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**A school-based multimodal intervention program for children
with attention-deficit hyperactivity disorder**

Antar, Georgi York, Psy.D.

Pace University, 1994

PREVIEW

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300 N. Zeeb Rd.
Ann Arbor, MI 48106

**A SCHOOL-BASED MULTIMODAL INTERVENTION PROGRAM FOR
CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER**

by

Georgi York Antar

**A Doctoral Project Submitted in Partial Fulfillment of the Requirements for the
Degree of Doctor of Psychology in the Department of Psychology at Pace University**

**NEW YORK
1994**

(Please type all information)

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I would like to dedicate this project to the children with ADHD and their parents with whom I have worked through the years. I know their struggles well. It is my hope that this disorder can be demystified so that those affected can be understood, accepted, and helped. And that this support process will help them to achieve everything they want for themselves. I would especially like to thank my family, Robert, David, and Ari for their continuous patience and support—especially for the time that this project has taken from our time together. Thanks also to Sheila and Sheldon for their special support and assistance.

PREVIEW

ABSTRACT

This project is a program proposal for a school-based multimodal intervention program for children 6-12 years of age with Attention-Deficit Hyperactivity Disorder (ADHD). Based on a review of the literature and theoretical concepts from Lazarus' technical eclecticism and multimodal treatment and Bandura's theory of learning, the proposed program includes a biobehavioral component which is not included in most programs at the present time. Primary program goals are to develop self-control and problem-solving skills to help improve student behavioral and academic performance, and to reinforce generalization and transfer effects. The program includes training and support services to children and teachers, as well as program follow-up and evaluation to determine treatment efficacy. Pre- and post-intervention evaluation measures will be utilized to evaluate attention, self-control, self-concept, and academic performance.

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CHAPTER I

In recent years as increasing numbers of school-age children have been identified as having learning disabilities, Attention-Deficit Hyperactivity Disorder (ADHD) has become one of the most commonly referred problems to school psychologists (Silver, 1992), and is one of the most prevalent childhood psychiatric disorders (Barkley, 1990). ADHD has been the subject of intense research by physicians, neuropsychologists, and psychologists for many years. Silver (1992) defines ADHD as a developmentally disabling disorder of inattention, behavioral disinhibition, and the lack of regulation of activity level to situational demands. ADHD is a neurological impairment shaped by environmental context. Barkley (1990) expands the definition to include: 1) the emergence of attentional and overactive behavioral problems across settings and/or caretakers; and 2) a chronicity of symptoms throughout development.

The criteria used to identify children with ADHD are defined by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (1987, Third Edition, Revised, DSM-III-R).

Diagnostic criteria for 3T4.QT Attention-deficit Hyperactivity Disorder

Note: Consider a criterion met only if the behavior is considerably more frequent than that of most people of the same mental age.

A. A disturbance of at least six months during which at least eight of the following are present:

- (1) often fidgets with hands or feet or squirms in seat (in adolescents, may be limited to subjective feelings of restlessness)
- (2) has difficulty remaining seated when required to do so
- (3) is easily distracted by extraneous stimuli
- (4) has difficulty awaiting turn in games or group situations
- (5) often blurts out answers to questions before they have been completed
- (6) has difficulty following through on instructions from others (not due to oppositional behavior or failure of comprehension), e.g., fails to finish chores
- (7) has difficulty sustaining attention in tasks or play activities
- (8) often shifts from one uncompleted activity to another
- (9) has difficulty playing quietly
- (10) often talks excessively
- (11) often interrupts or intrudes on others, e.g., butts into other children's games
- (12) often does not seem to listen to what is being said to him or her
- (13) often loses things necessary for tasks or activities at school or at home (e.g., toys, pencils, books, assignments)
- (14) often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking), e.g., runs into street without looking

Note: The above items are listed in descending order of discriminating power based on data from a national field trial of the DSM-III-R criteria for Disruptive Behavior Disorders.

B. Onset before the age of seven.

C. Does not meet the criteria for a Pervasive Developmental Disorder.

Criteria for severity of Attention-deficit Hyperactivity Disorder:

Mild: Few, if any, symptoms in excess of those required to make the diagnosis **and** only minimal or no impairment in school and social functioning.

Moderate: Symptoms or functional impairment intermediate between "mild" and "severe."

Severe: Many symptoms in excess of those required to make the diagnosis **and** significant and pervasive impairment in functioning at home and school and with peers.

Figure 1. DSM-III-R Definition of ADHD

Note: From Diagnostic and Statistical Manual of Mental Disorders 3rd Edition, Revised by American Psychiatric Association, 1987, Washington, D.C. Author.

The primary symptoms of hyperactivity, impulsivity, and inattention, are categorized into 14 behavioral indicators, 8 of which must have been observed for a period of at least 6 months duration. In 1987, a new federal definition of learning disabilities broadened the term to include ADHD, which affects 3 to 5% of all school-age children in the United States (Barkley, 1990). However, Silver's research data (1992) indicate an estimated 10 to 20% child population with ADHD. He attributes his higher figures to a greater identification of ADHD girls who he states have been under-diagnosed with this disorder. Also, for children who have ADHD, there is a 50 to 80% chance that they may have other learning disabilities (Barkley, 1990; Silver, 1992).

Educators have been confronted and challenged with finding methods and programs to help children with this disorder to function productively and to achieve success in school. School-based remedial and special education programs for children with learning problems have traditionally focused on remediating specific skills to improve academic performance. However, ADHD is a complex disorder which not only has a significant impact on behavior, but also on learning, academic performance, and social skills. The behaviors of inattention, impulsivity, and overactivity disrupt the learning environment and are related to low academic achievement (Barkley, 1990; Whalen & Henker, 1980).

The issues which ADHD children face are poor academic performance and poor social relationships because of behavioral problems which negatively affect their

school progress. For example, ADHD children compared with their same age peers have difficulty remaining on task and focusing attention. They are very distractible and have difficulty screening out events in their environment. In the classroom, this results in problems understanding what to do and in following directions. They are impulsive and are unable to control their actions and think before they act. They call out and may be the first to raise their hand, but when called on they do not know the answer. They have difficulty following rule-governed behavior although they may know the rule and can explain it to you. ADHD children also tend to be excessively restless and overactive, especially when required to remain still for periods of time. In the classroom, they often fidget, tap, and are out of their seats. Additionally, they have a low frustration tolerance and are often temperamentally intense, making relations with peers and adults difficult and problematic.

For many years, educators and school psychologists have sought intervention strategies for managing ADHD children whose behavior needs to be controlled before meaningful learning can occur. There have been four basic approaches to managing children with ADHD in the school setting. These approaches include psychopharmacotherapy, special education placement, behavior modification, and cognitive-behavioral techniques.

Traditionally, stimulant medication was recommended as the primary treatment for ADHD. However, psychopharmacotherapy does not address all aspects of the problem (e.g., aggression, anxiety), and is often not sought as a

treatment because of parental concerns about side effects (e.g., weight loss and sleep problems). For a significant number of ADHD children, stimulant medication is not effective (e.g., it does not control hyperactivity, aggression, or may cause depression) (Barkley, 1990; Hansen & Cohen, 1984; Hinshaw, Henker, & Whalen, 1984a).

Other intervention approaches have included modified environments categorized as special education placement. Although special education placement can provide more structure and reduce overstimulation from a classroom with a greater number of students, the problems of poor attention and overactivity are not directly addressed. Thus, problem behaviors such as poor attention and overactivity can remain unchanged even when a student with ADHD is placed in a small, highly structured class.

Behavioral shaping through behavior modification techniques in the classroom are not sustained when external reinforcements and rewards for target behaviors are withdrawn (e.g., when the student leaves the class). In addition, they were found not to be generalized to other learning and social contexts (Abikoff, 1985; Braswell & Bloomquist, 1991; Wahler, 1980).

Of the four models discussed, cognitive-behavioral strategies have been the most effective for improving school behaviors because these strategies teach skills in problem-solving which a child can learn, reinforce, and utilize independently. The idea that self-directed speech could be used as a means of increasing sustained attention and behavioral inhibition with impulsive children was initially validated by

Meichenbaum and Goodman's (1971) studies. However, these strategies are by no means universally accepted or widely utilized. In fact, cognitive-behavioral interventions which have been developed to address the learning and behavioral issues related to ADHD have generally had rather limited effectiveness (Abikoff & Gittleman, 1985; Barkley, 1990; Meyers, Cohen & Schleser, 1989; Reynolds & Stark, 1986).

Purpose of the Project

The purpose of this project is to review the psychoeducational strategies which have been utilized to help children with ADHD within the school setting and to propose a new intervention approach which incorporates biobehavioral techniques (e.g., stress reduction, relaxation and focusing techniques) into a multimodal program. Although various multimodal interventions have been formulated previously (Braswell & Bloomquist, 1991; Hansen & Cohen, 1984; Lazarus, 1976; Satterfield, 1979, 1981), none have included a biobehavioral treatment component. The primary goals of this approach in a school-based program would be for ADHD children to develop skills in self-control and problem-solving, to reduce stress in the learning situation, and to improve academic performance and behavior.

Biobehavioral Treatments

Biobehavioral treatment is defined as behavioral strategies which are based on the concept of the capacity of the mind to influence the physiology of the body (Ahsen & Lazarus, 1972; Armstrong, Collins, Greene, & Panzoni, 1988; Benson,

1975; Borysenko, 1987; Brandon, Eason, & Smith, 1986; Braud, 1978; Dientsfrey, 1991; Hoekelman, 1991; Institute for the Advancement of Health, 1990; Jacobson, 1938; Kuttner, 1991; Lazarus, 1962, 1984; Lozanov, 1975; Meichenbaum, 1976, 1979; Olness, 1991; Ostrander & Schroder, 1979; Rossi, 1986; Simpson & Nelson, 1974; Walker, 1979). These strategies are used to help alleviate stress-related behaviors and physiological problems (Boyce, Barr & Zeltzer, 1992; Christie, DeWitt, Kaltenbach & Reed, 1984; Cohen & Park, 1992; Denkowski, Denkowski & Omizo, 1984; Fish, 1988; Gagnon, Hudnall & Andrasik, 1992; Klein & Deffenbacher, 1977; McBrien, 1978; Mason, 1988; Murphy, 1991; Omizo & Michael, 1982; Ragen & Hiebert, 1987; Richter, 1984; Rossman & Kahnwaler, 1977; Ryan, 1989; Smith & Womack, 1987; Vacc, 1976; Zaichkowsky & Zaichkowsky, 1984; Zieffle & Romney, 1985).

Biobehavioral treatments provide the individual with strategies for developing their inner capacity for self-control to enhance coping ability, increase comfort, and minimize anxiety, distress, and pain. The interventions are behavioral, kinesthetic, and cognitive, and focus on the mind's effect on the body in changing behavior. For example, developing the reflective capacity to identify a situation that sets off an impulsive reaction or panic response. Then being able to change behavior by controlling one's response, and substituting a productive coping response.

Biobehavioral interventions are directed toward effective management of physical and mental behaviors that are more adaptive. For example, controlling

one's temper instead of starting an argument or hitting someone; controlling overreactions to specific situations for the purpose of keeping blood pressure level stable; controlling overanxious behavior in a test situation; reducing reactions to painful medical procedures; and maintaining focus on academic tasks to overcome distractibility. Attention, focus, memory, and concentration can also be enhanced by reducing stress, thereby positively impacting academic learning (Angus, 1989; Carter & Russell, 1985; Denkowski & Denkowski, 1984; Kuttner, 1991; Lozanov, 1977; Ostrander & Schroder, 1979; Simpson & Nelson, 1974; Zieffle & Romney, 1985).

As behavioral and attentional problems have become more prevalent and problematic to remediate in elementary school populations, research studies have sought alternative methods to solve these problems. Thus, in response to this complex issue, intervention techniques in the area of biobehavioral strategies have developed in the past fifteen years which approach behavior and learning in a more comprehensive and holistic manner (Angus, 1989; Applegate & Hamm, 1985; Armstrong, Collins, Greene & Panzioni, 1988; Carter & Russell, 1985; Denkowski & Denkowski, 1984; Lozanov, 1977; Meichenbaum, 1976; Ostrander & Schroder, 1979; Simpson & Nelson, 1974; Zaichkowsky & Zaichkowsky, 1984; Zieffle & Romney, 1985). Biobehavioral approaches are referred to by various terms including **stress management** (Angus, 1989; Greenberg, 1977; Lewis, 1992; O'Malley, 1985; Parcott, 1990; Sheridan & Smith, 1987; Smith & Womack, 1987), **relaxation training**

(Brandon, Eason & Smith, 1986; Braud, 1978; Brown, 1977; Christie, DeWitt, Kaltenbach & Redd, 1984; Culbertson & Willie, 1973; Deffenbacher & Shepard, 1989; Denkowski & Denkowski, 1984; Dunn & Howell, 1982; Fish, 1988; Greenwood & Benson, 1977; Jacobson, 1973; Klein & Deffenbacher, 1977; Koeppen, 1974; Luiselli, Marholin, Steinman & Steinman, 1979; McBrien, 1978; Oldfield & Petosa, 1986; Omizo & Williams, 1982; Raymer & Poppen, 1985; Richter, 1984; Rossman & Kahnwaler, 1977; Walker, 1979; Zaichkowsky & Zaichkowsky, 1984), **stress-coping strategies** (Gagnon, Hudnall & Andrasik, 1992; Garmezy & Rutter, 1988; LaGreca, Siegel, Wallender & Walker, 1992; Lewis, 1992; Lochman, Lampron, Gemmer & Harris, 1987; Matheny, Aycok, Pugh, Curtelli & Silva, 1986; Meichenbaum, 1979; Murphy, 1991; Ryan, 1989; Zeitlin, Williamson & Rosenblatt, 1987), and **mind-body techniques** (Cobb & Evans, 1981; Dienstfrey, 1991; Hastings & Barkley, 1978; Hoekelman, 1991; Hughes & Hughes, 1980; Jamblousky, 1970; Linden, 1990; Lozanov, 1975; Ostrander & Schroder, 1979; Sandoval, 1982; Stern & Berrenberg, 1977).

Biobehavioral interventions used with children are essentially adaptations of the work of Benson (1975), Lazarus (1962, 1971), Lozanov (1975), Meichenbaum (1976), and Wolpe and Lazarus (1966). This approach holds that there is a powerful relationship between the body and the mind that affects behavior, learning, and health, and that an integrated approach is necessary for working toward specific goals such as improved self-control and productive coping responses.

Biobehavioral strategies include a broad range of techniques, such as biofeedback, progressive muscle relaxation, autogenic training, guided imagery, suggestion, meditation, self-hypnosis, and musical stimulation, which are sometimes used in combination with one another. These techniques help ADHD children develop an internal locus of control without having to rely on external contingencies. Children having an internal rather than an external perception of control, or locus of control, are more aware, inquisitive, and efficient in processing information (Lefcourt, 1976), are superior in intentional and incidental learning (Wolk & DuCETTE, 1973), and obtain higher scores on measures of academic achievement (Lefcourt, 1976). These techniques seem to enable a child's attentional functioning to stabilize, which facilitates learning and contributes to adaptive classroom behavior.

Proposed Program Model

The premise of this project is that a multimodal (eclectic and integrated treatments of biobehavioral and cognitive-behavioral techniques, individual and group therapy) school-based intervention program for ADHD children 6 to 12 years, the target population, is necessary to address the needs of the ADHD child in the school setting. The children involved will benefit from experiences with a range of integrated intervention strategies, not from a single choice among varied strategies. A multimodal program would include biobehavioral techniques for individuals and groups, cognitive-behavioral strategies, special education services, in-service training, staff development, and program evaluation and follow-up. The comprehensive and

multimodal scope of this program should provide the most effective and productive intervention for ADHD children in the school setting.

Theoretical Framework

The proposed intervention program is based on a review of the literature as well as on two theoretical constructs. The literature review examines research studies involving a broad range of intervention strategies with school-age populations with learning, attentional, and behavioral problems. Studies with representative school-age groups were also examined. The findings of the literature review, which are discussed in Chapter II, describe the intervention approaches found to be the most efficacious with children with ADHD. The most significant finding was that a multimodal approach was indicated, and that no singular treatment could be an effective intervention for ADHD.

In conjunction with the research findings, the theoretical constructs, which are elaborated in Chapter III, provide the theoretical concepts which have been formulated as an interrelated set of ideas that address the issues of ADHD children in school settings. The first construct is Lazarus' concept of technical eclecticism which is the model for the multimodal approach. Technical eclecticism proposes the integration of innovative intervention strategies within a comprehensive multimodal treatment approach after other valid strategies have been considered. This means that treatment approaches can be utilized from different theoretical perspectives.

Lazarus defines multimodal therapy as a broad-spectrum behavior therapy which was developed to broaden the theoretical basis of behavioral interventions (Lazarus, 1965). The aim is to extend the integration of techniques of disparate schools of psychotherapy. For example, Lazarus (1965) describes using a cognitive-behavioral approach, as well as desensitization and focusing techniques with the same patient to achieve a singular goal. Multimodal therapists do not necessarily subscribe to any particular theory, but utilize a broad theoretical framework. Such an approach is reflected in the proposed program model which will use biobehavioral techniques to develop self-control skills, and cognitive-behavioral techniques to develop problem-solving skills. Additionally, behavior contracts as well as individual insight therapy and supportive group counseling will be integrated program features.

The second construct which provides the theoretical framework upon which the program model is based is Bandura's learning theory, and theory of reciprocal determinism (Bandura, 1977, 1976). Bandura's theory of the learning process examines the critical role of attention in learning and how problems in attention impair learning. This construct basically describes the learning problems of the ADHD child. If the goal of improved attentional abilities is achieved through the intervention program, it is therefore expected that academic performance should also improve.

Bandura's theory of reciprocal determinism, within his social learning theory, assumes that the child's behavior, interpersonal variables, and environmental contexts interact to affect all factors in the interaction, and that the child assumes an active role in manipulating the environment and controlling behavior. This aspect of Bandura's theory defines another program goal of empowering the child through the development of self-control and problem-solving skills.

Project Organization

In Chapter IV, the ADHD child is discussed within a developmental context utilizing Erikson's (1950) epigenetic theory of psychosocial development. Erikson's model is utilized to understand how the ADHD child negotiates developmental crises associated with developmental stages. The discussion will specifically focus on Erikson's fourth developmental stage termed Industry versus Inferiority, because this middle childhood phase, 6 to 12 years, coincides with the peak referral age for children with ADHD. Erikson's model is useful in illustrating the difficulty ADHD children experience in accomplishing age-appropriate developmental tasks.

Chapter V discusses a best practices intervention model for elementary school children as developed by the National Association of School Psychologists (Cohen, 1988). The proposed intervention program utilizes these guidelines

which set forth ethical criteria recommended for school-based intervention programs. The 10 factors in the best practices model include: student age; teacher variables; parent variables; number of targets; seriousness/danger of the problem; ethical/moral considerations; availability of time and space; administrative support; and setting. These factors are discussed in relation to the proposed intervention program.

In Chapter VI, a school-based multimodal intervention program is described and presented in the form of a Teacher's Manual, which has been developed specifically for this project. The program is based on the findings of a review of the literature and theoretical concepts which have been mentioned. Program goals will specifically focus on enhancing internal versus external locus of control for improved self-control and improved problem-solving. More specifically, improved attention and reduced distractibility, improved control over activity level and social interactions, improved academic performance, and improved self-concept. The thrust of this model is to empower the child through the development of skills and other productive coping responses for interaction with their environment. Program components will include direct services to children for skill acquisition through integrated strategies, in-service training of teachers and school personnel, and staff development.

Chapter VII presents a program evaluation and follow-up component which will be utilized to determine overall program efficacy and the effectiveness of specific intervention strategies. Program evaluation will include pre- and post-intervention measures to assess treatment effects on attention, self-control, self-concept, and academic performance. Three measures will be used. The Conners Teacher Rating Scale-Revised (Goyette, Conners, & Ubrick, 1978) would be utilized to evaluate attention and activity levels in children who received interventions.

The Self-Control Rating Scale (Kendall & Wilcox, 1979) developed to evaluate changes in behavior associated with cognitive-behavioral interventions with children 8-11 years, would also be utilized to assess levels of self-control. The Self-Perception Profile for Learning Disabled Students (Renick & Harter, 1988) would be used to evaluate if the children treated experienced an improved sense of competence deriving from greater self-control as a result of the interventions. These three measures were selected because they were specifically developed to measure treatment intervention efficacy for school-age children with attentional, overactive, and learning problems, and are widely used for these purposes. Academic performance would be measured by a comparison of grades at pre- and post-intervention intervals. Conclusions are discussed in Chapter VIII.

The proposed multimodal intervention program model could contribute to developing an effective treatment approach for a complex disorder affecting a significant percentage of school-age children. This model also offers an expanded role for the school psychologist in the areas of training and consultation to educators on a broad range of learning, academic, and behavioral issues, as well as providing essential direct services to children.

PREVIEW