunction) syndrome, have not been found to intercorrelate. Additional studies could be cited in which alternative measures of a symptom have not intercorrelated or in which a single symptom measure has not been reliable from one time to another or from one situation to another (Kenny & Moss, 1971).

Additionally, there are those who feel that there are no valid distinctions between hyperkinetic children and other children referred to clinics, especially those with aggressive conduct disorders. Sandberg, Rutter and Taylor (1978), for example, recently demonstrated that referred children identified by a single source as having "state" hyperactivity are not distinctive from the general clinic population.

Similar findings were offered by Loney, Kramer, & Stewart (1976) showing that rated hyperactivity had relatively fewer antecedents and fewer behavioral consequences that did rated aggression among a group of HK/MBD boys. However, the Loney et al., study did find correlations between a hyperactivity factor and visual-motor performance, parent-reported perinatal complications, and clinical response to methylphenidate; and the Sandberg et al., study suggested that children who display "trait" or "cross-situational" hyperactivity may be a distinctive diagnostic group.

Entering the 1980's, the Diagnostic and Statistical Manual of the American Psychiatric Association will be replacing the diagnostic category of Hyperkinetic Reaction of Childhood (DSM-II) with the category Attention Deficit Disorder (DSM-III) (Loney, 1980). This change is based on programs of research by such investigators as Douglas (1972), and Dykman & Rothschild (1971) As a result, a shift in focus may occur from hyperactivity to inattention. This major classification system is built upon accumulated research, and the attempts of its architects to specify the numbers and kinds of symptoms required for the diagnosis of Attention Deficit Disorder would prove useful.

There has been considerable debate about whether childhood hyperactivity is or is not a true medical syndrome (Ross & Ross, 1976). If it were, it would presumably have a relatively medical-specific etiology. Futher, the assumption would be that such a syndrome, if left untreated, would display a more or less uniform course and, if appropriately treated, would show a relatively homogeneous positive response (Loney, 1980). Once found, a homogeneous diagnostic group could be contrasted with other psychiatric syndromes of childhood, with a heterogeneous residual group,

or with normal comparison groups. Loney and colleagues (1979) believe that clinicians could then begin to write prescriptions and issue prognoses with relative confidence. Statements could be made which would be true from one hyperactive child to another.

Since the writer has been involved in early childhood education programs during the last ten years and has often observed the mislabeling of the hyperactive term, she decided to pursue a literature review to determine whether or not there was a consensus of the experts in the area, as to the identification of the "hyperactive" child.

Statement of the Problem

The question is presented: Does the literature presenting-research on the identification of the hyperactive child indicate a consensus as to characteristic traits used in the diagnostic process?

Objectives

The objective of this study was to examine the literature to determine if researchers have come to a consensus of diagnostic considerations (including characteristic traits and behavioral patterns) as to the identification of the "hyperactive" child.

Limitations

The review of the literature deals primarily with the period of the past fifteen years (1966 to 1981) with reference to Landmark Studies prior to 1966. Emphasis is placed upon the researchers' findings, along with the individual perspectives of the authors relating to the identification of the "hyperactive" child.

Definition of Terms

Brain Damage - A known and detected structural abnormality of the brain.

Brain Dysfunction - Synonymous with brain damage but clearly different in that rarely is damage actually detected.

Cerebral Dysfunction - Only occasionally associated with actual damage to the brain, but generally refers to more subtle defects in coordination, perception, or language of unknown origin.

Learning Disabled - Children defined as "manifesting an educationally significant discrepancy between estimated academic potential and actual level of academic functioning" because of dysfunctioning in the learning process (Clements & Peters, 1962)

Impulsivity - A common behavioral feature of the at-risk hyperactive child which involves excessive (extreme) activity in situations requiring motor inhibitions.

Inattentiveness - A major feature of the "hyperactive child" involving the inability to maintain attention in terms of the norm required.

Organic Origin - Any organic origin theory contends that a child's "hyperactive" behaviors result from a dysfunction in the central nervous system which prevents normal self-control.

Ethogram - This term, used in the present study, defines a cross-situational and cross-behavioral data recording instrument used in the identification of the at-risk hyperactivity in the school setting.

Syndrome - The term syndrome has been defined as "a group of symptoms and signs which when considered together characterize a

disease or lesion" (Blakiston, 1972). Such a definition allows Wender (1976) and Stewart, Pitts, Craig, and Dieruf (1966) to consider "hyperactivity" a syndrome, and Werry (1968) and Goyette, Conners, and Ulrich (1978) to consider it a behavior pattern.

Hyperkinesis - The hyperkinetic reaction of childhood is defined in The Diagnostic and Statistical Manual of Mental Disorders (DSM-II) (1968) as a disorder "characterized by overactivity, restlessness, distractibility, and short attention span, especially in young children; the behavior usually diminishes in adolescence" (DSM-II, 1968). For example, the developmental nature of impulsivity associated with short attention span has been supported by Kagan (1975). He reported that 60 percent of infants who were impulsive at 13-27 months of age remained so at age 10, whereas almost none of the clearly nonimpulsive infants became impulsive. However, diminishing hyperactive behaviors are usually apparent between the ages of 11-14 years.

Minimal Brain Dysfunction - MBD was defined by a Public Health Service Committee headed by Clements (1966):

> This term as a diagnostic and descriptive category refers to children of near average, average or above average intellectual capacity with certain learning and/or behavioral disabilities ranging from mild to severe, which is associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in perception, conceptualization, language, memory and control of attention, impulse or motor function. These aberrations may arise from genetic variations, biochemical irregularities, perinatal brain insults, or other illnesses or injuries sustained during the years critical for the development and maturation of the central nervous system (p. 44).

Perceptual-Cognitive Skills - These skills include: auditory decoding, the ability to understand spoken words or sounds; auditory sequencing, the ability to recall in correct sequence and detail

prior auditiory information; visual figure-ground discrimination, the ability to identify meaningful figures within a broader visual input; visual-motor memory, the ability to reproduce, motorically, prior visual experiences (Valett, 1969); vocal encoding, the ability to use coherent sentence structure (in speech); and, intersensory integration, the ability to utilize more than one modality in learning. The majority of children with notable academic deficiencies have perceptual-cognitive deficits (Valett, 1969; Kagan, 1975).

REVIEW OF LITERATURE

Introduction

Teachers habe long been concerned with learning and behavior problems of "hyperactive children", those children identified in school programs by such traditional labels as "acting out", "aggressive", and "conduct disordered" (Keogh & Margolis, 1976). Since children with learning problems have become the concerns of physicians and psychologists as well as of educators, there has been a notable increase in the amount and scope of research relating to hyperactivity (Burks, 1960; Conners & Rothschild, 1968; Drake, 1970; Weiss, Perlman, & Lance, 1975; Sandoval, 1977; Cunningham & Barkley, 1978; Barkley, 1976; Campbell, Endman & Bernfeld, 1977; Hechitman, 1976; Loney, 1980).

Much has been written concerning the medical and psychological aspects of the hyperactive syndrome (Knobel, 1962; Werry, 1968; Werry, Sprague & Cohen, 1975; Langhorne & Loney, 1979; Lipman, 1978; Ross & Ross, 1976; Sandberg et al., 1978; Quay, 1979; Mash & Darby, 1978). The educational aspects of hyperactivity also have been studied (Bee, 1967; Douglas, 1972; Kinsbourne, 1973; Safer & Allen, 1976; Campbell, 1975; Cantwell, 1975; Loney, 1980; Cunningham & Barkley, 1978). Along with these issues, the dietary component of study in regard to the hyperactive syndrome has currently received attention (Feingold, 1975; Mandell, 1976; Randolph, 1976; Swanson & Kinsbourne, 1976; Werry & Hawthorne, 1976; Goyette et al., 1978).

Defining Characteristics of the "Hyperactivity" Syndrome

Hyperactivity is a general and emotionally laden word which was used as a catchall term for many behavioral abnormalities until recently (Keogh, 1971). Definitions and descriptions of hyperactivity emphasize two major patterns; first, those behaviors which have to do with the extent and kind of motor activity; second, those which have to do with associated learning, social, and psychological characteristics.

Many investigators refer to and use such terms as persistent, heightened, and sustained activity levels, and/or increased speed of movement (Chess, 1960; Stewart et al., 1966; Werry 1968; Berler & Romanczyk, 1980; Barkley, 1976; Goyette et al., 1978; Loney et al., 1979; Lipman, 1978; Langhorne & Loney, 1979). For example, Kapfer and Kapfer (1972), Loney and Milich (1978), Loney et al., (1979), and Mash and Dalby (1978) found hyperactive children to be less able than normal children to modify their own behavior and activity levels in relation to differing physical and social demands of the experimental environment. These authors point out that it is not simply the amount of motor activity, but also the character of the activity which is critical in defining hyperactivity.

Another critical characteristic of the motor activity of hyperactive children is that it is said to be situationally or socially inappropriate (McConnell, Cromwell, Bialer & Son, 1964; McFarland, Peacock & Watson, 1966; Werry, 1968; Kramer & Loney, 1978; Rapoport & Roberts, 1978; Ayllon & Roberts, 1974). Werry et al., (1975) concluded that the hyperactive child's activity level may be at "the upper end of the distribution of this behavioral trait in the population...

"But that there is also 'a qualitative element of situational inappropriateness', thus, bringing the child into conflict with his socio-familial environment" (p. 52).

It is likely that the higher the level of motor activity of any child, the greater the probability of inappropriate behavior (Kaspar, Millichap, Backus, Child & Schulman, 1971). The child who does more is apt to make more mistakes than is the child who does little. High activity level per se may contribute to the maladaptive behavior pattern of hyperactive children, but activity level alone does not provide a satisfactory definition for the condition (Cantwell, 1975; Humphries, 1976; Kinsbourne, 1973). Chronic high activity is also characteristic of some high achieving individuals. Adjectives such as vigorous, hard working, enthusiastic, and energetic are apt to be applied. Differences in motor activity between hyperactive and "hyper-successful" children thus, must be qualitative as well as quantitative (Humphries, 1976; Kinsbourne, 1973; Safer & Allen, 1976).

Part of the confusion in defining hyperactivity is that the major presenting symptom - hyperactivity - is often confounded with other behavioral, psychological, social, and dietary, as well as organic conditions. In a study of the educational management of brain injured and also hyperactive children, Cruickshank, Bentzen, Ratzebury, and Tannhauser (1961) emphasized the increased motor activity but broadened their definition of hyperactivity to include " emotional disturbances and gross manifestations of behavior disorders,...short attention span, visual and auditory distractibility, and disturbances in perception leading to dissociative tendencies" (p. 10). This description

is consistent with the symptom patterns included in the Hyperkinetic syndrome presented by several authors in the field (Burks, 1969; Knobel, 1962; Knobel, Wolman & Mason, 1959; Stewart et al., 1966; Wunderlich, 1969; Safer & Allen, 1976; Sykes, Douglas & Morgenstern, 1973; Humphries, 1976; Sandoval, 1977; Weiss, Hechitman & Perlman, 1978), and in syndromes of developmental delay (Bakwin & Bakwin, 1966), and in minimal cerebral dysfunction (Anderson, 1963; Clements & Peters, 1962; Pincus & Glaser, 1966; Drake, 1970; Douglas, 1972; Topaz, 1971; and Humphries, 1976).

Despite consistent reports that hyperactivity is characteristic of children also diagnosed as having cerebral dysfunction conditions, it is unclear whether characteristics of perceptual disorganization, attentional defects, distractibility, and excitability are defining parameters or are correlates of hyperactivity. Whether they are in fact the condition or simply correlates (symptoms) authors in the field agree (Werry et al., 1975; Whalen & Henker, 1976; Sandoval, 1977; Bem & Allen, 1974; Cunningham & Barkley, 1978; Goyette et al., 1978; Kramer & Loney, 1978; Loney, 1980), that the above characteristics are indeed seen, in part or in whole, in the hyperactive child in school. There is solid evidence that the relationship between hyperactivity and medically diagnosed cerebral dysfunction is in no sense one-to-one (Eisenberg, 1957; Freibergs & Douglas, 1964; Herbert, 1964; Reger, 1963; Werry, 1968; Werry et al., 1975; Hertzig, Bortner & Birch, 1969; Whalen & Henker, 1976; Wilson, 1976; Halliday, Jones & Douglas, 1979; Achenbach & Edelbrock, 1978). In fact, for example, Hertzig et al. (1969) found that only 19 of 90 children placed in special schools for brain damaged children evidenced

signs of the hyperkinetic behavior syndrome. They stressed the "neurologic heterogeneity" of such a group. All hyperactive children are not brain damaged (Birch, 1964; Birch, Thomas & Chess, 1964; Schrager, Lindy, Harrison, McDermott & Wilson, 1966; Walton & Presly, 1974; Sprague & Sleator, 1977; Gittelman-Klein & Klein, 1976; Halliday et al., 1979).

Although hyperactivity has been considered to be expressed by a variety of characteristics, professionals and parents often agree that "they know it when they see it" (Keogh, 1971). In a survey by Schrager et al., (1966), pediatricians, teachers, psychologists, psychiatrists, and social workers concurred that the six behaviors most characteristic of hyperactive children were: "fidgety and restless; "inattention"; "hard to manage"; "cannot sit still"; easily distracted"; "cannot take frustration". Stewart et al.,(1966) interviewed mothers of 37 hyperactive elementary school children and found that over two-thirds of these children were described as: "cannot sit still"; "talks too much"; "wears out toys and furniture"; "fidgets"; "does not complete projects"; "does not stay with games". Professionals and parents react to (label) similar behaviors in similar ways (Goyette et al., 1978; Miller, 1976). Descriptive terms of which professionals and parents agreed were for the most part negative.

Cross-Situational and Cross-Temporal Variations

A defining characteristic of hyperactive children is the cross-situational and cross-temporal variation in symptomatic behavior displayed by the at-risk hyperactive child in the school setting (Loney,

1980; Laufer, 1957; Paternite, Loney & Langhorne, 1976; Quay, 1979). Assessing behavior across settings and times, either by making repeated measurements or by asking informants directly, would allow the observer to study behavior of at-risk hyperactive children varying in "hyperactive" symptoms (i.e., trait hyperactives), situational variations of behavior (i.e., state hyperactives), and variance of hyperactive behaviors at specific times (i.e., temporal hyperactives). Loney (1980) suggests that what he calls state hyperactives (behavior varying in different situations or settings) should respond better than trait (varying symptoms) hyperactives to behavior modification (i.e., changes in the environment and environmental contingencies). One could study the determinants of the variation shown by state hyperactives, asking the question: "In what kinds of situations do they behave like normals and in what situations are they hyperactive?" It might develop, according to several authors, that state hyperactives who display hyperactive symptoms only at home (and not at school) differ in informative ways from state hyperactives, who display such sumptoms only at school (and not at home) (Weiss et al., 1978; Cunningham & Barkley, 1978; Campbell, Endman & Bernfeld, 1977). Trait hyperactives can be observed and changes in behaviors across consistent settings and times can be recorded (Paternite et al., 1976).

Such studies could suggest answers to more general questions surrounding trait vs. state (symptom vs. situation) conceptions of behavior. Whatever the clarification that might be achieved on such general issues, it si likely that classroom, along with clinical, diagnosis and decisions about treatment would be improved if instances of variation

were indicated; symptoms (trait) variation; situation (state) variation; and sequence (time) variation (loney, 1980; Mash & Dalby, 1978; Sandberg, et al., 1978). Scale (method) variation along with subjective (informant) variation would also aid in the clarification of assessing hyperactive behaviors (Milich & Loney, 1979).

As Laufer et al. (1965) noted, the behavior of hyperactive children is unpredictable; that is, it can be expected to vary from one situation to another and from one time to another. This unpredictability is so characteristic that it is considered diagnostic by many (Loney, 1980; Milich & Loney, 1979). Studies (Loney & Milich, 1978; Miller, 1976) have characteristically used diagnostic criteria that demanded agreement across time from parents, teachers, and clinicians. Similarly, researchers have felt that the authenticity of the syndrome was compromised by their failure to demonstrate conventional validity (i.e., agreement across situations or measures) and reliability (i.e., agreement across occasions or informants).

Only recently has attention been focused directly on the issue of variability. Campbell and her colleagues (1977) have done longitudinal studies comparing so-called "true" hyperactive preschoolers (those who were hyperactive at home and at school) with situational hyperactive preschoolers (those who are hyperactive only at home), and showing that environmental causes may be attributed to the differences in hyperactive behaviors.

Learning Problems Which Relate to At-Risk Hyperactivity

It is well substantiated that many hyperactive children have learning problems or are poor achievers in school (Bem & Allen, 1974; Campbell et al., 1977; Chess, 1960; Cruickshank et al., 1961; Dubey, 1976; Loney & Milich, 1978; Millichap, Aymat, Sturgis, Larsen & Egan, 1968; Stewart et al., 1966). Clinical and educational observers have noted that hyperactive children do vary in learning performance, with variability evident in day-to-day and task-to-task performance (Thelander, Phelps, & Kirk, 1958; Newman, 1966; Allen, Henke, Harris, Baer & Reynolds, 1967; Knobel, 1962; Wender, 1976).

Teachers report that hyperactive children sometimes do excellent work and sometimes fail completely (Weiss et al., 1975). In addition to within-subject variability, there is well documented within-group variability (Sandberg et al., 1978; Quay, 1979; Mischel, 1977; Minde & Weiss, 1971; Minde, Weiss & Mendelson, 1972; Miller, 1976). Chess (1960) for example, analyzed a sample of 82 hyperactive children seen in private consultative practice. She noted that the incidence of serious learning problems differed among five etiological subgroups. All children in the organic brain damage group had educational deficiets, but incidence and kind of learning problems for the other groups varied. Elementary age children evidenced problems in school conduct; adolescents had poor academic achievement. There is agreement, however, that almost all hyperactive children have learning problems or display difficulty at some time.

A number of investigators have identified the existence of visual-motor malfunctions as contributing to the learning problems expressed by diagnosed hyperactive children (Cruickshank et al., 1961; Laufer et al., 1956; Thelander et al., 1958; Werry, 1968; Walton & Presly, 1974; Weiss et al., 1978; Werry & Hawthorne, 1976).

Anderson (1963) reported special problems in reading, e.g., reversals and mirroring, as did Burks (1960). Burks noted also that children displaying signs of hyperactivity performed badly on achievement tests, whereas Chess (1960) observed that a number of her hyperactive subjects did adequately on such tests even though they did not perform well on a daily basis.

Three hypotheses appear as attempts at clarification of the relationships and interactions between hyperactivity and learning problems. Hypothesis 1 represents the organic-neurological syndrome explanation and states that learning problems, distractibility, perceptual problems, and motor hyperactivity are caused by a common underlying condition, that is neurological impairment. Symptoms are considered interacting but not in any necessary functional relationship (Bax & MacKeith, 1963; Birch, 1964; Gittelman-Klein & Klein, 1976). Hypothesis 2 suggests that the learning problems of children displaying hyperactive behavior are a result of increased motor activity which disrupts attention to task and thus prevents accurate intake of information (Weiss et al., 1975; Satterfield & Braley, 1977). Hypothesis 3 suggests that the learning problems of "hyperactive children" are a function of hasty, impulsive decisions in learning situations (Campbell, 1975; Loney et al., 1979). Each of these three will be discussed and relevant and critical references reviewed.

Organic and Neurological Model

The biological and genetic correlates for hyperactive behavior suggest that the major etiologies of the disorder are organic. With one-third seriously learning impaired, one-tenth having a seizure history, one-third having a positive genetic history, one-half showing abnormal EEG's, and one-third to one-half showing signs of neurological delays, the theory is well supported. Further evidence for an organic etiology comes from the fact that some physical conditions can create the problem. Four known physical causes of hyperactivity are asphyxia in infancy, encephalitis, lead poisoning, and head injury (Loney, 1978; Mackarness, 1976; Mandell, 1976).

A number of investigators divide hyperactives into two categories based on the presence or absence of organic (EEG, neurological, psychometric, perinatal, and developmental) findings (Campbell, 1975; Conners & Rothschilds,1968; Bee, 1967; Hechitman, 1976). The group with those findings is labeled the true or organic hyperactive group and the other is called the situational, emotional, or reactive group of hyperactives. Those who categorize in this way note that the groups tend to respond differently to stimulant medication (Swanson & Kinsbourne, 1976; Whalen, Klahn & Loney, 1977; Werry & Hawthorne, 1976; Randolph, 1976). However, the fact that the many hyperactive children with no "organic" features respond less dramatically to stimulants does not constitute evidence that their disorder is emotionally based. Likewise, the absence of organic findings does not make schizophrenia a functional or emotionally based illness (Routh & Roberts, 1972).

The neurochemistry and the neurophysiology of the hyperkinetic disorder are at present interesting speculations with minor supporting evidence. Many investigators suggest that catecholamine (CA) levels are low (Rapoport & Roberts, 1978) or that re-uptake of CA is low in hyperactive children and that stimulants by increasing CA uptake normalize the system (Milich & Loney, 1979). A second popular theory cluster is that hyperactive children have certain under-aroused centers in the hypothalmus or the midbrain (Wender, 1976) which, when activated by stimulants, become normalized, inhibiting hyperactive "dyscontrol" (Mackarness, 1976).

Studies have shown group differences between "hyperactives" and control subjects in specific EEG dimensions with respect to evoked potentials and alpha rhythms (Langhorne, 1977). Langhorne furthermore found that 11 of 36 hyperactive children had an EEG "driving response" to photic stimulation and that all such abnormalities were eliminated with the intravenous injection of amphetamine. However, this finding was not replicated by Swanson and Kinsbourne (Swanson & Kinsbourne, 1976). Another EEG study of interest was that of Laufer et al., (1956). They administered Metrazol to hyperactive children and to controls and simultaneously flashed a stroboscope at a fixed frequency as they recorded EEG's. They found that hyperactive children had a lower photo-Metrazol threshold on the EEG than did non-hyperactive children of the same age. They further reported that amphetamines raised the EEG threshold for hyperactives to within the normal range.

Social System Model

A second model, one that incorporates a sociological and anthropological perspective, is the social system model. Here, in contrast to the organic model, authors such as Conrad (1975) or Robin and Bosco (1976) stress that hyperactive behavior is defined by the child's social environment, including the child's role in an institution (e.g., the family or the school) that is, it is norm referenced. When a child's "hyperactive" behavior is socially deviant and transgresses accepted social system norms, the family or the school "create" the "hyperactive child" by labeling this behavior as such. In this model, very little emphasis is placed on the constitutional make-up of the child or on individual differences in children. "Hyperactivity" is regarded as an achieved status; it is a role played by those assigned the status. This status exists within, and is specific to, the social system in which it occurs. Prevalence rates, therefore, are specific to the type of social system; traditional prevalence rates, which ignore the local environmental or sociocultural factors, are considered meaningless (Sandoval, 1977). One can achieve the status, that is, be labeled "hyperactive" in one social system, such as the school, but not in others, such as the home or larger community. The status of hyperactivity is thought of, therefore, as a product of the social system and not a condition inherent in the child. This model is critical in terms of the teachers input in identifying the at-risk child. The teacher must refer to his or her norms of acceptable behavior and see if this label is not given to children just because they fall outside the accepted range.

The Interactive System Model

A third model, one with which a large group of researchers contend, incorporates both the social and individual differences of the child in a single interactive system model (Kenny & Moss, 1971; Morrison & Stewart, 1974; Stewart et al., 1966; Sandoval, Lambert & Yandell, 1976). This model asserts that both individual differences in the organic and psychological make-up of the child as well as individual differences in the family and school environment of the child may contribute to whether or not a child is identified as "hyperactive". Rather than viewing the social structure as the sole source of hyperactive behavior, the interaction between the child's environment and his physical and psychological status is emphasized. Children function on a continuum of physical-neurological capacity and develop on a continuum of supportive social environments.

Summary of Models

In conclusion, hyperactive behavior in children cannot be defined by a "single behavioral dimension of a single defining system" (Wender, 1976). A definitive diagnosis based on the etiology of the symptoms is not realistic at this time, and various treatment recommendations are suggested (Sandoval et al., 1976).

Prevalence of Hyperactivity in the School Population

The work of Huessy and his colleagues (Huessy, 1967; Huessy, 1974; Huessy, Marshall & Gendron, 1973) is often cited as indicating that between ten and twenty percent of school children are "hyperkinetic".

The researchers had teachers of 500 second-grade school children in rural Vermont complete their own 21-item, five-point scale rating on the children. Any child with a total score above the 9th percentile was considered a "problem" and also "hyperkinetic" (Huessy et al., 1973). Thus, twenty percent is the prevalence rate often cited from this study, but such an estimate cannot be accepted without question. By arbitrarily choosing the 80th percentile, the investigators dictated prevalence rate. Using a percentile cut-off on an unvalidated checklist is a poor method of identification. The authors claim that the instrument was validated by the fact that some of the children in the top twenty percent included the children about whom teachers complained (Sandoval et al., 1976).

Wender (1976) used a procedure in which the teacher rated whether or not specified behaviors were a "problem". He found that fifteen percent of a stratified sample of Montgomery County, Maryland children in first through sixth grades had teacher-reported problems of restlessness, and 22 percent had problems of attention span. Wender concluded that:

> ...one-fifth to one-tenth of grade school children had problems considered to be manifestations of MBD (minimal brain dysfunction) to some (perhaps minor) degree (p. 60).

Werner and Watts (1968) used behavior checklists and reports from parents and teachers to indicate the presence of three frequently included hyperkinetic symptoms (excitable, distractible, and irritable) in 750 Kauai, Hawaii children followed from before birth. They found that 8.79 percent of the boys and 3.2 percent of the girls (5.9 percent total of their sample) evidenced symptoms of hyperkinesis at ten years of age.

Stewart et al., (1966) found that four percent of 47 first-grade children in St. Louis grade schools who had been selected to be controls in the study had been "diagnosed hyperactive". No description of the method used to conclude that the children were "diagnosed hyperactive" was provided, however (Wender, 1976). Despite these difficulties, Wender (1976) reported that:

> ...Stewart et al.... reported that prevalence of the "hyperactivity syndrome" to be approximately 4 percent in a population of St. Louis grade school children between the ages of five and eleven (p. 42).

In a later study, Miller, Palkes, and Stewart (1973) found that in a population of 849 suburban St. Louis children in grades three through six, 1.46 percent of the girsl and 9.32 percent of the boys (5.53 percent overall) were "diagnosed hyperactive". The criteria for diagnosis were teacher report (yes or nor format), the presence of "overactive" and "distractible" behavior, and the presence of at least three out of 28 other "symptoms" such as "does not do homework," "has changeable moods," "seems to think he/she is worthless." No confirmation of the "diagnosis" was made, other than the "face" validity of the reported symptoms.

The estimated number of children displaying hyperactive behaviors in the United States differs in various reports. Feingold (1975) estimates the number from a high of 5,000,000 to a low of about 1,000,000 with a questionable low of 500,000. Feingold states that no one seems to know the exact number and that the "experts clash again" (p. 53), indicating a difficulty in reaching a consensus on this issue.

Wender (1976) estimated that there are probably 5,000,000 hyperactive children in the United States and that hyperactivity is the single most common child behavior disorder seen by psychologists. He felt that as many as five percent of the school-age children have hyperactive problems. An earlier estimate by Miller et al., (1973) put the number in the United States at 1.5 million children. According to Schrag and Divoky (1975), between 500,000 and 1,000,000 American children and adolescents were taking amphetamine-type drugs and other psycho-stimulants by prescription for hyperactivity, and since their numbers have been doubling every two or three years, the total according to these authors may now exceed 5,000,000. It is obvious that the numbers growing rapidly each year are not agreed upon by experts, and this difference of opinion may result from the fact that hyperactivity is still very difficult to objectively define at the present time.

It has been proposed that the number of hyperactive children is growing rapidly each year. This implies that the incidence (the number of new cases each year) is increasing and therefore so is the prevalence (Sandoval et al., 1976; O'Leary, Pelham, Rosenbaum & Price, 1976). Such statements are tied to one of the following explanations:

(1) Etiological factors are changing, as David and Brenner (1976) contend, and state as an example that as the amount of lead in the environment from the use of high octane gasoline is increasing, therefore hyperactivity is increasing.

(2) Social-political factors are changing (e.g., drug companies are "pushing" drugs for children, therefore physicians make the diagnosis more often in order to justify the prescription (Conrad, 1975; (Schrag & Divoky, 1975).

(3) Diagnostic sophistication is increasing and clinicians are just better able to recognize the condition (Wender, 1976; Robins, 1978).

The first explanation states that there actually are more children displaying behaviors of hyperactivity. The second states that there are not more "hyperactive" children, but that more children are given the label. The third argument also implies that the number of such children is not greater, but suggests that there were many more such children in the past who went unrecognized. Although all three points of view differ in basic assumptions about the meaning of hyperactivity, they all rely on the same type of prevalence study to provide evidence that "hyperactivity" is increasing (Jones, Reid & Patterson, 1974).

SUMMARY AND CONCLUSIONS

Purpose

The purpose of this study was to examine the literature to determine if researchers have maintained a concensus of diagnostic considerations (including characteristic traits and behavioral patterns) as to the identification of the hyperactive child.

Findings

The literature contains a number of studies describing attempts to identify certain characteristics as being more prominent among hyperactive children than among normal children through the use of direct observation, behavioral checklists and standardized tests. Sources of variation in the identification process, as noted by several authors, included symptom variation, situation variation, method of testing variation, informant variation, and sequence (time) variation.

There appears to be a concensus among researchers in the field concerning the issue of multivariate aspects of the hyperactive syndrome. Experts seem to agree that multivariate symptoms and traits characterize and identify the hyperactive child and combinations of variables are apparent at referral and at follow-up when the child is observed in the clinical setting. Professionals working in this area agree that there is no single symptom characteristic of the hyperactive syndrome which can be considered diagnostic, and that both symptoms and treatment are determined by the complex interaction of numerous variables.

It is well substantiated through the literature that many hyperactive children have learning problems and are poor achievers in school.

Clinical and educational observers have noted that hyperactive children are variable in learning performance, with variability evident in day-to-day and task-to-task performance. There is agreement among researchers in the field that hyperactive children often have learning problems due to visual-motor functions, and also have special problems in reading. Visual and auditory distractibility is also a frequent problem.

Symptoms and identification traits of hyperactivity agreed by most investigators include: short attention span, impulsivity, irritability, low frustration tolerance, excitability and restlessness. The hyperactive child, as indicated by the literature review, displays inappropriate levels of behavior, including the inability to cope with frustration. Experts agree that the hyperactive child exhibits persistent, heightened, and sustained activity levels, along with an increased speed of movement.

Conclusions

From these findings it may be concluded that there is a definite concensus among researchers in the field of hyperactivity to diagnose considerations in the identification of the hyperactive child. Experts conclude that the child with this specific syndrome is less able than normal children to modify his behavior and activity levels in relation to changing physical and social aspects of the environment. In addition, hyperactive behavior may vary from one situation to another and from one time to another. This unpredictability is so characteristic that it is considered diagnostic by most researchers in the area. It is likely

that classroom diagnosis and decisions about treatment could be improved if sources of variation were identified in the observed behavior of the hyperactive child, as according to symptom, situation, method of testing, time element involved, and informant variation.

BIBLIOGRAPHY

Achenbach, T. & Edelbrock, C. The classification of child psychopathology: an analysis of empirical efforts. Psychological Bulletin, 1978, 85, 1275-1301.

Allen, K.E., Henke, L.B., Harris, F.B., Baer, D.M., & Reynolds, N.J. Control of hyperactivity by social reinforcement of attending behaviors. Journal of Educational Psychology, 1967, 58(4), 231-237.

Anderson, W.W. The hyperkinetic child: a neurological appraisal. Neurology, 1963, 13, 968-974.

Ayllon, T. & Roberts, M. Eliminating discipline problems by strengthening academic performance. Journal of Applied Behavior Analysis, 1974, 7, 71-76.

Bakwin, H., & Bakwin, R.M. Clinical management of behavior disorders in children. Philadelphia: W.B. Saunders, 1966.

Barkley, R. Predicting the response of hyperkinetic children to stimulant drugs: a review. Journal of Abnormal Child Psychology, 1976, 4, 327-348.

Bax, M., & MacKeith, R.D. (Eds.) Minimal cerebral dysfunction. Papers from the international study group held at Oxford, September, 1962. London: Heinemann, 1963.

Bee, H.L. Parent-child interaction and distractibility in nine-year-old children. Merrill-Palmer Q. Behavior Development, 1967, 13, 175-190.

Bem, D. & Allen, A. On predicting some of the people some of the tim: the search for cross-situational consistencies in behavior. Psychology Review, 1974, 81, 506-520.

Berler, E. & Romanczyk, R. Assessment of the learning disabled and hyperactive child: an analysis and critique. Journal of Learning Disabilities, 1980, 13, 1-3.

Birch, H.G. Brain damage in children: The biological and social aspects. Baltimore: Williams & Wilkins, 1964.

Birch, H.G., Thomas, A., & Chess, S. Behavioral development in brain-damaged children. Archieves of General Psychiatry, 1964, 11, 596-603.

Blakiston's Gould Medical Dictionary. New York: McGraw-Hill Book Company, 1972, 3rd Edition.

Burks, H.F. The hyperkinetic child. Exceptional Children, 1960, 27, 18-26.

Campbell, S. Mother- child interaction: a comparison of hyperactive, learning disabled and normal boys. American Journal of Orthopsychiatry, 1975, 45, 51-57.

Campbell, S., Endman, M. & Bernfeld, G. A three-year follow-up of hyperactive preschoolers into elementary school. Journal of Child Psychology, 1977, 18, 239-249.

Cantwell, D. P. The hyperactive child. New York: Spectrum Publications, 1975.

Chess, S. Diagnosis and treatment of the hyperkinetic child. New York Journal of Medicine, 1960, 60, 2379-2385.

Clements, S.D. Minimal brain dysfunction in children. Washington, D.C.: United States Public Health Service, Monograph No. 3, 1966.

Clements, S.D. & Peters, J. Minimal brain dysfunction in the schoolage child. Archives of General Psychiatry, 1962, 6, 185-197.

Conners, C.K. & Rothschild, G.H. Drugs and learning in children, in Hellmuth, J. (Ed.) Learning Disorders, 1968, 3, Special Child Publications.

Conrad, P. The discovery of hyperkinesis: notes on the medicalization of deviant behavior. Social Problems, 1975, 23, 12-21.

Cruickshank, W.M., Bentzen, F.A., Ratzebury, F.H. & Tannhauser, M.T. A teaching method for brain-injured and hyperactive children: a demonstration pilot study. Syracuse, New York: Syracuse University Press, 1961.

Cunningham, C. & Barkley, R. The role of academic failure in hyperactive behavior. Journal of Learning Disabilities, 1978, 11, 15-21.

David, O. & Brenner, E. Lead and hyperactivity - behavioral response to chelation: a pilot study. American Journal of Psychiatry, 1976, 133, 1155-1158.

Diagnostic and Statistical Manual of Mental Disorders (DSM-II), Washington, D.C.: American Psychiatric Association, 2nd Edition, 1968.

Douglas, V. Stop, look and listen: the problem of sustained attention and impulse control in hyperactive and normal children. Canadian Journal of Behavioral Science, 1972, 4, 259-282.

Drake, D.M. Perceptual correlates of impulsive and reflective behavior. Developmental Psychology, 1970, 2, 202-214.

Dubey, D. Organic factors in hyperkinesis: a critical evaluation. American Journal of Orthopsychiatry, 1976, 46, 353-366.

Dykman, R. & Rothschild, G. Specific learning disabilities: an attentional deficit syndrome. Learning Disabilities, 1971, 2, 420.

Eisenberg, L. Psychiatric implications of brain damage in children. Psychiatric Quarterly, 1957, 31, 72-92.

Feingold, B. B. Introduction to clinical allergy. Springfield, Illinois: Charles C. Thomas, 1975.

Freibergs, V. & Douglas, V.L. Concept learning in hyperactive and normal children. Journal of Abnormal Psychology, 1964, 74, 388-395.

Gittelman-Klein, R. & Klein, D. Methylphenidate effects of learning disabilities. Archives of General Psychiatry, 1976, 33, 655-664.

Goyette, C., Conners, C., & Ulrich, R. Normative data on revised Conners parent and teacher rating scales. Journal of Abnormal Child Psychology, 1978, 6, 221-236.

Halliday, R., Jones, T., & Douglas, D. Methylphenidate dosage effects on attentional components of the visual evoked potential in hyperactive children. Presented to the Society for Research in Child Development, San Francisco, 1979.

Hechitman, L. Hyperactives as young adults: a preliminary report. Canadian Medical Association Journal, 1976, 115, 626-630.

Herbert, M. The concept and testing of brain-damage in children: a review. Journal of Child Psychology and Psychiatry, 1964, 5, 197-216.

Hertzig, M.E., Bortner, M., & Birch, H.G. Neurological findings in children educationally designated as "brain-damaged." American Journal of Orthopsychiatry, 1969, 39, 437-446.

Humphries, T.W. Stimulant responsiveness of hyperactive children on self-paced contour tracking task. In preparation, Department of Neuropsychology, The Hospital for Sick Children, Toronto, 1976.

Huessy, H. Study of the prevalence and therapy of the coreatiform syndrome of hyperkinesis in rural Vermont. Acta Paedopsychiatrica, 1967, 34, 130-145.

Huessy, H. Hyperkinetic problems continue to teens. Clinical Psychiatry, 1974, 2, 5.

Huessy, H., Marshall, C., & Gendron, R. Five hundred children followed from 2nd-5th grade for the prevalence of behavior disorder. Acta Paedospychiatrica, 1973, 39, 101-109.

Hutt, R., & Hutt, T. Hyperactivity in preschoolers and the effect of methylphenidate. American Journal of Orthopsychiatry, 1965, 45, 38-50.

Jones, R.R., Reid, J.B., & Patterson, G.R. Naturalistic observation in clinical assessment, in Advances in Psychological Assessment, Vol. 3. San Francisco: Jossey-Bass, Inc., 1974.

Kagan, J. Emergent themes in human development. Presidential address to the annual meeting of the Eastern Psychological Association, New York, April 4, 1975.

Kapfer, P. & Kapfer, M. Introduction to learning packages. Educational Technology, 1972, 12, 9-11.

Kaspar, J., Millichap, J., Backus, R., Child, P. & Schulman, J. A Study of the relationship between neurological evidence of brain damage in children and activity and distractibility. Journal of Consulting and Clinical Psychology, 1971, 36, 329-337.

Kenny, T. & Moss, O. Characteristics of children referred because of hyperactivity. Journal of Pediatrics, 1971, 79, 618-622.

Keogh, B. Hyperactivity and learning problems: implications for teachers. Academic Therapy, 1971, 7, 47-55.

Keogh, B.K. & Margolis, J.S. A component analysis of attentional problems of educationally handicapped boys. Journal of Abnormal Child Psychology, 1976, 4, 349.

Kinsbourne, M. Personality of hyperactive children and stimulant therapy. Montreal: American Psychological Association, 1973.

Kramer, J. & Loney, J. Predicting adolescent antisocial behavior among hyperactive boys. Presented to the American Psychological Association, Toronto, 1978.

Knobel, M. Psychopharmacology of the hyperkinetic child. Archives of General Psychiatry, 1962, 6, 198-202.

Knobel, M., Wolman, M.B., & Mason, E. Hyperkinesis and organicity in children. Archives of General Psychiatry, 1959, 1, 310-321.

Langhorne, J. The large data set in clinical research: what would you do with it after you got it? Presented to the American Psychological Association, San Francisco, 1977.

Langhorne, J., & Loney, J. A fourfold model for subgrouping the hyperkinetic/MBD syndrome. Child Psychiatry and Human Development, 1979, 9, 153-159.

Langhorne, J., Loney, J., & Milich, R. Childhood hyperkinesis: a return to the source. Journal of Abnormal Psychology, 1976, 85, 201-209.

Laufer, M. Management of minimal cerebral syndromes. Journal of Learning Disabilities, 1957, 4, 519-522.

Laufer, M., Denhoff, E., & Solomons, G. Hyperkinetic impulse disorder in children's behavior problems. Psychosomatic Medicine, 1956, 19, 38-46.

Lipman, R. Stimulant medication and growth in hyperkinetic children. Psychopharmacol Bulletin, 1978, 14, 61-63.

Loney, J. Hyperkinetic/aggressive boys in treatment: predictors of clinical response to methylphenidate. American Journal of Psychiatry, 1978, 135, 1487-1591.

Loney, J. Comparing psychological and pharmacological treatments for hyperkinetic goys and their classmates. Journal of Abnormal Child Psychology, 1980, 7, 133-143.

Loney, J., Kramer, J., & Milich, R. The hyperkinetic child grows up: predictors of symptoms, delinquency, and achievement at follow-up. Presented to the American Association for the Advancement of Science, Houston, 1979.

Loney, J., Kramer, J., & Stewart, R. The Iowa HABIT: hyperkinetic/ aggressive boys in treatment. Presented to the Society for Life History Research in Psychopathology, Fort Worth, Texas, 1976.

Loney, J., & Milich, R. Development and evaluation of a placebo for studies of operant behavioral consultation with teachers. Journal of Behavioral Therapy of Experimental Psychiatry, 1978, 9, 327-333.

Mackarness, R. Eating dangerously. New York: Harcourt Brace Jovanovich, 1976.

Mandell, M. Factors contributing to a state of increased susceptibility. In L. Dickey (Ed.) Clinical ecology. Springfield, Illinois: Charles C. Thomas, 1976.

Mash, E. & Dalby, T. Behavioral interventions for hyperactivity. In R. Trites (Ed.) Hyperactivity in children: Etiology, measurement, and treatment implications. Baltimore: University Park Press, 1978.

McConnell, R., Cromwell, R., Bialer, I., & Son, D. Studies in activity level: VII. Effects of amphetamine drug administration on the activity level of retarded children. American Journal of Mental Deficiency, 1964, 71, 376.

McFarland, J., Peacock, L., & Watson, J. Mental retardation and activity level in rats and children. American Journal of Mental Deficiency, 1966, 71, 376.

Milich, R. & Loney, J. The role of hyperactive and aggressive symptomatology in predicting adolescent outcomes among hyperactive children. Journal of Pediatric Psychology, 1979, 4, 93-112.

Miller, L. Method factors associated with assessment of child behavior: fact or artifact? Journal of Abnormal Child Psychology, 1976, 4, 209-219.

Miller, R.G., Palkes, H.S. & Stewart, M.A. Hyperactive children in suburban elementary schools. Child Psychiatry and Human Development, 1973, 4, 121.

Millichap, J.G., Aymat, F., Sturgis, L.H., Larsen, K.W., & Egan, R.A. Hyperkinetic behavior and learning disorders. American Journal of Diseases of Children, 1968, 116, 235-244.

Minde, K. & Weiss, G. The hyperactive child in elementary school: a five-year controlled follow-up. Exceptional Children, 1971, 38, 215-221.

Minde, K., Weiss, G., & Mendolson, W. A five-year study of 91 hyperactive school children. Journal of American Academy of Child Psychiatry, 1972, 11, 595-610.

Mischel, W. On the future of personality measurement. American Psychological Bulletin, 1977, 32, 246-254.

Morrison, J. & Stewart, M. The psychiatric status of the legal families of adopted hyperactive children. Archives of General Psychiatry, 1974, 28, 881-891.

Newman, R.G. The acting-out boy. Exceptional Children, 1966, 22, 186-190.

O'Leary, K.D., Pelham, W.E., Rosenbaum, A., & Price, G.H. Behavioral treatment of hyperkinetic children: an experimental evaluation of its usefulness. Clinical Pediatrics, 1976, 15, 510.

Paternite, C., Loney, J., & Langhorne, J. Relationships between symptomatology and SES-related factors in hyperkinetic/MBD boys. American Journal of Orthospychiatry, 1976, 46, 291-301.

Pincus, J.H. & Glaser, G.H. The syndrome of "minimal brain damage" in childhood. New England Journal of Medicine, 1966, 275, 27-35.

Quay, J. Classification In H. Quay and J. Werry (Eds.) Psychopathological Disorders of Childhood. New York: John Wiley, 1979.

Randolph, T.G. Stimulatory and withdrawal levels and the adaptation of allergic manifestations. In L. Dickey (Ed.) Clinical ecology, Springfield, Illinois: Charles C. Thomas, 1976.

Rapoport, J. & Roberts, J. Dextroamphetamine: Cognitive and behavioral effects in normal prepubertal boys. Science, 1978, 560-563.

Reger, R. Stimulating the distractible child. Elementary School Journal, 1963, 64, 42-48.

Robin, S. & Bosco, J. The social context of stimulant drug treatment for hyperkinetic children. School Review, 1976, 85, 141-155.

Robins, T. Sturdy childhood predictors of adult antisocial behavior: replications from longitudinal studies. Psychological Medicine, 1978, 8, 611-622.

Ross, D & Ross, S. Hyperactivity: research, theory and action. New York: John Wiley, 1976.

Routh, D. & Roberts, R. Minimal brain dysfunction in children: failure to find evidence for a behavioral syndrome. Psychological Rep., 1972, 31, 307-314.

Safer, D.J. & Allen, R.P. Hyperactive children. Baltimore: University Park Press, 1976.

Sandberg, S., Rutter, M., & Taylor, E. Hyperkinetic disorder in psychiatric clinic attenders. Developmental Medical Child Neurology, 1978, 20, 279-299.

Sandoval, J. The measurement of the hyperactive syndrome in children. Review of Educational Research, 1977, 47, 293-318.

Sandoval, J., Lambert, N. & Yandell, G. Current medical practice and hyperactive children. American Journal of Orthopsychiatry, 1976, 46, 323-334.

Satterfield, J. & Braley, B. Evoked potentials and brain maturation in hyperactive and normal children. Electroencephalography, 1977, 43, 43-51.

Schrag, P. & Divoky, D. The myth of the hyperactive child and other means of child control. New York: Pantheon, 1975.

Schrager, J., Lindy, J., Harrison, S., McDermott, J. & Wilson, P. The hyperkinetic child. Journal of American Academy of Psychiatry, 1966, 5, 526-533.

Sprague, R. & Sleator, E. Methylphenidate in hyperkinetic children: differences in dose effects on learning and social behavior. Science, 1977, 198, 1274-1276.

Stewart, M.A., Pitts, F.N., Craig, A.G., & Dieruf, W. The hyperactive child syndrome. American Journal of Orthopsychiatry, 1966, 36, 861-867.

Swanson, J. & Kinsbourne, M. Stimulant-related state-dependent learning in hyperactive children. Science, 1976, 192, 1354-1356.

Sykes, D.H., Douglas, V., & Morgenstern, G. Sustained attention in hyperactive children. Journal of Child Psychology and Psychiatry, 1973, 14, 213-220.

Thelander, H.D., Phelps, J.K., & Kirk, E.W. Learning disabilities associated with lesser brain damage. Journal of Pediatrics, 1958, 53 405-409.

Topaz, P. Report on the Journal of Learning Disabilities preliminary sutdy of drug abuse and minimal brain dysfunction. Journal of Learning Disabilities, 1971, 4, 39-42.

Valett, R. Programming learning disabilities. Palo Alto, California: Fearon Publishers, 1969.

Walton, H, & Presly, A. Use of a category system in the diagnosis of abnormal personality. British Journal of Psychiatry, 1974, 122,

Weiss, G., Hechitman, L., & Perlman, T. Hyperactives as young adults: school, employer, and self-rating scales obtained during ten-year follow-up evaluation. American Journal of Orthopsychiatry, 1978, 48, 438-445.

Weiss, G., Perlman, T. & Lance, S. Effects of long-term treatment of hyperactive children with methylphenidate. Canadian Medical Association Journal, 1975, 112, 159-165.

Wender, P. Minimal brain dysfunction: an overview. Presented to the American College of Neuropharmacology, 1976.

Werry, J. Studies on the hyperactive child: IV - an empirical analysis of the minimal brain dysfunction syndrome. Archives of General Psychiatry, 1968, 19, 9-16.

Werry, J. & Hawthorne, D. Conners' teacher questionnaire - norms and validity. Australian and New Zealand Journal of Psychiatry, 1976, 10, 257.

Werry, J., Sprague, R. & Cohen, M. Conners' teacher rating scale for use in drug studies with children: an empirical study. Journal of Abnormal Child Psychology, 1975, 3, 217-229.

Werner, E. & Watts, J. Reproductive and environmental casualties: a report on the ten-year follow-up of the children of the Kauai Pregnancy Study. Pediatrics, 1968, 42, 112-130.

Whalen, C. & Henker, B. Psychostimulants and children: a review and analysis. Psychological Bulletin, 1976, 83, 1113-1130.

Whalen, C., Klahn, M. & Loney, J. A multivariate study of the relationship of parental management to self-esteem and initial drug response in hyperkinetic/MBD boys. Psychology in the Schools, 1977, 14, 285-290.

Wilson, A. Multivariate analysis: data reduction and treatment evaluation. British Journal of Psychiatry, 1976, 128, 404-407.

Wunderlich, R.C. Hyperkinetic disease. Academic Therapy, 1969, 5, 99-103.

VITA

Barbara J. Draheim

Candidate for the Degree of

MASTER OF SCIENCE

Report: Diagnostic Considerations in the Identification of the Hyperactive Child

Major Field: Psychology

Biographical Information:

Personal Data:

Permanent Address:	P.O. Box 5561, Tahoe City, CA 95730
Local Address:	P.O. Box 3599, Logan, UT 84321
Date of Birth:	June 11, 1950
Place of Birth:	Oakland, California
Marital Status:	Married
Social Security:	559-86-5065

Educational Background:

Ed.D. 1981, Utah State University, Logan, Utah
Curriculum Development and Supervision
Emphasis in Early Childhood Education

M.S. 1981, Utah State University, Logan, Utah
Psychology

M.A. 1978, California State University at Sacramento
Sacramento, California
Early Childhood Education

B.S. 1972, California State University at San Jose
San Jose, California
Social Service/Psychology

Professional Experience:

1980-18 Research Assistant, Child Abuse and Neglect Research Department of Special Education, Utah State University, Logan, Utah

1979-80 Research Assistant, Nutritional Status of Children in Utah and Its Correlation with School Performance and Behavior, Departments of Nutrition and Psychology, Utah State University, Logan, Utah

1976-79 Director/Owner, Animal Crackers Preschool and Day Care Center, Tahoe City, California
1976-79 Consultant/Early Childhood Programs, Tahoe-Truckee School District, Truckee, California
1975-76 Director, West Short Preschool, Tahoe City, California
1974-75 Head Teacher, Alpine Child Care Center Alpine Meadows Ski Area, Tahoe City, California
1972-74 Director, Twin Valley School for Downs Syndrome Alameda County Association for the Mentally Retarded Oakland, California
1971-72 Early Childhood Coordinator of Recreational Services Hayward Area Parks and Recreation Department Hayward, California
1970-71 Social Service Assistant Alameda County Welfare Department Oakland, California
1969-70 Child Services Coordinator Alameda County Welfare Department Oakland, California
1968-69 Arts & Crafts Specialist Castro Valley Community Center Castro Valley, California
1967-68 Program Evaluator of Recreational Services Winter Junior High School Hayward, California
1965-72 Instructor, Piano Theory and Instruction Self-employed, Hayward, California

Professional Affiliations:

Rocky Mountain Psychological Association
National Association for the Education of Young Children
Utah Association for the Education of Young Children

Published Papers:

Essa, E. & Draheim, B. "Negativing the Middle Aged: A Television Cartoon Stereotype. 1979. Submitted to Journal of Educational Psychology, 7-8.

Draheim, B., Cheney, C. & Hendricks, D. The Nutritional Status of Utah Children and Its Correlation with School Performance and Behavior, 1981.

Draheim, B. The Development and Validation of an Instructional Package on the Identification of At-Risk Hyperactivity in the School Setting. Unpublished doctoral disseration.

Other Research:

A Comparative Study of Preschool Education in Australia and the United Stated, 1979.

Child Abuse in Youth Correctional Institutions in Utah. Research with the Department of Special Education, Utah State University, for the Department of Child Abuse and Neglect, Washington, D.C.