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PREVIEW

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The use of the Gordon Diagnostic System for assessing attention deficit disorders as compared with traditional adaptive behavior measures in the public schools

Kinstlinger, Gary, Ph.D.

The University of Nebraska - Lincoln, 1987

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PREVIEW

THE USE OF THE GORDON DIAGNOSTIC SYSTEM FOR ASSESSING
ATTENTION DEFICIT DISORDERS AS COMPARED WITH
TRADITIONAL ADAPTIVE BEHAVIOR MEASURES
IN THE PUBLIC SCHOOLS

by

Gary Kinstlinger

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TITLE

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PREVIEW

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THE USE OF THE GORDON DIAGNOSTIC SYSTEM FOR ASSESSING
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University of Nebraska, 1987

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Scores on the Burks' Behavior Rating Scales, the Behavior Evaluation Scale, and the Keystone Adaptive Behavior Profile were collected on children in four different groups with twenty students in each group. These groups included a Behavior Disordered group, a Mental Disabilities group and a Learning Disabilities group that were in self-contained classrooms, and a control group of children in regular classrooms. All of these children were also evaluated using the Gordon Diagnostic System, a microprocessor based system for objectively evaluating children for Attention Deficit Disorders. The children ranged in age from six through twelve, and were randomly selected from a group of children receiving special education services in seven elementary schools in the district. The data were analyzed using a discriminant analysis for each of the tests, as well as an analysis of variance on total test scores. A classification analysis was also completed to examine each test's ability to accurately classify children by disability. Results indicated that each of

the tests were successful in differentiating the groups from each other. The discriminant analysis resulted in three functions being derived for the BBRS, the BES and the KABP, with only one function being derived for the GDS Efficiency Ratio. Classification analysis indicated that the GDS was most useful for classifying children in the BD and control groups. The usefulness of the GDS as a screening tool was discussed.

PREVIEW

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PREVIEW

INTRODUCTION AND STATEMENT OF THE PROBLEM

This study evaluated the usefulness of the Gordon Diagnostic System in assessing ADD in the schools as compared with several other measures that are commonly used. The Burks' Behavior Rating Scales, the Behavior Evaluation Scale and the Keystone Adaptive Behavior Profile were completed by each student's teacher. The subjects were in four different groups of twenty students each, including a Behavior Disordered group, a Mental Disabilities group, a Learning Disabilities group and a control. These are the major categories of disabilities provided with services within the school system and therefore provided the logical group for study of the Gordon Diagnostic System (GDS) as compared with other measures. This study follows directly from the work done by Gordon and McClure in 1984 which was presented at the Annual Convention of the American Psychological Association in which the initial normative data were presented. In this presentation Gordon and McClure suggested that the GDS be used with children in self-contained classrooms and that further data be collected in comparing the GDS with other measures.

If the GDS is indeed found to be a valid measure of ADD, it could become a useful tool for school

psychologists working within the school systems as an objective measure of attention.

The assessment of Attention Deficit Disorders (ADD) is a topic of great interest within the fields of education, school psychology, and medicine.

It is a problem that almost every teacher has to deal with, as ADD children are often disruptive to the classroom and demanding of the teacher's time and attention. ADD with hyperactivity is the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-III) (American Psychiatric Association [A.P.A.], 1980, pp. 41-45) designation for the problem previously known as hyperactivity or hyperkinetic behavior (see Appendix A for the complete description). This reformulation was warranted in part because attention deficits appear to be a more central feature of the disorder than excess motor activity. Although the high level of inappropriate activity is the most dramatic manifestation of the disorder, many clinicians have felt that the inability to pay attention or concentrate was basic, hence the change in terminology.

DSM-III describes the various symptoms of inattention, impulsivity and hyperactivity but does not specify them in complete operational detail.

The DSM-III definitions of Attention Deficit

Disorder with Hyperactivity and Without Hyperactivity have been debated since they were first proposed in 1980. In the revised edition of this manual this distinction may not be maintained.

One commonly used procedure for operationalizing the diagnosis of hyperactivity has been a score of 15 or above on the abbreviated version of the Conners Teacher Rating Scale (Conners, 1969). The use of this scale has produced some comparability in populations of children selected for research studies. The problem with this, as well as other teacher rating scales, is that they are based on recollections of student behavior rather than direct observation. Some procedures do exist for direct observation of inattentive, hyperactive and impulsive behaviors, either in a standardized playroom situations (Barkley, 1981; Roberts, 1979; Routh, 1978; Routh & Schroeder, 1976) or in the classroom (Abikoff, Gittleman & Klein, 1980), but these are too expensive for routine clinical use and must be reserved for research purposes.

A second major difficulty with the above definitions and the use of scales like the Conners is a lack of discriminant validity, i.e., the fact that there is not an adequate distinction between hyperactivity and unsocialized aggressive behavior in children. Although hyperactivity and aggression are related difficulties

(i.e., two-thirds of hyperactive children are also aggressive, while three-fourths of unsocialized aggressive children are also hyperactive according to Stewart, DeBlois and Cummings, 1980), the distinction between them is an important one. It would seem that the aggressive children rather than the hyperactive ones have a worse long-term prognosis (Milich & Loney, 1979). Also, if children are divided into four groups (hyperactive only, aggressive only, those who are both hyperactive and aggressive, and controls), and are observed in a standard academic task situation (Roberts, 1979), the hyperactives and the hyperactive-aggressives have great difficulty staying on task, while the children who are aggressive only are indistinguishable from controls. The results of research by Kendall and Brophy (1981) suggest that the Conners Teacher Rating Scales assesses only the motor behavior or activity level component of the disorder.

Several criteria have been proposed for establishing the validity of diagnostic categories (Rutter, 1977, 1978; Rutter & Shaffer, 1980), the most fundamental of which is identifiability. That is, the signs and symptoms that make up the disorder must co-occur and form a distinct syndrome. The disorder must constitute a handicapping condition, be reliably

diagnosed and differentiate among individual in terms of clinically relevant pheonomenon such as etiology, prognosis, course, and treatment. Identifiability, however, is viewed as a prerequisite to these other sources of validity.

The figures concerning prevalence of the disorder vividly portray the importance of properly identifying children with ADD. A parent and teacher survey in Grand Rapids, Michigan (Bosco & Robin, 1980) indicated that teachers considered 3.38 percent of elementary and junior high school students to be hyperactive, parents considered 3.16 percent of them to be so, and the parents indicated that 2.92 percent had been so diagnosed by a physician. Another community prevalence survey was carried out in the San Francisco area (Lambert, Sandoval & Sassone, 1978, 1979). Of children surveyed in kindergarten through fifth grade, 4.92 percent were considered hyperactive by one or more definers. Of these, 3.30 percent were considered hyperactive by the school, and only 1.19 percent were agreed to be hyperactive by the teachers, parents and physicians. It should be noted that neither of these studies used the DSM-III definition. Other estimates of the incidence of hyperactivity in the school system have ranged from five to ten percent (Palkes, Stewart &

Freedman, 1972).

These differences may be due, to some degree, to the difficulties in diagnosing and defining ADD. There has developed a need for a better instrument for diagnosing ADD than has been available. This situation led to the development of the Gordon Diagnostic System. Although supported extensively by research efforts, the GDS was designed specifically for use by the clinician as a self-standing test that administers multiple tasks. The Delay Task requires the child to inhibit responding in order to earn points. Specifically, the child is instructed to press a button, wait a while, and then press again. If s/he refrains from responding for at least 6 seconds, a light flashes and the reward counter shows an increment. If the child responds before the interval lapses, then the timer resets and no reward points are recorded. The Delay task yields three primary scores: the number of responses (button presses), the number of correct responses (i.e. Correct) and the Efficiency Ratio, which represents that percentage of correct responses.

The Vigilance Task requires the child to inhibit responding under conditions that demand sustained attention. A series of digits flashes one at a time on an LED display. The child is told to press the button

every time a "1" is followed by a "9". The GDS records the number of correct responses, the number of times that child failed to respond to the "1/9" combination, (i.e., Errors of Omission), and the number of extraneous button pushes (i.e. Errors of Commission). For the testing of younger children, the GDS contains a "1" mode which requires the subject to press a button every time a "1" appears.

The administration of these tasks takes less than twenty minutes. The internal microprocessor generates the tasks and records the data for each session, allowing the child's performance to be analyzed.

The purpose of this study was to investigate the effectiveness of the Gordon Diagnostic System in differentiating between children with ADD and those without this difficulty and to compare its effectiveness in doing so with traditional adaptive behavior measures that have previously been used for this purpose.

REVIEW OF RELATED LITERATURE

In a survey conducted by Gordon and McClure (1983) it was found that approximately 30% of referrals for school psychologists' evaluations contained a question of hyperactivity. Only 17% of these children were eventually found to be hyperactive. These psychologists reported that they depended more on clinical judgment than on data from psychological tests that they considered largely irrelevant to the diagnosis. The most commonly used tests in the general diagnostic battery included the Wechsler Intelligence Scale for Children-Revised (WISC-R), the Bender Visual-Motor Gestalt Test, Peabody Individual Achievement Test, Visual Aural Digit Span Test and House-Tree-Person Drawing Test. Although such a battery may take anywhere from 10 to 16 hours to administer, many studies indicated that this traditional approach does a poor job of discriminating between groups classified as hyperactive and nonhyperactive (Sandoval, 1977).

This great percentage of referrals relating to hyperactivity, and the difficulty in assessing ADD in children is evident. Although more in depth discussion of these issues will be found further on in this review, it is important to first survey the literature on the