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Validation Of A Home-Based Observation System For Use With Families Of Hyperactive Children

By

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ABSTRACT

Validation Of A Home-Based Observation System
For Use With Families Of Hyperactive Children

By

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The present study was designed to devise and validate a home-based, mealtime observation code to distinguish normal children and their families from hyperactive children and their families using 20 minute videotapes. A 17-category observation code was used to record child and family interactions of 41 hyperactive children and their families and 18 non-hyperactive control families. Adequate or marginally adequate interobserver reliability coefficients were found for approximately half of the codes. Infrequently scored codes suffered from low reliability while the more frequent and more reliable codes tended to correlate with behavior ratings made by parents and teachers, and to discriminate between the diagnostic groups. More specifically, hyperactive children received more commands from parents and exhibited more non-compliance. The non-hyperactive families exhibited more total and positive interactions than hyperactive families. Although some of the codes are felt to be reliable and valid, various means for further improving interobserver reliability are offered.

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knowledge was not only essential for the design and analysis of this thesis but should continue to prove indispensable in my future research undertakings and in my role as a consumer of other researchers' efforts.

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Chapter 1

Statement of the Problem

Hyperactivity is the most frequently referred problem to child guidance clinics in the United States (Safer and Allen, 1976). Although there is some difficulty determining accurate prevalence estimates, Barkley (1981a) reports that most investigators accept an estimate of between 3-5% of the school-age children. Primary problems include non-compliance, overactivity, inattention, impulsivity, attention seeking behaviors, clumsiness, difficulty accepting discipline, and an inability to inhibit activity to situational demands (Barkley, 1981a; Barkley, 1981b; Cantwell, 1975; Ross and Ross, 1976; Routh, 1978; Safer and Allen, 1976).

Associated difficulties include behavioral and social problems such as aggression, distractibility, poor peer relations, self-esteem deficits, and high rates of risk-taking behavior (Barkley, 1981a; Paternite and Loney, 1980). Academic and cognitive deficits are also quite frequent. One study (Cantwell and Satterfield, 1978) found that 76% of their hyperactive sample were underachieving in at least two academic subjects. Studies of hyperactive children in their teenage and young adult years have shown that they do not outgrow the disorder and that their problems persist (Shaffer, McMamara and Pincus, 1974; Cantwell, 1978; Minde, Weiss, and Mendelson, 1972; Ross and Ross, 1976).

A variety of assessment tools are commonly utilized to diagnose hyperactivity, identify co-existing physical, cognitive and behavioral deficits, and evaluate treatment outcomes. Among these assessment

tools are interviews, rating scales, and objective observation which may be utilized with different informants and across situations.

Interviews may be conducted with parents, teachers and the target child. Although justifiably criticized for its possible unreliability, the parental interview serves to provide important information as well as other critical functions, such as establishing rapport. As Barkley (1981a) points out, the parent is likely to have the greatest wealth of knowledge about, history of interactions with, and time spent with the child, of any possible source. Interviews with the child may also provide information regarding the child's behavior, language and social skills, although the style and quality of their responses may be more important than their content (Barkley, 1981a). Teachers, having the advantage of many comparison subjects, may provide a very useful description of the child's social, cognitive and emotional functioning in comparison to his peers (Ciminero and Drabman, 1977; Ollendick, 1981).

Behavior rating scales often make up a large portion of the assessment procedure. These are usually filled out by parents and/or teachers and serve as a means to objectify and quantify adult opinion about a child. Among the best standardized and most commonly used parent questionnaires are the 48 item and the 10 item versions of the Conners Parent Symptom Questionnaire (1970), the Achenbach Child Behavior Checklist (1978), and the Personality Inventory for Children (Wirt, Lacher, Klinedinst, and Seat, 1977). Questionnaires completed by teachers found to be helpful in the diagnosis of hyperactivity include the Conners Teacher Rating Scale (1969) and the Behavior Rating

Scale (Kendall and Wilcox, 1979). Although many of these scales have been shown to adequately discriminate hyperactive from normal children, their reliability is in question due to parents tendency to overestimate treatment efficacy (Walter and Gilmore, 1973; Patterson and Reid, 1973).

Direct observations in a home, school, or clinic setting have been argued to be the most representative of the situations in which the problem behaviors occur. With respect to the home setting, Barkley (1981a, p. 147) states "... measures of maternal commands, child compliance, maternal contingent praise, parent and child negative behavior, and positive interactions would appear to be of great assistance in planning treatment and measuring improvements in response to treatment." Although a more thorough list of objectives would include a focus on the important, and commonly ignored father-child interaction (Hughes and Haynes, 1978), the list provides many appropriate goals for any objective observation system.

A multi-setting code for assessing parent child interactions described by Mash, Terdal and Anderson (1973) uses two coders to record the parent and child behaviors. Although this system can be used in the home, school, or clinic settings, it is most often used in a clinic analogue setting (Cunningham and Barkley, 1978; Barkley and Cunningham, 1979b). This system has the advantage of allowing for the evaluation of antecedent and consequent interactions. The system puts constraints and direction on behavior in that it requires 15-20 minutes of free play and 15-20 minutes of task accomplishment. Roberts, Ray and Roberts (1984), use a playroom observation setting to assess

hyperactive children in three instructional sets: free-play, restricted-play and a restricted-homework situation in which the child is instructed to work on arithmetic problems and left alone.

Perhaps the most well researched coding system to assess hyperactivity in the school setting is the Stony Brook System by O'Leary, Pelham and Rosenbaum (1976) and its modified form (Abikoff, Gittelman-Klein and Klein, 1977; Abikoff, Gittelman, and Klein, 1980). This code has proven to be highly sensitive in discriminating hyperactive from normal children as well as assessing treatment effects (Gittelman-Klein, Klein, Abikoff, Katz, Gloisten, and Kates, 1976; Abikoff et al., 1977; Abikoff, Gittelman, and Klein, 1980). However, this system fails to record antecedent and consequent events and was not designed to measure family interaction patterns. The Stony Brook System assesses only individual child behaviors including interference, off-task behavior, minor motor and gross motor movements, and solicitation.

Elaborate and well standardized coding systems for use with noncompliant or conduct problem children have been designed by Forehand (Forehand et al., 1978), and by Patterson et al. (Patterson, Ray, Shaw, and Cobb, 1969). Both of these systems evaluate child and parent interaction in the home using live observation. Forehand constricts and records only interactions between the target child and the parents. The Patterson system allows for evaluation of the target child with his entire family. Although neither of these systems was designed for use with hyperactive children, Patterson (1982) reports that one-fifth of his sample of conduct disordered children had been previously diagnosed

as hyperactive. Many of the behaviors scored by the two forementioned codes seem to be of great relevance to the hyperactive population and their family interactions. However, these systems were designed to address the specific behaviors of the conduct disordered population and are not designed for, or standardized on, the hyperactive population. Hence, although many of the behaviors measured by these systems are also applicable for use with hyperactive children, others are less relevant or restricted to specific settings.

To date, no direct observation coding system, designed to assess the interactions of hyperactive children during mealtime has been published. Evidence seems to support the belief that mealtime would be an appropriate time to observe these families (Goodenough, 1931; Barkley, 1981a) and that the development of a home observation coding system for this population may improve the generalizability of research findings to the home environment. Mealtime observation may be done with only minimal restraints placed upon the family members in the hopes of increasing the representativeness of the observation as typical family interaction.

The purpose of this study is to design a coding system to measure family interaction and individual child behaviors to discriminate hyperactive children and their families from normal families using 20 minute in-home observations taken during mealtime. Specifically, the goals are to design a code capable of: (a) demonstrating adequate interobserver reliability, (b) demonstrating adequate construct validity as evidenced by significant correlations between the behavioral codes and caretaker checklists, and (c) discriminating between hyperactive children and a normal control sample.

Chapter 2

Review of the Literature

Prevalence and Symptomatology

Although hyperactivity is the most frequently referred problem to child guidance clinics in the United States (Safer and Allen, 1976), an accurate estimate of its prevalence has been difficult to determine. Due in part to the lack of acceptance of a single definition, estimates as high as 20% of the school-age population (Barkley, 1981a) and as low as just over 1% of the same population have been reported (Sandoval, Lambert, Sassone, 1980; Lambert, Samdoval, and Sassone, 1978; Rutter, 1977). Barkley (1981a) reports that most investigators accept a prevalence estimate of 3-5% of the school-age children.

One comprehensive definition offered by Barkley (1981a, p. 6.) describes hyperactivity as a "developmental disorder of age appropriate attention span, impulse control, restlessness, and rule governed behavior that develops in late infancy or early childhood (before age 6), is pervasive in nature, and is not accounted for on the basis of gross neurologic, sensory, or motor impairment, or severe emotional disturbance." These symptoms comprise a heterogeneous group and vary as a result of the effects of several factors including SES (Loney, 1978) and daily situational or environmental changes (Barkley, 1981a; Patterson, 1982; Goodenough, 1931).

The most commonly cited primary problems associated with hyperactivity in children include non-compliance, overactivity, inattention, impulsivity, attention seeking behaviors, clumsiness, difficulty accepting discipline, and an inability to inhibit activity to situational demands (Barkley, 1981a; Barkley, 1981b; Cantwell, 1975; Ross and Ross, 1976; Routh, 1978; Safer and Allen, 1976).

Associated problems, whether caused by the primary symptoms or just related problems of lesser frequency, are also commonly cited in the literature. Included are behavioral and social problems such as aggression, distractability, difficulty with peer relations, self-esteem deficits, and high rates of risk taking behavior (Barkley, 1981a; Paternite and Loney, 1980). Academic and cognitive deficits are also quite frequent. One study (Cantwell and Satterfield, 1978) found that 76% of their hyperactive sample were underachieving in at least two academic subjects. Although no single learning disability has been shown to be more prevalent than others, Barkley (1981a) reports that some authorities estimate that as many as 60% to 80% of hyperactive children have some learning problems.

Studies of hyperactive children in their teenage and young adult years have shown that they do not outgrow the disorder and that their problems persist. Adolescence finds them still suffering from problems with restlessness and inattention as well as conduct disorders, including delinquency, stealing, lying, and more legal trouble than normal adolescents (Shaffer et al., 1974; Cantwell, 1978; Minde et al., 1972; Ross and Ross, 1976). By adolescence, many of these children have been held back at least one grade and may be achieving several grades below their grade placement (Weiss, Hechtman, and Perlman, 1978). Hyperactive adolescents have been found to be more likely to abuse alcohol than non-hyperactive, learning disabled adolescents (Blouin, Bornstein, and Trites, 1978). Many of these problems persist into adulthood, although often somewhat abated (Weiss et al., 1978).

Attempts to classify the relatively heterogeneous hyperactive population into more homogeneous subgroups have been controversial. Classifications based on organic versus emotional factors were described by Conrad and Insel (1967). Classification according to the presence or absence of conduct disorders has also been proposed (Lahey, Green and Forehand, 1980; Barkley, 1981a). An alternative approach, described in the DSM-III differentiates Attention Deficit Disorder according to presence or absence of hyperactivity. Support for this distinction has been empirically demonstrated (Cantwell, 1984; Lahey et al., 1984; Edelbrock, 1984), although further studies will be necessary before widespread acceptance can be achieved.

According to Barkley (1981a), we are best off assuming that a homogeneous syndrome of hyperactivity does not exist and that a reliable means of subclassifying groups has yet to be found. He elaborates by stating that "the term hyperactivity as it is currently used refers to a heterogeneous group of children, some overactive, some inattentive, some impulsive, and others having all of these problems" (Barkley, 1981b p. 130.). Studies have shown that the primary problems of hyperactivity, including high levels of activity and distractability, do not significantly co-vary (Barkley, 1977; Barkley and Ullman, 1975). Langhorn, Loney, Paternite and Bechtholdt (1976), using a factor analytic design, discovered that measures of different symptoms from a common source are more highly interrelated than are alternative measures of a single symptom. This may be interpreted as evidence for environmental specificity of primary hyperactive symptoms. Such an interpretation would also argue against trait research for the study of hyperactivity.

Although a great deal of research has been conducted with hyperactive children, much confusion and disagreement remains in our current conceptualization of the disorder. The associated problems of the hyperactive child affect not only his development but also appear to negatively affect his family and society as well. The estimated prevalence of the disorder, the variety and inconsistency of reported problematic symptoms, its pervasive nature, and poor prognosis make this disorder worthy and in need of continued research.

Assessment

Many assessment instruments have been utilized within the ever-growing body of research literature on hyperactivity. Chief among the goals of these instruments are the diagnosis of hyperactivity, the identification of common co-existing physical, cognitive, and behavioral deficits, and the evaluation of treatment outcomes. A thorough assessment aids in locating problem areas and hence guides the examiner to design effective interventions. One of the necessary criteria for establishing problem areas is the assessment of multiple behaviors across situations. Interviews, rating scales, and objective observation may be utilized with different informants and across situations in order to yield the necessary information.

An indispensable part of any assessment of hyperactivity is the parental interview. Although the reliability of these interviews may be questioned, the parental interview serves to provide important information as well as other critical functions, such as establishing rapport. As Barkley (1981a) points out, the parent is likely to have the greatest wealth of knowledge about, history of interactions with,

and time spent with the child, of any possible source. By structuring questions to inquire about specific and concrete behaviors, as opposed to those of a more global nature, the reliability of the interview can be greatly increased (Barkley, 1981a; Hartsough and Lambert, 1982). When possible, conjoint interviews may also prove invaluable for observing parental interactions.

Interviews with the child may also provide information regarding the child's behavior, language, social skills, and perceptions of their difficulties. The style and quality of their responses may be more important than their content (Barkley, 1981a). Barkley (1981a) reports that these children are prone to fabricate or distort their responses and hence are unlikely to be a good source of additional detail. However, the interview situation allows the examiner to detect and help modify misconceptions pertaining to the child's referral. Due to the situational influence on many of the referral problems, caution should be used when extrapolating observations of behaviors in the clinical setting to other outside settings (Barkley, 1981a). Behaviors exhibited in the examiner's office are likely to be unrepresentative of the serious management problems that these children present at home or at school (Barkley, 1981a).

The teacher interview, whether in person or by phone, may provide additional useful information and allow the examiner to probe for specific information surrounding a given problem. Having the advantage of many comparison subjects, teachers may provide a very accurate description of the child's social, cognitive and emotional deficits in comparison to his peers and his likelihood of developing school

problems (Ciminero and Drabman, 1977; Ollendick, 1981). Establishing rapport with the teacher may prove invaluable beyond the initial assessment phase, as teachers are often key participants in treatment and treatment evaluation. As with parent interviews, examiners may need to inquire about specific behaviors and surrounding events in order to increase the reliability and utility of the teacher's information.

Behavior rating scales may make up a large portion of the assessment procedure. These are usually filled out by parents and/or teachers and serve as a means to objectify and quantify adult opinion about a child. According to Barkley (1981a) the areas of hyperactivity and conduct problems have fostered the growth of more rating scales than any other area of child psychotherapy.

Among the best standardized and most commonly used parent questionnaires are the 48 item and the 10 item versions of the Conners Parent Symptom Questionnaire (1970), the Achenbach Child Behavior Checklist (1978), and the Personality Inventory for Children (Wirt et al., 1977). These questionnaires are designed to specify problem child behaviors as perceived by the parent, usually just the mother. Questionnaires completed by teachers and also found to be helpful in the diagnosis of hyperactivity include the Conners Teacher Rating Scale (1969) and the Behavior Rating Scale (Kendall and Wilcox, 1979).

Forehand and McMahon (1981, p. 25.), using a battery of parent-completed questionnaires, describe four reasons for their use in the research they do with noncompliant children and their parents. Specifically, these questionnaires provide information on parental

perceptions of child adjustment; parental perceptions of their own personal and marital adjustment; parental knowledge of social learning principles; and parental satisfaction with treatment. Although often neglected, these authors point out that it is beneficial to obtain data from both parents to assess areas of agreement and discrepancy.

In a discussion of the abuse of parent reports in research and clinical application, Patterson (1982), warns that the unreliability of parent reports, with the possible exception of daily reports of specific behaviors, may be more detrimental to the advancement of behavioral research than they are commonly considered to be. For example, studies have shown a tendency for parents to overestimate treatment efficacy (Patterson and Reid, 1973). Patterson (1982) contends that biased feedback data given from consumers to therapists is responsible for the lack of increase in efficiency of traditional therapies applied by well trained personnel. Hence, reliance on biased information may be severely limiting the ability of practitioners to improve their interventions.

Although caution is advised when using rating scales to be filled out by parents or teachers, such instruments have been shown to be effective in discriminating between hyperactive and normal children as well as in detecting treatment effects (Conners, 1973). Rating scales are an efficient, effective means of gathering information about child behaviors and hence are an invaluable part of a thorough assessment of hyperactivity. However, such measures are incapable of yielding reliable information regarding antecedent and consequent setting events surrounding the child's behavior. This is a great limitation in terms of the assessment and evaluation of behavioral intervention programs.

Previous Observation Codes

One attempt to increase the objectivity, and quantify the behaviors of study in hyperactivity research, was an emphasis on the measurable activity level in children. Many studies have been reported in which movement was measured by modified self-winding wristwatches (called actometers) (Shulman and Reisman, 1959; Johnson, 1971; Roberts et al., 1984). Similar instruments, pedometers, have been attached to belts, wrists, or ankles, again as measures of bodily movement (Barkley, 1977). Alternative measures include pneumatic floor pads to count footsteps (Montagu and Swarbrick, 1975), motion sensitive chairs to measure in seat movement (Barkley, 1977; Christensen and Sprague, 1973), sound wave generators to measure movement in a room (McFarland, Peacock and Watson, 1966), and grid-marked playrooms in which observers or machines record the number of times the child crosses the grid (Barkley, 1977; Routh and Schroder, 1976; Roberts et al., 1984).

Although many of these studies were found to discriminate hyperactive from non-hyperactive children, the utility and limitations of such findings must be questioned. Barkley (1981a) points out some shortcomings of such research: (1) the quantitative scores generated show poor reliability over time, across settings, and between judges when raters are used; (2) normative data are generally not available on most measures; (3) the activities being measured are highly influenced by situational factors, but the scores give few if any clues as to what these important factors are; (4) these measures give no important information with respect to antecedent or consequent events of the activities measured; and (5) research has shown that these measures do

not correlate with parent rating scales (Barkley and Ullman, 1975). Hence, as discussed by Barkley (1981a) studies using these measures are not evaluating the type of behaviors parents are concerned about.

Considering Barkley's (1981a) view of hyperactivity as a developmental disorder of social conduct, rule governed behavior, and self-control, it would follow that an assessment of social interactions should be considered essential. Barkley (1981a, p. 147.) states, "In particular, measures of maternal commands, child compliance, maternal contingent praise, parent and child negative behavior, and positive interactions would appear to be of great assistance in planning treatment and measuring improvements in response to treatment."

According to Forehand and McMahon (1981, p. 31.) "Direct behavioral observation by independent, well-trained observers is the most accepted procedure for obtaining a reliable and valid description of current parent-child interactions." Additionally, this procedure allows for a measure of "the frequency and duration of child problem behaviors and the relationship between child and parent behaviors and, thus, is able to quantify the problem interactions targeted for treatment."

A review of observation methodologies by Patterson and Maerov (1978) revealed that a narrow scope and limited scientific usefulness were characteristic of early studies. Observational procedures providing only such crude data as frequency counts of molar behaviors (e.g., Olson, 1930), or judgments of trait behaviors (e.g., Goodenough, 1930) were, as Wright (1960) pointed out, such gross descriptive data that they allowed almost no precise hypothesis testing. The early

1950's provided a new look in observation methodology. Roger Barker and his colleagues (Barker, 1951; Barker, 1968; Barker and Wright, 1954; Willems and Rausch, 1969) devised an observational system which focused on sampling the environment as it interacted with the child. Barker and his colleagues emphasized the collection of data relating to macro units such as Behavior Episodes, Behavioral Setting and Environmental Force Units (Patterson and Maerov, 1978). Although this type of methodology led to more optimistic reviews of observational approaches, the omnibus narrative recording involved did not produce the specificity needed to allow for intensive study of molecular social events (Patterson and Maerov, 1978). Shortcomings such as these eventually contributed to the evolution of more specific data collection systems.

The development of the Family Interaction Coding System (FICS) by Patterson and his colleagues is an example of a recent observational study which differs from Barker's efforts by tailoring the observational system to test hypotheses about limited aspects of behavior (Patterson and Maerov, 1978). The FICS, earlier referred to as the Behavioral Coding System (Patterson, 1977), was initially developed in response to the limitations of available clinical assessment instruments (Patterson and Maerov, 1978). Failure of parent ratings, structured personality inventories and child self-report scales to yield the specific behavioral information needed to assess the efficacy of intervention techniques prompted Patterson and his colleagues (Patterson, 1965) to develop this alternative assessment method.

Patterson's work with the development of social engineering procedures, first for acting-out children in the classroom (Patterson, 1965) then later for conduct disordered children in the home (Patterson, McNeal, Hawkins and Phelps, 1967; Reid, 1967) created the need for a data collection system designed to: (a) provide data for continually monitoring clinical cases; (b) provide data for the systematic assessment of family intervention outcome and (c) provide a data base on which a theory of how aggressive behavior might be acquired and maintained within a family could be developed (Patterson and Maerov, 1978). Further evidence of the need for this type of assessment procedure came when researchers began going into the home to look for behaviors which would identify referral problems reported by the parents. The discrepancies discovered between the interview reports and the actual behaviors of both the parents and the children during the home observation were commensurate with the literature showing weak relationships between parent reports and observations of the same behaviors made in laboratory or home settings (Honig, Tannenbaum and Caldwell, 1968; Radke-Yarrow, 1963; Sears, 1965). The basis for unsatisfactory parent report data seemed to be twofold (Patterson, 1977). First of all, parents' responses to questions about subtle behavioral relations between themselves, the problem child, and his siblings, showed that the parents were not tracking and storing relevant information. A second problem came with the parents' general tendency to overestimate improvement in the deviant child's behavior and their tendency to underestimate initial rates of deviancy (Clement and Milne, 1967; Collins, 1966; Walter and Gilmore, 1973).

As described by Patterson (1977) the initial task faced by the researchers in the development of their assessment instrument was that of compiling a preliminary item pool. The items used were specific behaviors which were relevant to either the clinical or the theoretical purpose of the assessment task (Patterson 1977). Clinical experience and home observations were combined to suggest which behaviors should be included in the observational system.

Early experiments with observational techniques were described as chaotic but eventually served to identify a trial set of specific behavioral categories. These first methods of observation, such as recording by note-taking immediately after the observation, longhand note-taking during the sessions, and attempts to utilize a face mask device with a concealed microphone to record the stream of behavior as it occurred, all eventually resulted in working definitions of the categories as well as limitations as to which behaviors were to be admissible within each category (Patterson, 1977). Some clinically intuited categories, such as Aggression, were found to be too behaviorally nonspecific for reliable coding and were broken down into more specific behavioral instances such as Hitting, Teasing and Destructiveness. Other behavioral categories included in the code were Approval, Attention, Command, Command Negative, Non-compliance, Physical Negative, Physical Positive, and Qork (Patterson, Reid and Maerov, 1978; Patterson, 1977). The end result of this early work in developing an item pool for the Behavioral Coding System, was a set of 28 behavioral categories. The FICS eventually included an indulgence code to make a total of 29 categories. These categories were further

divided into first order and second order behaviors as a guide for the observers as to which behavior to code when more than one occur during a single time sample (Maerov, Brummett, Patterson, and Reid, 1978; Patterson, 1977).

Observations occurred in late afternoon, just before dinnertime, as this portion of the day seemed to emphasize behavioral problems (Patterson, 1977). The sessions were semi-structured, following earlier attempts with unstructured observations which resulted in parents and children wandering out of the observer's sight or immersing themselves in television programs. The rules instituted during the sessions were as follows: (1) everyone in the family must be present; (2) no guests; (3) the family is limited to two rooms; (4) the observers will wait only 10 minutes for all to be present in the two rooms; (5) telephone calls: No telephone calls out; briefly answering incoming calls; (6) no television; (7) no talking to observers while they are coding; (8) no discussion with observers relating to problems or their attempts to deal with these problems (Patterson et al., 1978).

Once all members of the family were present, the observer assigned each individual a number. The observer then alternately coded, in sequence, the behavior of the subject and then the person(s) with whom he interacted. The events were coded by letters referring to the categories to which they were assigned together with the numbers identifying the family member(s) with whom the child was interacting (Patterson et al., 1978; Patterson 1977).

The Family Interaction Coding System was designed to describe both prosocial and aggressive behavior as well as the antecedents and

consequences which accompany them (Patterson et al., 1978; Patterson, 1977). In addition to providing data for evaluating treatment process and outcome (Arnold et al., 1975; Patterson, 1974a, 1975,; Patterson, Cobb and Ray, 1973; Patterson, Ray and Shaw, 1968; Patterson and Reid, 1973; Reid and Hendriks, 1973; Walter and Gilmore, 1973; Wiltz and Patterson, 1974) and supporting the development and validity of a theory of social aggression (Patterson, 1976; Patterson and Cobb, 1971, 1973; Patterson and Reid, 1970; Reid and Hendriks, 1973), the behavioral categories could be combined in a number of different manners to produce composite categories. The categories; Total Deviant Behavior, Hostility, Social Aggression and Total Targeted Behavior could all be derived from combinations of code categories. Clusters of code categories could also be used to assess changes in parental consequences for child behavior (Taplin and Reid, 1976), changes in the reaction of the problem child to parental punishment (Patterson, 1976), changes in the behavior of siblings following treatment (Arnold, Levine, and Patterson, 1975), or family structure prior to and following treatment.

Interobserver reliability for this system was assessed by having every third home observation during baseline, and every fourth session after that, coded by two observers. After the session, the percent agreement was calculated separately for each line of the protocol. The number of frames of agreement over the number of frames of agreement plus the number of frames of disagreement was calculated on a line by line basis enabling a general estimate of the quality of the data obtained (Patterson et al., 1978). Patterson (1977) cites the

percentages obtained from five different samples of observer agreement derived from his study on his Behavioral Coding System. The percent agreements were: 73.1%, 73.7%, 80.2%, 75.5%, and 74.3%. In a later work, Patterson and his colleagues claimed that a minimum reliability standard has been set at 70%; actual figures usually range around 75% (Patterson et al., 1978).

The FICS provides a wealth of valuable information regarding family interaction. Included are such parental behaviors as Commands, Negative Commands, Attention and Approval and such child behaviors as Compliance, Non-compliance, Cry, and Play, in addition to other behaviors which are not exclusive to either group. A sequential event recording method is employed allowing for the maximum yield and quality of information (Roberts and Forehand, 1978). The system was designed to describe family interaction patterns between all family members, including fathers who are often neglected in the assessment process. For example, in a 1978 review of structured laboratory observation studies (Hughes and Haynes, 1978), the authors discovered that only five of the studies which they reviewed had looked at father-child interactions.

Similarly, Wahler, House and Stambaugh II (1976), developed their coding system after repeated disappointments with traditional assessment techniques. Failure in both the reliability and the validity of the available systems targeted at describing emotional and personality problems in children (Mischel, 1968), served to involve Wahler et al. in the movement toward direct examination of the child within the environment where his problem behaviors occur (Tharp and

Wetzel, 1969; Bandura, 1969). The clinical and research literature at the time, suggesting the practical importance of situational variables when attempting to understand patterns of behavior (Whaler, 1969), provided further support for the development of a new assessment technique.

The study itself (Wahler et al., 1976) was designed around a subject population of male and female children, ages 4 to 14, referred to the researchers through a variety of channels. Each child had been assessed by other professionals and was judged sufficiently atypical to warrant treatment. All subjects also exhibited behavior judged by their parents and teachers as incorrigible.

Once the subjects had been identified, observers examined the everyday content of the problem children's interactions. Detailed observations took place in 30 minute sessions both in school and home settings. Occurrences of the behaviors included in each category were coded by marking a box corresponding to the specific category and interval. The scoring procedure for "obstruct" was the only exception as this category was simply written on the interval row in which it occurs.

In order to maximize the clinical utility of this code (Wahler et al., 1976), the coding system was designed to allow for restructuring of the code for different instances. The number of behaviors included in a specific category varied from one use of the code to another. In some cases the categories would be identical to those on which the code was standardized; in other cases, particular categories needed to be narrowed in order to properly reflect the concerns expressed by the individual parent(s) and/or teacher.

Nineteen behavioral categories in addition to six social event categories are included in the observational system. The categories were designed to describe specific aspects of the problem behaviors which occured in the child's social environment. The 19 behavioral categories are more generally categorized into five classes of behavior. These five groupings include: Compliance-opposition, Autistic, Play, Work, and Social. Two categories describing social events (Non-aversive and Aversive Instructions) focuse on adult behaviors which appear to be significant antecedents to many deviant child actions. The four remaining social event categories, including Non-aversive and Aversive Attention from adults, describe frequent consequences of deviant and normal child behavior. Use of this system require the coding of some actions in more than one category; the rationale being that parents and teachers often assign more than one value to a single action. Wahler et al. (1976) see coding the behaviors in several categories as reflecting the multidimensionality of the child's behavior. Various codes were scored only when the behavior was sustained for a specified interval of time. Categories such as Sustained Toyplay, Sustained Work and Sustained Attending were coded in this manner. All other behaviors were scored any time they occurred, regardless of their duration (Wahler et al., 1976).

Wahler et al. (1976) assessed reliability by having two observers simultaneously record the same sessions. Agreement was then computed on an interval by interval basis. An interobserver reliability of 80% was considered satisfactory. In general, lower reliability estimates were obtained from home observations. Wahler et al. attributed this to

more varied behaviors, a greater number of social exchanges and greater freedom of movement in the home as contrasted with those aspects of school settings.

In an effort to meet the observational needs of behavior therapists involved in parent-child therapy, Mash et al., (1973) developed their Response Class-Matrix observational system. Constructed for use in the home, clinic and classroom settings, Mash et al. hoped their technique would also function to provide information about which environmental stimuli were maintaining which behaviors.

As is true with the development of most systems, the Response Class-Matrix reflectes the work of other researchers in the field. Both Gerald Patterson and Sidney Bijou's theories and techniques for the observation and recording of behavioral interactions are greatly reflected in this procedure (Patterson et al., 1969; Bijou, 1955, 1957). The impact of Constance Hanf is also present in the reproduction of analogue parent child interactions (Hanf, 1969).

The Response Class-Matrix utilizes two coders in a live setting. Observations generally cover 15 to 20 minutes of task accomplishment as well as 15 minutes of free play. The procedure uses a three-term contingency recording system in order to provide descriptive accounts of antecedent stimuli, responses and consequent events (Mash et al., 1973). One of the two coders is responsible for scoring the mother's behavior as an antecedent and the child's response to her. The other coder records the child's behavior as an antecedent and the mother's response as a consequence (Mash et al., 1973). Father-child interactions are not considered in this system.

The coders watch the interaction for 10 seconds then are signaled by a tape recorded sound to stop observing and record for 5 seconds. This procedure is repeated throughout the duration of the session. Because a behavioral sampling technique is used, no effort is made to record every response, the rationale being that the behaviors that are recorded will, over a period of time, prove to be representative samples of all the behaviors which occur (Mash et al., Anderson, 1973).

The Response Class-Matrix system requires 30 to 40 hours of observer training in order for the observers to become proficient and reliable. Most studies using this procedure obtain at least 75% observer reliability (Mash et al., 1973). Reliability was assessed by evaluation of three coder pairs on their percent agreement per category on the child's consequent behavior record. Agreement percentages, calculated on a total of 1,078 tallies, ranged from 0% to 95% with all but two of the five categories reaching 87% reliability. The category with no reliability was the No Response category, but only seven total tallies were obtained. The highest agreement percentage, 95%, came in the Interaction category. Similar results were derived for the mothers' consequent behaviors. The agreement percentages ranged from 76% to 96% with the lowest being the Command-Question category and the highest the No Response category (Mash et al., 1973).

Behavior categories for the mother include: Command, Command Question, Question, Praise, Negative, Interaction, and No Response. The child's behaviors are categorized into Compliance, Competing Behaviors, Independent Play, Negative, Interaction, Question, and No Response.

Studies with hyperactive children in clinic analogue playroom settings, (Barkley and Cunningham, 1979; and Cunningham and Barkley, 1979), have made use of the Response Class-Matrix to assess both the effects of methylphenidate on mother-child interactions (Barkley and Cunningham, 1979) and the interactions between both normal and hyperactive children and their mothers (Cunningham and Barkley, 1979). The results obtained from Cunningham and Barkley (1979), showed hyperactive boys to be less compliant, less likely to remain on task and more active than their non-hyperactive peers. Mothers were less likely to respond positively to compliant, on task behavior, or to the child's social interactions. Mothers of the hyperactive boys also showed more of a tendency to impose structure and control on the child's activities. The results of the study by Barkley and Cunningham (1979) on the effects of methylphenidate showed an increase in the amount of solitary play by the children, a decrease in the number of interactions initiated by the children, and an increased responsiveness of the mother to those interactions which were initiated. The mothers' rewards for compliant behavior also increased while her use of structuring commands decreased. Together, these studies indicate that the Response Class-Matrix evidences adequate discriminent validity and sensitivity to treatment when used with hyperactive and non-hyperactive samples in a clinic analogue setting.

While behavioral observations in the home are expensive and time consuming, this method is nevertheless the most widely accepted procedure for obtaining valid descriptions of parent child interactions in the home (Forehand and McMahon, 1981). Observations in a clinic

setting are also accepted although the validity of the data obtained is questioned by some researchers (Martin, Johnson, Johanson and Wahl, 1976). In response to the ambiguity as to which method is most reliable and affordable, Forehand, Peed, Roberts, McMahon, Griest and Humphreys (1978) developed a system for use with non-compliant children and their parents in both settings. The code was based on an observational system first developed by Hanf and King (1973).

The code categories included for parent behavior are: Rewards, Attends, Questions, Commands (Alpha or Beta), Criticisms, Warnings and Time Out. Categories for assessing sequential child-parent behavior include Child Compliance, Child Non-compliance, and Contingent-Attention (Peed, Roberts and Forehand, 1977). Observations are recorded sequentially in 30 second intervals, except for inappropriate behavior, which is recorded on an occurrence only basis for each interval (Forehand and McMahon, 1981).

The clinic observation coding procedure consists of coding the parent-child interaction for five minutes of Parent's Games as well as five minutes of Child's Games. Parent's games consist of a situation where the parent is in control of the interaction and practices using effective commands as well as time out. The Child's game is a free-play situation where the child is the one in control. During this game, the parent practices attending and rewarding behaviors (Peed et al., 1977). Parent behaviors during observation are recorded in terms of rate per minute. The percentage of parental attention contingent on child compliance and the total number of time outs are also computed. Child behaviors are scored then converted into percentages for later analysis (Forehand and McMahon, 1981).

The application of the code in the home setting involves a trained observer visiting the home at a time convenient for the parent. The time chosen is typically one during which the parent reports high rates of problem behaviors. Four sets of 40 minute observations occur prior to and after treatment, as well as at follow up assessments. Two observers score 25% of the sessions in order to assess reliability. A number of procedural guidelines were formulated in an effort to facilitate the collection of the data in the home. Some of these include no television; no reading to the child; and preferably no guests (Forehand and McMahon, 1981).

Although this system allows only the behavior of one parent to be coded at a time, it is possible to code both parents by alternating which parent is observed every five minutes.

Forehand et al. (1978) have operationally defined their reliability level to be 80% when compared with a prescored ten minute videotape. The reliability coefficient is computed by calculating the number of agreements between the prescored video and the trainee divided by the number of agreements plus disagreements. Twenty to 25 hours of training are usually required to meet this level of reliability. Once the observer has reached this level, he is retrained periodically throughout the duration of the study. Forehand and Peed (1979) reported the average interobserver agreement to be 75% during actual use of the system. Peed also claimed that the system possesses adequate test-retest reliability and found data from repeated observations of nonintervention parent-child interactions to be stable and consistent (1977).

A number of studies done using the code have confirmed the validity of the procedure. Forehand, King, Peed and Yoder, (1975), and Griest, Forehand, Wells and McMahon, (1980), found significant differences in the compliance of clinic and non-clinic referred children. Studies done to measure significant treatment effects in both clinic and home settings showed the instrument to be sufficiently sensitive for use in this context (Forehand, Griest, and Wells, 1979; Forehand, Sturgis, McMahon, Aguar, Green, Wells, and Breiner, 1979; Humphreys, Forehand, McMahon, and Roberts, 1978; and Peed et al., 1977).

An observational code used to record hyperactive, off-task classroom behaviors was originally developed by K. Daniel O'Leary (1973) then later modified by Abikoff et al., (1980). The coding system, also referred to as the Stony Brook System, has been validated in studies with normal and hyperactive children, and has proven to be highly sensitive to the behavior differences between the two populations.

The Stony Brook System uses 15 second interval recording procedures and contains 14 behavioral categories rated by live observers in a classroom setting. Except for off-task behavior, non-compliance, out-of-seat behavior, verbalization, and daydreaming which are scored only if they occur for more than 15 seconds, only the initial occurrence of each type of behavior during each interval is scored. The categories scored only by occurrence include: Interference, Solicitation, Minor Motor Movement, Gross Motor Movement, Threat or Verbal Aggression to Children, Threat or Verbal Aggression to

Teacher, and Absence of Behavior. The most frequently occurring categories found were Interference, Off-Task Behavior, Gross Motor Movement, Minor Motor Movements and Solicitation. The category which discriminated most dramatically between the two populations was Interference (disruptiveness). Over five different assessment occasions, the Stony Brook system has shown excellent test-retest reliability. Mean intercoder reliability has been calculated at 76% (Barkley, 1981a).

The major disadvantage with this technique, according to Barkley (1981a), lies with its failure to identify antecedent and consequent events surrounding the coded behaviors. In a critique by Stephen Haynes and Robert Kerns on Abikoff, Gittleman-Klein, and Klein's attempts to validate this behavioral observation system (1979), the authors commended Abikoff and his colleagues for their attempts at evaluating the system's validity. Haynes and Kerns also pointed out that although the results of the validation study are encouraging, the inference that the system can validly separate hyperactives from normal children in a classroom situation must be considered in light of various methodological shortcomings. Among these were subject, behavior, and time-sampling errors as well as questionable content and construct validity (Haynes and Kerns, 1979). Haynes and Kerns (1979) found high rates of observer errors and discovered that 24% of the interobserver agreement coefficients were below 70%. For three of the categories which significantly discriminated between groups, interobserver agreement never passed 70%. Another significant problem was with the failure to retrain observers during the time period over

which the study was conducted (Haynes and Kerns, 1979), hence no attempt to minimize observer drift was made.

It is the goal of this study to develop a coding system to discriminate hyperactive children and their families from non-clinic referred children and their families. The proposed coding system has been devised not because of a lack of worthy observation instruments reported in the literature, but because no single instrument has been designed to assess hyperactive children and their families in a mealtime setting.

In the development of the proposed system, much in the way of procedure, methodology, and content has been borrowed from or based on previous codes. For example, although many of the behaviors coded in the FICS (Patterson, Ray, Shaw, and Cobb, 1969) and Forehand group codes (Forehand et al., 1978) are not applicable to this study, some of the codes and many of the quality methodological procedures employed in these codes have been adapted for use in the proposed system.

General issues which must be addressed when developing and evaluating an observation coding system include deciding where, when, and how to record behaviors. A brief rationale is offered to explain some of the decisions made in the development of the proposed coding system.

The home setting was chosen as it is the natural environment in which much of the reported negative child behavior occurs. The natural environment is also the setting in which change should ultimately occur (Haynes, 1978). Barkley (1981a) reports that settings such as public places, and when hyperactive children visit others, are likely to

produce a high frequency of problem behaviors. However, such settings would likely be considerably more difficult to schedule and observe. Even school or home observations may be seen as inconvenient as they demand scheduling separate from the rest of the assessment procedure. However, because there is some reason to doubt the validity of clinic analogue settings (Martin et al., 1976), the home becomes the most practical and valid environment in which to assess parent-child interactions.

Mealtime has been shown to be a particularly troublesome time for behavior problem children and their families. Goodenough (1931) discovered that child outbursts were most frequent just prior to lunch and just prior to dinner. Barkley (1981a) reports the data from two studies using his Home Situations Questionnaire. He discovered that in one study, 87% of the parents of hyperactive children reported that mealtime was a problem while only 13% of normal parents reported it to be a problem. The other study revealed that 90% of the parents of hyperactive children found mealtime to be a problem but no normal control sample was reported. Although many families do not always eat together (i.e. with all members present), the setting is hardly unnatural for most families. Inherent in the mealtime setting for most families is a structure which, with a minimum of additional externally imposed structure, is adequate to ensure that the family will interact, and that the interaction will typify one which is often problematic.

A videotape recording procedure was chosen for a variety of practical reasons. First, the videotape medium allows for the future analysis of behaviors which may later be thought to be seen as

diagnostically significant. Such information would be lost with the use of a live coding procedure if it was not looked for and gathered originally. Second, videotapes can be stored and used for training observers and assessing interobserver reliability at any time. Third, most families seemed to be able to ignore the camera within a few minutes. Many people were unaware that the camera even recorded sound and hence, allowed themselves to speak with little apparent inhibition. Videotapers stood out of sight during the filming which seemed to make many people forget that they were being observed. This procedure may have resulted in a decreased latency to habituation when compared with using one or two live observers.

Selected Behavior Items and Hypotheses

Based on a review of the relevant literature, parent reports, clinical observations, and treatment goals, target behaviors were selected which were considered important to the understanding of how families with hyperactive children may differ in their interaction patterns from non-clinic families. More specifically, measures of the quantity and quality of interaction, the frequency and clarity of parental commands, and the frequency of child compliance were included to provide information for the assessment and treatment of hyperactive children. A more thorough description of the codes follows in the methods section.

The following hypotheses were tested as part the present study: (a) As prior studies have shown that hyperactive (Barkley, 1981a; Cunningham and Barkley, 1979) and non-compliant clinic referred children (Forehand, King, Peed and Yoder, 1975) evidence greater

conflict, receive more criticism, and have fewer positive relationships with their family members than non-clinic referred children, it is hypothesized that the ADD-H sample in the present study will evidence more negative and less positive interactions with family members compared to the non-ADD-H sample. More specifically, the ADD-H sample will evidence a greater frequency of Negative Child and Other Interactions and a lesser frequency of Positive Child and Other Interactions.

(b) Given that prior studies (Barkley, 1981a; Paternite, Loney and Longhorn, 1976; Paternite, and Loney, 1980) have shown greater family discord in the families of ADD-H children, it is hypothesized that the ADD-H sample in the present study will evidence more negative and fewer positive interactions among family members (excluding interactions with the target child) compared with the non-ADD-H sample. More specifically, the ADD-H sample will evidence a greater frequency of Negative Family Interaction codes and a lesser frequency of Positive Family Interaction codes compared to the non-ADD-H sample.

(c) Given that prior studies (Barkley, 1981a; Campbell, 1975) have found that the parents of hyperactive children give more commands, it is hypothesized that the parents in the ADD-H sample in the present study will give more good quality and poor quality commands than parents without hyperactive children. More specifically it is predicted that the ADD-H sample will evidence a greater frequency of the Alpha Command and Beta Command codes compared to the non-ADD-H sample.

(d) Given that non-compliance is one of the primary reasons for the referral of hyperactive children to psychological clinics (Barkley, 1981a), and that earlier studies (Barkley, 1981a, Cunningham and Barkley, 1979; Campbell, 1975) have indicated that hyperactive children do exhibit less compliance to parental commands, it is hypothesized that the ADD-H children in the present study will comply less often to parental commands than the non-ADD-H children. More specifically the ADD-H sample will evidence a greater frequency of the Non-compliance behavior code and a lesser frequency of the Compliance behavior code in response to parental commands compared with the non-ADD-H sample.

(e) Based on the research findings indicating greater levels of parental psychopathology, depression, hysteria and marital dissatisfaction among the parents of hyperactive children (Barkley, 1981a, Cantwell, 1972) and studies suggesting a lack of parental positive responding to behavior problem children (Bell, 1968; Bell and Harper, 1977), it is hypothesized that the parents of ADD-H children in the present study will use positive statements less often than non-ADD-H parents. More specifically, the ADD-H sample will evidence a lesser frequency of the Parent Positive Statements code than the non-ADD-H sample.

(f) Given that previous studies (Barkley, 1981a; Amery, Minichiello, and Brown, 1984) have indicated that aggression and negative behaviors are more common in hyperactive children than non-hyperactive children, it is hypothesized that the ADD-H children in the present study will exhibit more negative, aggressive or inappropriate behaviors than the non-ADD-H children. Therefore, the ADD-H sample will exhibit a higher

frequency of behaviors coded as Inappropriate than the non-ADD-H sample.

(g) Based on earlier classroom studies indicating greater out of seat behavior in hyperactive children (Barkley, 1981a; Abikoff, Gittelman-Klein and Klein, 1978; Abikoff et al., 1980), it is hypothesized that hyperactive children in the present study will leave their seats more often than non-hyperactive children. More specifically, the ADD-H sample will evidence a greater frequency of the Out of Seat code compared to the non-ADD-H sample.

Chapter 3

Method

Subjects

The subjects were 41 school-age children who were assessed and found appropriate for the Child Behavior Project, a treatment program for hyperactive children at Michigan State University's Psychological Clinic. Inclusion criteria were (1) age between 7 and 11.5 years; (2) a score of 15 or more (two standard deviations above published means) on the Hyperactivity index of the Conners Parent Questionnaire; (3) the absence of gross physical impairments, intellectual deficits of psychosis in either the child or the parent(s); and (4) the identified problem child was not currently receiving medication for control of his/her hyperactivity. A group of 18 normal control subjects were also included, equated for IQ, grade level and age.

Procedure and Study Design

The data were gathered as part of a treatment program (The Child Behavior Project) designed to assess the potential additive effects of two commonly used methods of treatment for hyperactive children. The methods under study were behavioral parent training (e.g. Barkley, 1981; Forehand, 1977; Patterson, 1974), and instruction in self-control techniques (e.g. Michenbaum, 1977; Kendall and Braswell, 1985). Although both of these treatments have demonstrated therapeutic value during the intervention process, neither treatment alone has been found to produce significant generalization and maintenance of treatment effects (Barkley and Cunningham, 1978; O'Dell, 1974; Phillips and Ray,

1980). It has been hypothesized by researchers from the Child Behavior Project that the combination of treatments would provide maximal benefit by altering those contingencies in the home environment maintaining maladaptive behavior patterns while also helping the child develop specific adaptive behavioral skills.

As part of the requirement for participation in the Child Behavior Project, the parent(s) filled out an extensive battery of questionnaires, including behavior checklists, and developmental and family history questionnaires. An assessment battery was administered to the target child by trained undergraduates or graduate students from a Clinical Psychology program. All testers were blind to diagnostic group (i.e hyperactive vs. normal) and treatment status (i.e pre-test, post-test or follow-up). Included were various self-report measures, academic achievement and IQ screening measures, and measures of impulsivity and distractibility. These parent and child assessments were completed before and after a 12 week treatment program and at a six month follow-up.

In addition to the pencil and paper assessment measures, families were expected to allow a member of the project to videotape them in their home for 20 minutes during a mealtime. Video tapings were conducted pre and post-treatment and again at the six month follow-up. A total of 54 hyperactive families were available at pretaping from the treatment groups and 20 from the control group. From these, videotapes of 41 families were selected for analysis. Videotape data from 13 families were excluded due to either malfunctions in the tapes or attrition during the later phases of the study, such that neither a

post or follow-up videotape was available. The inclusion of only videotapes for which either a post, or follow-up tape was available was to allow for further analysis of treatment effects on this sample in a future study. Although tapes from all 20 control families were available for analysis, two children were excluded from the control sample, as behavior checklists completed by teachers indicated that the children evidenced significant behavioral problems. It seems likely that the parents of the two excluded children were seeking a cost-free assessment and hence misrepresented their child's behaviors.

The parent(s) were informed during an early contact with the families that the purpose of the videotapes was to aid the researchers in evaluating the treatment program and that the tapes would not be seen by persons outside of the Child Behavior Project. Families were later phoned by a graduate student member of the project to select a convenient date and time for the family to be videotaped. A graduate or undergraduate student videotaper, who was familiar with the videotape cameras used in the project, was sent to the home of the family to do the taping. Equipment set up instructions are provided in Appendix C. Videotapers were instructed to be as unobtrusive as possible. These procedural instructions are provided in Appendix C. Briefly, videotapers were instructed to introduce themselves, state their purpose in being there, ask where to set up the equipment, tape for 20 minutes, thank the family, and leave. Videotapers were not permitted to accept food from the families or to allow the family to discuss problems with them.

Design of the Code

Information from previous codes (Forehand and McMahon, 1981; Abikoff et al., 1977; Abikoff et al., 1980; Patterson et al., 1969; Wahler et al., 1976; Mash et al., 1973), direct observation of hyperactive children and their families during mealtime, readings of clinical descriptions, as well as much discussion with experienced practitioners, led to the initial item pool. It was decided that the code should be able to evaluate sequences of behavior between the hyperactive child and the child's family. Of primary interest is the interaction between the child and his parents, as this is often the juncture of much conflict and often a primary reason for the referral.

The Hyperactivity Coding System is designed to describe patterns of family interactions during a 20 minute, home based, meal-time setting. As it is a behaviorally based system, only observations of overt behaviors are measured. It is the aim of this system to quantify the occurrences of selected target behaviors. The primary purpose of the code is as a research instrument to discriminate patterns of behavior associated with hyperactive children and their families from non-clinic referred children and their families. A further study will focus on the validity of the code to assess the efficacy of different treatment designs. The code should also offer practical utility as an assessment tool for clinicians. However, the code is inclusive and complex enough as to require the use of videotape recording and could not be used effectively in a live observation setting.

Coding Procedure and Development of the Code

Once a videotape recording of the family had been made it was divided into continuous 10 second intervals. This was done with the addition of a voice track, counting ten second intervals, mixed on to the videotape. To accomplish this, a new videotape was created containing the audio and video portions of the original tape combined with another audio track containing the interval designations. This procedure was titled Sound on Sound and was performed primarily by an advanced undergraduate student member of the project. The procedure is further explained in Appendix C.

The Sound on Sound tape was designed to be coded in two separate viewings. This procedure was adopted to allow the coder to focus on only a limited quantity of behaviors during each viewing. Each passage through the tape was coded on a corresponding coding sheet. The scoring sheets were specifically designed to code the sequences of behavior to be focused on during the particular viewing. The coding sheets are found in Appendix D.

As a means of expediting and improving the reliability of the coding procedure, prior to coding, each videotape was completely transcribed by undergraduate members of the project. The students were instructed to write down, verbatim, what each person in the family stated and in what interval it was stated. The students were also requested to play difficult passages over repeatedly, as necessary, to extract as much verbal content from the tape as possible. These transcription sheets were used by all coders for the first passage through the tape.

The tapes were later retranscribed for the second passage through the tape by a pair of trained coders focusing on parental commands. This retranscribing procedure was performed because many of the initial transcriptions were found to be missing key verbal information necessary for this coding procedure. Only information which both transcriber/coders decided were commands addressed to the target child were retranscribed along with any verbal responses made by the child. The transcriber/coders were then not permitted to code tapes which they had transcribed. This prevented them from scoring videotapes which they had previously observed and discussed with another coder.

For the first passage, titled Interaction/Inappropriate/Positive, an interval recording technique was utilized such that the occurrence of a particular behavior within a ten second interval or the global qualitative rating for the interval, dictated the scoring for that entire interval. With this method, only one occurrence of a behavior is scored regardless of whether more occurrences take place within the interval. On this passage, the coder made two global ratings for the family interactions. One code was a measure of the quality of Interaction between the Child and Others while the other code was a measure of Family Interaction, exclusive of the target child, for the 10 second interval. The coder was also instructed to make a check for each interval upon the occurrence of child Out of Seat, child Self-stimulation behavior, Inappropriate child behaviors as well as Positive Statements by the parents. Adequate reliability (70% calculated by the effective percent agreement method) was achieved during training for all but the Self-stimulation code. Hence, only the Self-stimulation code was excluded from the coding procedure.

During the second passage through the tape, titled the Parent to Child passage, the coder was asked to focus only on behavior sequences that were initiated by a parent and were directed toward the target child. An event recording procedure was used to record every instance of a selected behavior, and note what interval it occurred in. The selected behaviors for this passage include good (Alpha) and poor (Beta) commands by parents and a rating of the child's Compliance to the parental commands (Compliance, or Non-compliance).

Item Selection

Items selected for the code were done so as to allow for the description of specific behaviors or interaction patterns thought to be relevant for discriminating hyperactive children and their families from control children and their families and possibly for assessing treatment effects as well. General requirements of the coding system were that it be capable of measuring some level of child gross motor activity, frequency of inappropriate behaviors, frequency and quality of interactions between family members, types of parental commands and responses to them, and parental use of positive reinforcement. General definitions and examples of the codes are listed below. For more thorough definitions and examples see Appendix B.

Interaction/Inappropriate/Positive

Interaction (Positive, Neutral, or Negative)

This is an interval recording measure of the general affect and quality of a ten second interval coded for the interaction between the

child and others and again separately for the family excluding the target child.

Out of seat

This is an interval recorded, general measure of gross motor movement, e.g., child stands up, or leans on table so that both buttocks are not on the chair.

Inappropriate child behavior

This is an interval recording measure of the frequency of negative child behaviors, e.g., child whines, yells, uses physical aggression, deviant talk or humiliates another person.

Positive statements

This is an interval recording measure of the frequency of positive or reinforcing statements used by the parents. For example, any time a parent praises or thanks the child for his past, present, or future behavior.

Parent to Child

Command (Alpha, Beta)

This is an event recording measure of how often a child is instructed to perform a behavior and the quality (alpha or beta) of the instruction given to the child, e.g., parent instructs the child to stop playing with his food, or to behave himself.

Alpha command: a good quality command, rule, directive question, or suggestion to which only one specific verbal or motoric response is appropriate and feasible. Included are Labeled commands which have a clearly specified objective leaving no doubt as to what the child is supposed to do, Stop commands which instruct a child to cease an ongoing behavior or one that is about to take place, and Question commands which resemble the above Alpha commands but are stated in a question form.

Examples:

"Finish your meat before you drink your soda." (Labeled command)

"Stop kicking your chair." (Stop command)

Also scored under the Alpha command category are General Contingency Statements which resemble the above Alpha commands but contain statements indicating contingencies or consequences related to the child's behavior and Permission and Rule statements which are general rules that specify a behavior to be initiated or inhibited.

Examples:

"If you don't stop interrupting me when I am talking, you will not get dessert tonight." (Contingency statement)

"We use forks to eat our spaghetti, not our hands." (Rule statement)

Beta command: a poor quality command to which compliance is difficult or impossible. Included are Vague commands, which lack a clear direction; Chain commands, which are a series of logically related commands with less than five seconds separating them; and Repeated

commands, in which the same command or a similar version of the command is issued within five seconds.

Examples:

"Now just be good." (Vague command)

"Sit down, face forward, and start eating." (Chain command)

"Drink your milk (less than five second pause), come on now drink your milk." (Repeated command)

Child responses to parental commands (Compliance or Non-compliance)
This is an event recording scale of the child's compliance, or failure to comply to a parental command, e.g., child is told to sit-up and eat his food, and does so or, sits-up but does not eat, or completely disregards the command.

Compliance: the child obeys, complies with a parental command within five seconds of the offset of the command. This includes appropriate verbalization or motoric response to the command. In the case of a Chain Command, the child must comply to all the directives contained in the command within five seconds of the completion of the command. This code is not used as a response to a vague command, as compliance is impossible due to the nature of the command.

Non-compliance: the child refuses to comply or does not respond to a parental command within five seconds after the offset of the command. This code is used if either the child fails to initiate compliance within five seconds, fails to maintain inhibition of a prohibited

response for five seconds, or fails to comply to all directives within a Chain Command.

Training Coders

Coders were blind to both subject status (i.e. hyperactive vs control) and treatment status (i.e. pre vs post). Although only pretest data were used in the analysis to discriminate the hyperactive group from the controls, post data were also included in the reliability assessment to increase the number of comparisons for this analysis. There were approximately 25 undergraduate coders, receiving independent study credit through the psychology department at Michigan State University. The majority of the coders were psychology majors while others were pursuing different fields such as pre-medicine and business.

Two groups of coders were trained for the Interaction/Inappropriate/Positive codes using a similar procedure, with the differences outlined below. For both groups, the author trained and supervised the coders, holding two hour training sessions, three times weekly. At the first training session, the rationale for using direct observation, and this code specifically, were explained to the undergraduate participants. The students were asked to read the code thoroughly by the next session. The following training session was spent discussing the code in depth while the remainder of the training sessions were spent viewing the videotapes, coding them, and discussing any shortcomings of the code as they presented themselves. Two quizzes were also given during the training process to assess the coders' progress.

The first group of coders trained were instrumental in helping the author to modify and further develop the section of the code which they were trained to use. During the majority of the training sessions, the coders and the author viewed 20 minute videotapes of the subjects and their families at mealtime. As new behaviors were observed that the code could not adequately categorize, discussions were held and the author decided how to best modify the code. The two hour training sessions were held three times weekly for seven weeks followed by three weeks of only one, two hour meeting per week, with the remainder of the time spent by the coders in individual coding sessions. Codings, completed individually, from tapes which were excluded from the data set, were used to assess interobserver reliability, and as guides toward further modification of the code and/or further training of low reliability sections of the code. Reliability was scored by the effective percent agreement method (Haynes, 1978; Jensen, 1959). For this method, the number of agreements of the occurrence of a behavior are divided by the total number of agreements of occurrence plus disagreements of occurrence X 100. Feedback was given to each observer in a group setting throughout the last three weeks of the training.

After a two week vacation, the previously trained coders returned, and went through three weeks of re-training along with a group of new observers who were just beginning training. These sessions served not only to re-train and increase practice with the code, but to model the use of the code for the new coders. This second group of coders received only five weeks of training before coding on their own, as the code had been improved considerably and was much easier to teach.

Other than the differences mentioned above, and the fact that only one quiz was given to the second group, the procedure for training the second group of coders was the same as that for the first group.

Upon the completion of the coding for the Interaction/Inappropriate/Positive passage, an additional independent group of coders was trained following the same basic training procedure outlined above. Approximately eight weeks were spent training the new coders and modifying the Parent to Child, and Child Response to Parental Commands sections of the code before adequate interobserver reliability was reached and the actual coding of the videotapes commenced.

One or two weekly retraining sessions continued throughout the actual coding periods. Tapes which were coded by two or more people independently, were selected for viewing during the group training sessions to continually assess the reliability and accuracy of the coded data. Areas of disagreement were discussed among the group and feedback was given to the individuals whose codings were being reviewed. Previously coded criterion tapes were also reviewed to help check on and minimize observer drift. Only one coder consistently failed to achieve reliability with the other coders and data from this individual were excluded from the analysis.

Data Analysis

Initially, interobserver reliability was assessed for all of the behavioral codes. Then Pearson product-moment correlations between all variables were computed (Appendix A). This analysis allowed for the assessment of intercorrelations between the behavioral codes,

correlations of the behavioral codes with significant demographic variables, and the correlation of the behavioral codes with the caretaker checklists. Two-tailed t-tests or chi-square tests were also carried out to detect significant differences between the hyperactive and control groups on all pertinent demographic variables and behavioral codes. Because a significant sex difference was found between the two groups, a two (group) by two (sex) multiple analysis of variance (MANOVA), followed by univariate analysis of variance (ANOVA) was computed for all behavioral codes to test for main effects for diagnostic group and sex, and to test for group by sex interactions.

Chapter 4

Results

Reliability

Table 1 presents a list of the variables and their corresponding abbreviations. These abbreviations will be used throughout the study.

Interobserver reliability for each of the codes was calculated by two different methods: (1) The effective percent agreement (Jensen, 1959), calculated by the formula (the number of agreements/the number of agreements + the number of disagreements) X 100, where only those occasions in which either or both observers rate the target behavior as having occurred are scored, and (2) Cohen's Kappa (1960) calculated by the formula (Po-Pc)/(1-Pc), where Po is the proportion of observed agreements and Pc is the proportion of chance agreements (Hartman, 1977).

For the effective percent agreement calculations, reliabilities were scored for the larger categories (Child and Other Interaction, Family Interaction, Commands, and Compliance) such that agreement was scored if both coders agreed (1) that a scorable behavior occurred; (2) on the qualitative nature of the behavior where appropriate (Positive, Neutral, Negative, Alpha, Beta) and (3) the interval in which the behavior occurred. For the Cohen's Kappa analysis, the larger code categories were sub-typed into their component categories (Positive, Negative, Neutral, Alpha, Beta, Compliance, Non-compliance, and Off-Camera). Unlike effective percent agreement, Cohen's Kappa allows for the consideration of interobserver agreement when both coders agree that a behavior did not occur. However, Cohen's Kappa does yield a proportion agreement score that is corrected for chance agreements.

Table 1

List of all variables and their abbreviations.

Sex	
Age	
Grade	
PPVT %	= Peabody Picture Vocabulary Test (PPVT) percentile
PPVT IQ	= Peabody Picture Vocabulary Test (PPVT) standard score
Mother Conners	= Mother's rating on Conners hyperactivity index
Teacher Conners	= Teacher's rating on Conners hyperactivity index
PIC-R Family Relations Scale	= Mother's rating on the Personality Inventory for Children Revised (PIC-R) family relations scale
Total C&O Int	= Total Child and Other Interaction
Positive C&O Int	= Total Child and Other Positive Interaction
Neutral C&O Int	= Total Child and Other Neutral Interaction
Negative C&O Int	= Total Child and Other Negative Interaction
Total Family Int	= Total Family Interaction
Positive Family Int	= Total Positive Family Interaction
Neutral Family Int	= Total Neutral Family Interaction
Negative Family Int	= Total Negative Family Interaction
Inappropriate	= Total Inappropriate Child Behaviors
Out of Seat	= Total Out of Seat
Parent Positive Statements	= Total Parent to Child Positive Statements
Intervals	= Total Intervals
Total Commands	= Total Commands
Alpha Commands	= Total Alpha Commands
Beta Commands	= Total Beta Commands
Compliance	= Total Compliance to commands
Non-Compliance	= Total Non-compliance to commands
Off-Camera	= Total Off-camera following commands

Table 2 presents the mean reliability coefficients, and the range of reliability scores for all of the behavioral codes as assessed using the effective percent agreement method. Coefficients calculated by the effective percent agreement method indicated that satisfactory reliabilities were achieved for the Child and Other Interaction Category, Family Interaction Category, and Command and Compliance codes, using a minimum reliability standard of 70% (Patterson et al., 1978). Out of Seat was only marginally below the criterion level while Inappropriate, and Parent to Child Positive Statements were moderately to considerably lower respectively.

The Cohen's Kappa reliability coefficients are shown in Table 3. Reliability coefficients for Child and Other Interaction were 33% for Positive, 71% for Neutral and 13% for Negative. Family Interaction reliabilities were 30% for Positive, 66% for Neutral and 6% for Negative. Inappropriate, Out of Seat, and Parent to Child Positive Statements were: 6%, 49%, and 13% respectively. The Command reliabilities were 72% for Alpha Commands and 61% for Beta Commands. The compliance coefficients were 63% for Compliance, 61% for Non-compliance and 16% for Off-Camera.

Intercorrelations Among Behavioral Codes

Pearson product-moment correlations were computed to determine the degree of independence and interdependence of the behavioral codes. Of the 136 correlations calculated (see Appendix A), 71 correlations between the behavioral codes were found to be significant at the $p<.05$ level of significance. However, only nine of the significant correlations reached a value of $r\geq.60$. Correlations of this value

Table 2

Effective percent agreement mean reliability coefficients, and range of reliability scores for all behavioral codes.

Behavior code	Mean Percent Agreement	Cases with Occurrence*	Range of Scores
Child and Other Interaction category	78%	36	53-94%
Family Interaction Category	73%	31	49-90%
Inappropriate	17%	11	0-100%
Out of Seat	62%	27	0-100%
Parent Positive Statements	44%	10	0-100%
Command Category	80%	69	0-100%
Compliance Category	78%	69	0-100%

Note. Analyses based on n = 72 tapes for Command and Compliance Categories and 8640 intervals. All other analyses based on 36 tapes and 4320 intervals.

* The number of cases in which at least one occurrence of the behavior was reported. Each case equals approximately 120 intervals.

Table 3

Cohen's Kappa mean reliability coefficients, and range of reliability scores for all behavioral codes.

Behavior code	Mean Kappa	Range of Scores
Positive C&O Int	33%	-2-100%
Neutral C&O Int	71%	-6-96%
Negative C&O Int	13%	0-100%
Positive Family Int	30%	-1-100%
Neutral Family Int	66%	34-100%
Negative Family Int	6%	0-100%
Inappropriate	6%	0-100%
Out of Seat	49%	0-100%
Positive Parent Statements	13%	0-100
Alpha Commands	72%	0-100%
Beta Commands	61%	0-100%
Compliance	63%	-2-100%
Non-compliance	61%	-1-100%
Off-Camera	16%	0-100%

Note. Analyses based on n = 72 tapes and 8640 intervals for Alpha Commands, Beta Commands, Compliance, Non-compliance and Off-Camera. All other analyses based on 36 tapes and 4320 intervals.

would suggest that the two codes are yielding approximately the same information in that they share at least 36% of their variance.

Table 4 lists the nine correlations between the behavioral codes of .60 or greater. Correlations indicating interdependence between codes were found for only those codes which by definition had to co-occur (eg. Total Commands with Compliance and Non-compliance), or for those codes in which the behaviors from one code comprised a subset of the other (eg. Total commands with Alpha or Beta commands). All other codes which did not meet either of the above descriptions were found to produce essentially non-redundant information.

Analysis of the Demographic Variables

Table 5 presents the means and standard deviations for the demographic variables by groups. An overall significant difference between the groups was found for Sex only $x^2(1, N=59) = 5.30$, $p<.02$ with the ADD-H group having 34 boys and 7 girls, and the control group having 9 of each sex. The higher representation of males in the hyperactive sample is close to the generally accepted sex ratio for this population, of 6:1 in favor of males (Barkley, 1981a). Nonetheless, in subsequent analyses of differences in the behavioral codes between ADD and non-ADD-H subjects, a 2 X 2 MANOVA and 2 X 2 ANOVAs were performed rather than t-tests in order to assess for the possible influence of sex of subject.

Table 4
Intercorrelations Among Behavioral Observation Codes of r>.60.

Behavioral Codes	Correlation
1. Total Commands/Compliance	.62*
2. Total Commands/Non-Compliance	.87*
3. Alpha Commands/Compliance	.75*
4. Beta Commands/Non-compliance	.91*
5. Total Commands/Alpha Commands	.85*
6. Total Commands/Beta Commands	.92*
7. C&O To Int/Neutral C&O Int	.93*
8. Family To Int/Family Nu Int	.97*
9. C&O Ng Int/Inappropriate	.61*

*p < .05.

Construct Validity

Construct validity of the behavioral codes was assessed in two ways. First, the behavioral observation codes were correlated with the Conners Teacher Rating Scale, the Conners Parent Rating Scale, and the PIC-R Family Relations Scale (see Appendix E for checklists) to determine the degree of covariation between each of the codes and scores on these caretaker checklists of child behavior.

Second, a Multivariate Analysis of Variance with all of the behavioral observation codes serving as dependent measures was performed to assess the main effects and interaction of diagnostic group and sex. A marginally significant ($F=1.57$, $p<.13$) main effect for diagnostic group was found, while no significant main effect was found for sex ($F=1.18$, $p<.33$), or for the diagnostic group X sex interaction ($F=.92$, $p<.55$). As the power of the MANOVA was low due to the inadequate reliability of some of the codes and the small number of subjects included in the study, the marginally significant effect of diagnostic group was accepted as a valid indicator of an ovarall group difference for the combined codes. Then, a series of 2 x 2 (diagnostic group X sex) ANOVAs were computed for each of the behavioral codes in order to determine how well each of the codes discriminated between ADD and non-ADD-H children and their families.

The correlations between the behavior observation codes and the behavior checklists are shown in Table 6, and the results of the ANOVAs are shown in Tables 7-11. These tables will be discussed as they relate to the major hypotheses in the study.

Child and Other

It was hypothesized that the caretaker checklists would negatively correlate with the Child and Other Positive Interaction code, and positively correlate with the Child and Other Negative Interaction code. It was also hypothesized that there would be a higher frequency of Positive Child and Other Interaction in the control group and a higher frequency of Negative Child and Other Interaction in the hyperactive group.

Table 6 shows that no significant correlations were found between any of the Child and Other Interaction codes and the checklists. This suggests that the observed quality and/or frequency of interaction between the target child and other family members during mealtime is unrelated to either the mother's or teacher's perceptions of the child's hyperactive behaviors, or the mother's perception of the quality of the family's interactions.

Table 7 indicates that for the Child and Other Interaction variables (Total, Positive, Neutral, Negative) a significant group difference was found for the Negative Interaction scale [$F(1,58) = 4.01$, $p<.05$] with approximately four times as many occurrences in the hyperactive group than in the control group (see Appendix A for group means and standard deviations). No group differences were found for the Total, Positive or Neutral Interaction scales.

These findings indicate that although none of the Child and Other Interaction codes correlated significantly with the construct validity measures, the Negative code did discriminate between the two groups in

Table 5
Means and standard deviations for sex, age, grade and the PPVT standard score for hyperactive (N = 41) and control (N = 18).

	Hyperactive	Control	Test of Significance
Sex (M=1, F=2)			
Mean	1.17	1.50	$x^2 = 5.3^*$
SD	.38	.51	
Grade			
Mean	3.02	3.44	$x^2 = 7.1$
SD	1.94	1.38	
Age			
Mean	8.83	9.06	$t = -.47$
SD	1.82	1.39	
PPVT IQ			
Mean	107.98	109.78	$t = -.41$
SD	14.88	16.56	

Note. df=1 for sex chi-square and df=6 for grade chi-square. Df=57 for all t-tests.
*= $p<.05$.

the expected direction. The positive and neutral interaction patterns between the target child and other family members were not found to be significantly different between the two groups.

Family

It was hypothesized that the checklists would negatively correlate with Positive Family Interaction, and positively correlate with Negative Family Interaction. It was also hypothesized that there would be a higher frequency of Positive Family Interaction in the control group and a higher frequency of Negative Family Interaction in the hyperactive group.

Table 6 shows that the Mother Conners' Hyperactivity Index scores were negatively correlated with Total Family Interaction [$r=-.32$, $p<.006$], Positive Family Interaction [$r=-.26$, $p<.03$], and Neutral Family Interaction [$r=-.28$, $p<.02$]. The Teacher Conners was also negatively correlated with Total Family Interaction [$r=-.26$, $p<.02$], Positive Family Interaction [$r=-.26$, $p<.02$], and tended toward a significant correlation with Neutral Family Interaction [$r=-.21$, $p<.06$]. The PIC-R Family Relations Scale was negatively correlated with the Neutral Family Interaction scale [$r=-.28$, $p<.04$].

These results indicate that a higher score on the Mother Conners (greater severity of hyperactive symptomotology) was correlated with less Family Interaction, of both the Positive and Neutral type. A higher score on the Teacher Conners was also negatively correlated with Positive Family Interaction and tended toward significance with Neutral Family Interaction. A higher score on the PIC-R Family Relations Scale (more problems) was also associated with a lower level of Neutral Family Interaction.

Table 6
Correlation coefficients and significance levels for all codes with Mother Conners, Teacher Conners and the PIC-R Family Relations Scale.

	Total C&O Int	Pos. C&O Int	Neu. C&O Int	Neg. C&O Int	Total Family Int	Pos. Family Int	Neu. Family Int	Neg. Family Int	Inappro-priate
Mother Conners	.10	-.07	.15	-.08	-.32*	-.26*	-.28*	.08	.11
Teacher Conners	.15	-.12	.17	.04	-.26*	-.26*	-.21	-.06	.12
Pic-R Family Ralations Scale	.06	-.01	.02	.18	-.23	.13	-.28*	.19	.0001

	Out of Seat	Parent Pos. State-ments	Inter-vals	Total Com-mands	Alpha Com-mands	Beta Com-mands	Compli-ance	Non-Compli-ance	Off-Camera
Mother Conners	-.007	-.08	-.13	.35*	.38*	.26*	.24*	.29*	.14
Teacher Conners	-.12	.03	-.06	.28*	.29*	.21*	.11	.31*	.004
Pic-R Family Ralations Scale	.09	-.10	-.14	.26*	.18	.28*	.13	.26*	.11

Table 7
F-statistics for Child and Other Interaction variables.

	Total C&O Int	Positive C&O Int	Neutral C&O Int	Negative C&O Int
Group	.001	.74	.02	4.01*
Sex	.77	.02	1.36	1.46
Group x Sex	.16	.61	.66	.73
Error	(.022)	(.002)	(.022)	(.001)

Note. df = 1,58 for all F-statistics.
*$p < .05$.

As shown in Table 8, there were significant between group differences for Total Family Interaction [$F(1,58) = 5.99$, $p < .02$], and Positive Family Interaction [$F(1,58) = 6.69$ $p < .01$]. Neutral Family Interaction tended toward statistical significance [$F(1,58) = 3.78$, $p < .06$] with higher frequencies of all of these behaviors in the control group. No significant group difference was found for the Negative Family Interaction variable.

In agreement with the results from the correlations between the checklists and the Family Interaction codes, the F-tests indicate that the Total and Positive Family Interaction codes discriminated between the hyperactive and non-hyperactive children and their families. It appears that when being observed in the home during mealtime, families with hyperactive children engage in less positive and total interaction than families without hyperactive children.

Command/Compliance

It was hypothesized that the checklists would positively correlate with Total Commands, Alpha Commands, Beta Commands, and Non-compliance and that there would be a higher frequency of the three Command categories and Non-compliance in the hyperactive condition.

Table 6 shows that the three checklists were found to correlate with most of the Command/Compliance codes. Table 6 shows that the Mother Conners was positively correlated with Total Commands [$r=.35$, $p<.003$], Alpha Commands [$r=.38$, $p<.002$], Beta Commands [$r=.26$, $p<.02$], Compliance [$r=.24$, $p<.03$], and Non-compliance [$r=.29$, $p<.01$]. The Teacher Conners was positively correlated with Total Commands [$r=.28$, $p<.02$], Alpha Commands [$r=.29$, $p<.01$], Beta

Table 8
F-statistics for Family Interaction variables.

	Total Family Int	Positive Family Int	Neutral Family Int	Negative Family Int
Group	5.99*	6.69*	3.78	1.01
Sex	.47	.07	.37	.66
Group x Sex	.70	.50	.59	2.20
Error	(.06)	(.004)	(.054)	(.0001)

Note. df = 1,58 for all F-statistics.
*$p < .05$.

Commands [r=.21, $p<.05$], and Non-compliance [r=.31, $p<.01$]. The PIC-R Family Relations Scale was positively correlated with Total Commands [r=.26, $p<.05$], Beta Commands [r=.28, $p<.04$], and Non-compliance [r=.26, $p<.05$]. Hence, children with higher Conners scores are more likely to receive both Alpha and Beta commands, and to not comply with them than are children with lower Conners scores.

The PIC-R Family Relations Scale correlated positively with Total Commands, Beta Commands and Non-compliance, but failed to correlate with Alpha Commands. This indicates that parents in families in which the mother reports greater discord are likely to give more Total Commands, especially Beta commands, and these are more likely to be responded to with non-compliance.

The analysis in Tables 9 and 10 indicate that significant differences occurred between the hyperactive and control groups on Total Commands [$F(1,58) = 6.11$, $p<.02$], Alpha Commands [$F(1,58) = 4.67$, $p<.04$], Beta Commands [$F(1,58) = 4.79$, $p<.03$], and Non-compliance [$F(1,58) = 6.03$, $p<.02$], with the ADD-H group receiving more commands and responding with more non-compliance compared to non-ADD-H children.

Parent to Child Positive Statements

It was hypothesized that the checklists would negatively correlate with Parent to Child Positive Statements. It was also hypothesized that there would be a higher frequency of Parent to Child Positive Statements in the control condition.

Table 6 indicates that the Parent Positive Statements code failed to correlate significantly with any of the checklists. Similarly, the results found in Table 11 indicate that there were also no differences

between the groups on this code. As pointed out earlier, this code was found to occur very infrequently and suffered from low reliability. However, a significant Group x Sex interaction [$F(1,58) = 4.09$, $p<.05$] was found for the Parent Positive Statements code with the highest occurrence of this behavior in the male, non-ADD-H group.

Inappropriate

It was hypothesized that the checklists would positively correlate with Total Inappropriate behavior. It was also hypothesized that there would be a higher frequency of Total Inappropriate behavior in the ADD-H group.

Table 6 shows that the Inappropriate behavior code failed to correlate significantly with any of the checklists. Similarly as shown in Table 11, there was no significant difference between the groups on this code. However, there were no occurrences of inappropriate behavior in the non-ADD-H group. The data indicate a trend toward a group difference [$F(1,58) = 3.26$, $p<.08$), with low frequency occurrences of Inappropriate behavior in the ADD-H group only.

Out of Seat

It was hypothesized that the checklists would positively correlate with Out of Seat behavior. It was also hypothesized that there would be a higher frequency of Out of Seat behavior in the hyperactive condition.

Table 6 shows that the Out of Seat behavior code failed to correlate significantly with any of the checklists. Similarly, as shown in Table 11, the code failed to discriminate between the ADD-H and non-ADD-H groups.

Table 9
F-statistics for Command variables.

	Total Commands	Alpha Commands	Beta Commands
Group	6.11*	4.67*	4.79*
Sex	.62	3.45	.01
Group x Sex	.02	.003	.07
Error	(.0012)	(.0003)	(.0006)

Table 10
F-statistics for Compliance variables.

	Compliance	Non-Compliance	Off Camera
Group	.46	6.03*	2.18
Sex	3.95*	.000	.30
Group x Sex	.06	.04	1.52
Error	(.0003)	(.0007)	(.00005)

Table 11

F-statistics for Parent Positive Statements, Inappropriate, and Out of Seat.

	Parent Positive Statements	Inappropriate	Out of Seat
Group	1.55	3.26	.28
Sex	1.28	1.66	2.22
Group x Sex	4.09*	.11	1.28
Error	(.00007)	(.0014)	(.026)

Note. df = 1,58 for all F-statistics.
*$p < .05$.

Chapter 5

Discussion

The present study was designed to develop and validate a behavioral observation coding system for assessing mealtime family interaction patterns and individual child behaviors of ADD-H and non-ADD-H children and their families. Although many psychometrically sound coding systems have been published (Patterson, 1977; Patterson et al., 1978; Wahler et al., 1976; Mash et al., 1973; Forehand et al., 1978), none were specifically designed for use with ADD-H children and their families during a mealtime setting. The mealtime setting was chosen as it has been noted as a particularly difficult time for hyperactive children and their parents (Barkley, 1981a; Goodenough,1931). The results of this study indicated that some of the proposed behavioral codes were reliably scored by trained observers and that, in general, the more reliable codes tended to correlate with behavior ratings made by parents and teachers, and to discriminate ADD-H children and their families from non-ADD-H children and their families.

Using a 70% minimum reliability standard for the effective percent agreement coefficient (Patterson et al., 1978), the Child and Other Interaction, Family Interaction, and the Command and Compliance Categories achieved adequate interobserver reliability. The Out of Seat code, at 62%, was only marginally short of criteria while the Parent to Child Positive Statements code and the Inappropriate Child Behavior codes were moderately and very significantly short of the criterion level, respectively. One explanation for the low reliability

for these latter three codes is that they were coded relatively infrequently, and infrequently scored codes often yield low reliabilities (cf. Jacob, O'Leary, and Rosenblad, 1978; Mash et al., 1973).

The Cohen's Kappa analyses revealed that for the Child and Other, and Family Interaction codes, only the Neutral codes achieved adequate reliability. The Positive and Negative codes for both of these categories occurred quite infrequently and suffered from low interobserver agreement. As found with the effective percent agreement analysis, the Out of Seat code fell moderately short of the 60% criterion level set for the Cohen's Kappa analyses (Gelfand and Hartman, 1975). The Parent to Child Positive Statements and Inappropriate behavior codes were also found to be significantly short of adequate reliability by this method. Alpha Commands, Beta Commands, Compliance and Non-compliance each demonstrated adequate Cohen's Kappa coefficients, while the infrequently scored Off-Camera code demonstrated extremely low reliability.

Generally, the Cohen's Kappa reliability coefficients found for the present study were lower than those found for other coding systems of approximately equal complexity. Using the Stony Brook coding system, Jacob et al., (1978) found Cohen's Kappa reliability coefficients of 00% and 43% for the Aggression and Solicitation codes, respectively. However, the other 15 of the 17 codes cited by Jacob et al. demonstrated adequate reliability. In the present study, only six adequate (>.60) and one marginally adequate Cohen's Kappa reliabilities were found for the 14 separate codes. Jacob et al. indicated that the

00% reliability score for Aggression was due to its only being scored once by one coder and missed by another coder. In the present study each code was found to occur more than once. However, the above cited infrequent codes may have been missed by coders due to their becoming highly focused on the more commonly occurring codes.

It is also possible that the low reliability scores for the infrequent behaviors may have been exacerbated by the reliability procedures. It has been demonstrated that although reliability generally increases when observers are being overtly checked, observers tend to score behaviors more conservatively, and hence, the more complex codes are scored less frequently (Jones, Reid, and Patterson, 1975; Kazdin, 1977). Due to the nearly constant overt reliability checking employed during this study, observers may have become conservative in their coding and therefore hesitant to score the lower probability codes.

Correlations with caretaker report measures and analyses of diagnostic group differences were carried out in order to assess the construct validity of each of the codes. In addition, 2 X 2 ANOVAs were performed (diagnostic group X sex) to determine the discriminant validity of each of the codes. Seventeen of the 51 possible hypothesized correlations with the caretaker report measures were found to be significant. Seven of the 19 possible group differences were also found to be significant.

Validity was best demonstrated for the Command/Compliance codes. Each of the Command codes discriminated ADD-H from non-ADD-H children and significantly correlated with at least two of the three caretaker

checklists. Correlational findings for the Command/Compliance codes suggest that children with higher Conners scores are more likely to receive both Alpha and Beta Commands and to not comply with them than are children with lower Conners scores. Families with greater reported discord, as assessed by the Family Relations subscale of the PIC-R, were found to give more Total Commands, especially Beta Commands, which were more likely to be responded to with non-compliance.

The present command/compliance findings are in agreement with those of prior observational studies in that the frequency of parental commands and child non-compliance has consistently been found to be greater in families of hyperactive children (Barkley, 1981a; Cunningham and Barkley, 1979; Bell, 1968, 1977; Campbell, 1975) and families with behavioral problem or conduct disordered children (Griest et al., 1980; Patterson and Reid, 1970; Patterson and Reid, 1973), compared to families of normal control children.

Barkley (1981a) points out that along with commands, compliance, and contingent praise from parents, negative interaction (between parent and child) was found to demonstrate high associations with scores on parent and teacher rating scales and to demonstrate good generality across settings. Although the present study did not find a significant correlation between this code and the caretaker checklists, the Negative Child and Other Interaction code was the only Child and Other code to discriminate between the ADD-H sample and the non-ADD-H sample. The Inappropriate child behavior code tended towards significance with the hyperactive group demonstrating low levels of these behaviors while no occurrences were found for the non-hyperactive

group. Although both of these findings were hypothesized, the low interobserver reliability found for both of these codes suggests that these relationships be interpreted with caution.

The failure of the Positive Child and Other Interaction and Negative Child and Other Interaction codes to correlate with any of the checklists is likely due to the very low reliabilities found for the Positive and Negative codes, and the low occurrences of these behaviors (see Appendix A). However, significant negative correlations were found for the Total, Positive, and Neutral Family Interaction codes with two of the three caretaker checklists each. These findings indicated that both the mother's and teacher's perceptions of hyperactive child behaviors were associated with certain family interactions which exclude the target child. More specifically, the families of the ADD-H children interacted less frequently among themselves and had less positive interactions than the families of the non-ADD-H children. One possible explanation for this general reduction in family interaction is that reactivity to the videotaping may have resulted in an inhibition of negative family interactions. For families who are not accustomed to a high frequency of positive or neutral interactions, it may have been difficult for them to immediately exhibit such behaviors, even if they felt impelled by such perceived demand characteristics from the videotape setting. Alternatively, it is also possible that the families of ADD-H children were not reacting to the observation procedures and do typically interact less than the families of non-ADD-H children in an attempt to minimize the possibility of engaging the hyperactive child. In a

laboratory observation study, (Cunningham and Barkley, 1979) it was shown that when hyperactive children and their mothers were alone in a free-play situation and a structured-task situation, the mothers of the hyperactive children initiated fewer social interactions and proved less responsive to those interactions initiated by the child than did normal control mothers. However, compared to the control group mothers, the mothers of hyperactive children spent significantly more time issuing commands which were responded to with more non-compliance. The results of the present study taken together with those by Cunningham and Barkley (1979), suggest that parents of hyperactive children may be negatively reinforced for minimizing interactions that would engage the hyperactive child, as many of these parent-child interactions seem to involve control/compliance struggles and are therefore unpleasant, and preferably avoided.

The results from the present study demonstrated a significant correlation between three of the Family Interaction codes with the Mothers, and two significant correlations with Teachers, scores on the Hyperactivity Index on the Conners measures. The teachers had no knowledge about the family interaction patterns and still rated these children higher on the Hyperactivity Index on the Conners. These results support the contention that ADD-H is a cross-situational syndrome and that the specific child behaviors rated on the two Conners measures do not appear to be situation specific.

The lesser frequency of Total and Positive Family Interaction found in the ADD-H sample compared to the non-Add-H sample also lends some support to previous research (Hartsough and Lambert, 1982;

Paternite, Loney and Longhorn, 1976; Paternite and Loney, 1980) implicating the home environment in the designation of a child as hyperactive. An extensive study by Paternite, and Loney (1980), looked at various home environment measures including SES, measures of the mother-father relationship, parent-child relationship, parent discipline practices and styles, parental social competence, and structure and routine provided in the home. Factor analysis results of their study indicated that most of the significant relationships were with secondary symptoms (child aggression) used as criterion variables and not when primary variables (inattention and impulsivity) were used for criterion variables. Although the present study did not code measures of inattention and impulsivity, the results do support the contention that some home environment variables (i.e. Family Interaction patterns) are associated with higher scores on the Hyperactivity Index on the Conners measures.

Although discriminant validity between hyperactive and non-hyperactive children for out of seat behavior has been demonstrated in laboratory free-play, restricted-play, and restricted-academic settings (Roberts et al., 1984), the present study failed to find significant group differences or significant correlations with caretaker checklists for this code. This code was originally hypothesized to be a general measure of gross motor movement and as such indicated that the two groups are quite similar in this respect. However, it is suggested that the Out of Seat code was too inclusive and was affected by other factors which should have been excluded such as parental requests that the child leave his seat to assist the parent or another family member.

These latter Out of Seat behaviors were both parent directed and qualitatively different than many observed incidents of more inappropriate behaviors which were also included in the same category, such as when the target child left his seat without permission or directly disobeyed a parental request to be seated. Further specificity regarding inclusion and exclusion criteria are needed for this code to be used as a useful measure of gross motor movement in a mealtime setting.

Future Directions for Research

The results from the present study indicate that a mealtime setting allows for the observation of interaction patterns that discriminate ADD-H families from non-ADD-H families. The mealtime setting allows for a minimum of observer imposed restrictions and should offer a valid sample of family interaction in the home. Future studies need to further examine family interaction patterns in clinic referred and non-clinic referred populations in an effort to replicate and expand upon the findings of the present study.

When using a home-based mealtime setting, various video, audio and procedural shortcomings encountered in the present study should be addressed, as they likely contribute significantly to the low interobserver reliabilities for some of the codes. Use of a professional quality camera, a high quality wide-angle lens, remote microphones and additional lighting would likely improve the source quality significantly and hence increase interobserver reliability. Improved videotape quality should also allow for greater accuracy of transcriptions made from the tapes thereby enhancing their utility as

an aid to the coders. In addition, although slightly intrusive, a few measures should be taken to add a minimum degree of structure to the mealtime setting. For example, when necessary, family members should be relocated around the table in order to allow for the best possible view of the target child and the parents. However, as McIntyre et al. (1983) have argued one would need to assess the effects of reactivity when restricting the environment in this manner.

To further improve the audio clarity, loud appliances such as microwave ovens and refrigerators should be temporarily turned off. A prior decision must also be made regarding whether to permit televisions or radios to remain on during the videotaping. During the data collection for the present study, it was observed that a large percentage of the ADD-H families kept televisions or radios on during mealtime, while this was not observed in the non-ADD-H families. It was originally planned, for the present study, to code for this finding, but it was later discovered that an overzealous videotaper had requested of some of the families that they turn off their televisions or radios, hence losing some of this data. It is suggested that families with ADD-H children may use these distractions to help minimize unpleasant interactions with the target child. Nevertheless, radio and television volume levels should at least be reduced to minimize interference.

It is also suggested that future observation research should include repeated observations to increase the total amount of observation time. Jones et al. (1975) reported that a minimum of 60-100 minutes of observation time was needed for their more frequently

occurring codes to provide an accurate score. Multiple recordings have also been used for the assessment of systematic reactivity or habituation to the observation procedure. However, the assessment of these potential confounds is not being encouraged as previous studies seem to indicate that it is unlikely that they would be demonstrated. In a summary of studies measuring reactivity and habituation (changes in prosocial or antisocial behaviors) to the observation procedure, Patterson (1982) concluded that both normal and withdrawn children can be helped to "look good" during observation when adults intentionally tried to manipulate them in that direction but that antisocial children were less manipulable. The author also discussed the general lack of evidence demonstrating reactivity in conduct disordered populations and habituation to observation in a classroom setting with normal children or other observation settings with conduct disordered children. In a review article by Haynes and Horn (1982), the authors also conclude that reactivity to direct observation tends to be non-systematic. However, repeated measures totalling a minimum of 60-100 minutes should be employed in future studies as a means of increasing the stability of the codes.

Future research should also focus on measuring antecedent and consequent events similar to those used by the Patterson et al., Forehand et al., and Mash et al. groups. Further refinement of the present code, and adaptation of other codes capable of measuring antecedent and consequent events for use in minimally structured home settings, will likely yield highly valid and generalizable information about the directionality of interaction patterns between family

members. Although some studies of ADD-H populations have found evidence for the reciprocal nature of parent-child interactions using laboratory observations (Barkley and Cunningham, 1980; Cunningham and Barkley, 1979) and classroom reports (Meichenbaum, 1977), home based observational research on the bi-directionality of interactions between ADD-H children and their family members is practically non-existent. Modification of the present coding system and procedures to increase interobserver reliability for some of the codes, and allowing for the observation of antecedent and consequent events, appear to be logical next steps toward the development of a data base for this neglected area of research.

APPENDICES

APPENDIX A

TABLES

APPENDIX A

Tables

Table 12
Pearson correlation coefficients and significance levels for all variables (excluding diagonals).

	Total C&O Int	Pos. C&O Int	Neu. C&O Int	Neg. C&O Int	Total Family Int	Pos. Family Int	Neu. Family Int	Neg. Family Int	Inappro-priate	Out of Seat	Parent Pos. State-ments	Inter-vals	Total Com-mands	Alpha Com-mands	Beta Com-mands	Compli-ance	Non-Compli-ance	Off-Camera	Mother Conners	Teacher Conners	PIC-R Family Relation	SEX	AGE	GRADE	PPVT IQ
Total C&O Int		.18	.92*	.04	-.09	-.05	-.07	-.15	.06	-.04	.29*	.03	.33*	.27*	.30*	.29*	.26*	.07	.10	.15	.06	-.13	-.06	-.03	-.04
Pos. C&O Int	.18		-.14	.05	-.01	.26*	-.08	.05	-.12	-.06	.11	.10	-.07	.03	-.13	.24*	-.17	-.22*	-.07	-.12	-.01	.06	.19	.26*	-.17
Neu C&O Int	.93*	-.14		-.19	-.03	-.12	.01	-.25*	-.04	-.12	.25*	-.04	.22*	.17	.21*	.13	.21*	.05	.09	.17	.02	-.16	-.10	-.13	-.03
Neg. C&O Int	.04	.05	-.19		-.26*	-.08	-.28*	.42*	.61*	.46*	-.02	.15	.58*	.42*	.59*	.39*	.45*	.40*	.15	.04	.18	.07	-.05	.10	.21*
Total Family Int	-.09	-.01	-.03	-.26*		.40*	.97*	.05	-.23*	.07	-.23*	-.08	-.20	-.04	-.28*	-.10	-.23*	.00	-.32*	-.26*	-.23	.20	.20	.20	.00
Pos. Family Int	-.05	.26*	-.11	.08	.40*		.16	-.12	-.02	-.12	-.16	-.09	-.11	-.10	-.10	-.05	-.09	-.10	-.26*	-.26*	.13	.15	.21*	.28*	-.18
Neu. Family Int	-.07	-.08	.01	-.28*	.97*	.16		.04	-.25*	.09	-.20	-.07	-.21*	-.04	-.30*	-.11	-.23*	.00	-.28*	-.21	-.28*	.17	.16	.13	.05
Neg. Family Int	-.15	.05	-.25*	.42*	.05	-.12	.04		.24*	.30*	-.10	.19	.41*	.41*	.33*	.31*	.23*	.54*	.08	-.06	.19	.07	-.02	.09	-.01

(table continues)

Table 12 continued

	Total C&O Int	Pos. C&O Int	Neu. C&O Int	Neg. C&O Int	Total Family Int	Pos. Family Int	Neu. Family Int	Neg. Family Int	Inappro-priate	Out of Seat	Parent Pos. State-ments	Inter-vals	Total Com-mands	Alpha Com-mands	Beta Com-mands	Compli-ance	Non-Compli-ance	Off-Camera	Mother Conners	Teacher Conners	PIC P Famil; Relation	SEX	AGE	GRADE	PPVT IQ
Inappro-priate	.06	-.12	-.04	.61*	-.23*	-.02	-.25*	.24*		.27*	-.10	-.03	.44*	.30*	.45*	.25*	.38*	.25*	.11	.12	.00	-.03	-.04	-.05	.07
Out of Seat	-.04	-.06	-.12	.46*	.07	-.12	.09	.30*	.27*		-.06	-.03	.27*	.26*	.23*	.22*	.12	.42*	-.01	-.12	.09	.18	-.14	-.03	.10
Parent Pos. State-ments	.29*	.11	.25*	-.02	-.23*	-.16	-.20	-.10	-.10	-.06		.14	.03	-.02	.07	-.01	.04 9	.03	-.08	.03	-.10	-.10	-.27*	-.27*	-.02
Inter-vals	.03	.10	-.04	.15	-.08	-.09	-.07	.19	-.03	-.03	.14		.22*	.18	.20	.09	.25*	.00	-.13	-.06	-.14	.13	.14	.14	.20
Total Commands	.33*	-.07	.22*	.58*	-.20	-.11	-.21*	.41*	.44*	.27*	.29*	.22*		.85*	.92*	.62*	.87*	.46*	.35*	.28*	.26*	-.22*	-.22*	-.18	.07
Alpha Commands	.27*	.03	.17	.42*	-.04	-.10	-.04	.41*	.30*	.26*	-.02	.18	.85*		.57*	.75*	.59*	.45*	.38*	.29*	.18	-.34*	-.20	-.17	-.03
Beta Commands	.30*	-.13	.21*	.59*	-.28*	-.10	-.30*	.33*	.45*	.23*	.07	.20	.92*	.57*		.41*	.91*	.38*	.26*	.21*	.28*	-.09	-.19	-.15	.13
Compli-ance	.29*	.24*	.13	.39*	.10	-.05	-.11	.31*	.25*	.22*	-.01	.09	.62*	.75*	.41*		.21	.20	.24*	.11	.13	-.30*	-.19	-.10	-.06
Non-Compli-ance	.26*	-.17	.21*	.45*	-.23*	-.09	-.23*	.23*	.38*	.12	.04	.25*	.87*	.59*	.91*	.21		.21*	.29*	.31*	.26*	-.11	-.17	-.17	.10
Off-Camera	.07	-.22*	.05	.40*	.00	-.10	.00	.54*	.25*	.42*	.03	.00	.46*	.45*	.38*	.20	.23*		.14	.00	.11	.01	-.07	-.03	.09
Mother Conners	.10	-.07	.15	-.08	-.32*	-.26*	-.28*	.08	.11	-.01	-.08	-.13	.35*	.38*	.26*	.24*	.29*	.14		.76*	.20	-.32*	-.08	-.09	-.10
Teacher Conners	.15	-.12	.17	.04	-.26*	-.26*	-.21	-.06	.12	-.12	.03	-.06	.28*	.29*	21*	.11	.31*	.00	.76*		-.08	-.27*	-.08	-.14	-.18

(table continues)

Table 12 continued

PIC-R Family Relation	.06	-.01	.02	.18	-.23	.13	-.28*	.19	.00	.09	-.10	-.14	.26*	.18	.28*	.13	.26*	.11	.20	-.08		-.21	-.24	-.09	.01
SEX	-.13	.06	-.16	.07	.20	.15	.17	.07	-.03	.18	-.10	.13	-.22*	-.34*	-.09	-.30*	-.11	.01	-.32*	-.27*	-.21		.13	.14	-.12
AGE	-.06	.19	-.10	-.05	.20	.21*	.16	-.02	-.04	-.14	-.27*	.14	-.22*	-.20	-.19	-.19	-.17	-.07	-.08	-.08	-.24	.13		.91*	.00
GRADE	-.03	.26*	-.13	.10	.20	.28*	.13	.09	-.05	-.03	-.27*	.14	-.18	-.17	-.15	-.10	-.17	-.03	-.09	-.14	-.09	.14	.91*		.10
PPVT IQ	-.04	-.17	-.03	.21*	.00	-.18	.05	-.00	.07	.10	-.02	.21	.07	-.03	.13	-.06	.10	.09	-.10	-.18	.01	-.12	.00	.10	

Note. N=55 for all variables except the PIC-R Family Relations Scale which was based on N=41 subjects. PIC-R Family Relations Scale scores were not available for nine hyperactive subjects and eight of the non-hyperactive subjects.
*$p < .05$.

Table 13
Means and standard deviations for all behavioral codes and caretaker checklists of child behavior.

	Hyperactives		Controls	
	Males	Females	Males	Females
Mother Conners				
Mean	21.65	21.00	2.33	2.89
SD	4.71	4.83	2.18	1.76
Teacher Conners				
Mean	18.12	19.57	5.33	3.11
SD	6.18	5.71	5.12	1.69
PIC-R Family Relations Scale				
Mean	57.00	51.00	52.50	53.00
SD	9.32	8.37	11.12	9.38
Total C&O Int				
Mean	.561	.484	.527	.507
SD	.145	.141	.193	.124
Positive C&O Int				
Mean	.028	.039	.047	.036
SD	.045	.069	.035	.031
Neutral C&O Int				
Mean	.497	.409	.476	.465
SD	.147	.118	.188	.137
Negative C&O Int				
Mean	.016	.036	.004	.006
SD	.032	.057	.010	.010
Total Family Int				
Mean	.536	.532	.670	.794
SD	.250	.255	.283	.156
Positive Family Int				
Mean	.026	.019	.064	.084
SD	.040	.022	.075	.116
Neutral Family Int				
Mean	.506	.501	.601	.708
SD	.243	.241	.247	.148
Negative Family Int				
Mean	.005	.012	.005	.002
SD	.013	.013	.008	.005
Inappropriate				
Mean	.018	.026	0	0
SD	.0428	.0555	0	0
Out of Seat				
Mean	.129	.153	.062	.202
SD	.167	.116	.060	.228
Parent Positive Statements				
Mean	.003	.005	.010	.001
SD	.006	.006	.018	.003
Total Commands				
Mean	.060	.052	.034	.024
SD	.041	.036	.022	.017
Alpha Commands				
Mean	.028	.019	.017	.008
SD	.019	.017	.014	.005
Beta Commands				
Mean	.031	.034	.017	.016
SD	.027	.029	.012	.015
Compliance				
Mean	.021	.012	.018	.008
SD	.018	.007	.017	.009
Non-Compliance				
Mean	.034	.032	.013	.015
SD	.032	.025	.012	.008
Off-Camera				
Mean	.004	.008	.003	.001
SD	.008	.014	.005	.003

Note. Means and standard deviations for all behavioral codes are based on the frequency of occurrences divided by the number of intervals for each family (approx. 120). Means and standard deviations for the Mother Conners, Teacher Conners and PIC-R Family Relations Scale are based on actual scores.

APPENDIX B

THE OBSERVATION CODE

APPENDIX B

Hyperactivity Coding

The hyperactivity coding system is designed to describe patterns of family interactions during a 20 minute, home based, meal-time setting. It is a behavioral coding system, and as such, observations of overt behaviors are measured. It is the aim of this system to quantify the occurrences and describe the sequences of select behaviors. The primary purpose of the code is as a research instrument to discriminate hyperactive children from non-clinic referred children, and to assess the efficacy of a treatment design. The code should also offer practical utility as an assessment tool for clinicians. Its capacity to describe select behaviors should prove to be beneficial for designing individual intervention programs.

The code is inclusive and complex enough as to require the use of videotape recording and could not be used effectively with live observers. Once a videotape recording of the family has been made, it must be divided into continuous ten second intervals. This may be done with the addition of a voice track, counting the intervals placed on one of the audio tracks of the videotape. Interval timing may also be designated with a visual counter superimposed on the videotape so that it would appear on the monitor screen.

Once the tape has been prepared, by the addition of a visible or audible interval track, it must be transcribed verbatim and then coded in two separate viewings. This is done to allow the coder to focus on only a limited quantity of behaviors during any single viewing. Each passage through the tape is coded on a corresponding coding sheet. The scoring sheets are specifically designed to enable precise scoring of the specific behaviors to be viewed during each viewing.

The first viewing (Interaction/Inappropriate/Positive) is, in part, to provide a rating of the quality of the interaction for the 10 second interval. This is done separately for the interaction between the Child and Others, and the Family. The family interaction includes any interaction in which the target child is not included. Child and Other interaction and Family interaction are scored in terms of global ratings (Positive, Neutral or Negative) which designate the general quality of the interactions during the 10 second interval. On this passage, the coder is also looking for the presence of any Inappropriate child behaviors, and Out-of-Seat behaviors by the child and any Positive Statements from the parents toward the child. Each interval is scored for the presence or absence of these selected behaviors. An interval

recording measure is used for these codes such that a single rating of the quality of interaction is scored for the 10 second interval for the two interaction codes and a check-mark is recorded to denote the presence of any of the above behaviors for the interval.

During the second passage through the tape (Other to Child), the trained coder is to focus only on command behaviors issued by parents and directed toward the target child. An event recording measure is used such that each of the commands and the child responses are coded. The selected behaviors are fully described under the Command and Compliance subheadings. Parental Command behaviors require that one of the Compliance codes be used to score the child's behavior. These codes are scored on the coding sheet labeled Other to Child.

INSTRUCTIONS

1. Sign out a stopwatch from the psychology office in the Psychology Research Building.

2. Sign out the key to room 119 from the same office.

3. Unlock the door, leaving it slightly ajar, and return the key immediately.

4. Check the list to see which families you are responsible for coding and do only those families to which you are assigned.

5. Select the appropriate coding sheet for your viewing of the videotape and fill out the top of the sheet. Make sure that the family name, family number, and the date of taping are included on every coding sheet that you use, along with your name and today's date.

6. Select the appropriate transcription folder containing all of the family's verbalizations for that tape, or the shorter transcription containing just the commands. This will help you understand what you are hearing.

7. Turn on the videotape player, place the tape in, and locate the family that you need on the tape. You may have to go to the beginning of the tape and fast forward it family by family until you find the one that you need. Remember that each taping is about 20 minutes and thus the amount of tape used for each family is approximately the same. Watch the tape counter on the machine.

8. When you are ready to start coding, place the headphones on, start the tape, and try to concentrate on only the behaviors that you are looking for. Use the transcription sheets as an aid but remember to listen and watch carefully.

9. Remember, this is for science! It may also affect your grade. Do your best. Good luck.

GENERAL CONSIDERATIONS FOR CODING

Timing

For many of the codes, time is an important factor in determining which behavior has actually occurred. It is crucial that a stopwatch be used to accurately determine the duration between certain behaviors. When timing is needed, as described in the code, it is always measured between the offset of the first behavior and the onset of the second. For example: When a Command is issued, the target child has five seconds from the end of the command in which to respond, or a code of Non-compliance is given as the response. This five second period is measured from the end of the last word in the command to the beginning of the response.

Camera view limitations

Do not code verbalizations that are not within camera view, unless you are sure of what was said and by whom. If there is any doubt, such as a situation when two people are off-camera at the same time and you are forced to decide who spoke, do not code. Verbalizations should be coded if there is only one possible person speaking who is not in sight.

OTHER TO CHILD

I. PARENTAL BEHAVIORS (COMMANDS)

CODE ONLY COMMANDS BY PARENTS. DO NOT SCORE PARENTAL SOLICITATIONS.

General Rules for Commands:

Commands must be directive in content, i.e. direct a child's behavior. Look for action verbs to identify a command as opposed to a request for information.

Examples:

"How was your day?" (not a command)
"Tell me about your day." (example of a command)

Commands must be directed only to the target child as opposed to more than one child or the rest of the family. This is to avoid confusion about whether the target is considered as part of the group for whom the command is intended.

Exclude:
"Everyone finish your dinner." (not a command)

A command must not tell a child to do what he wants, i.e. it must direct the child in a manner which conveys the wish of the parent.

Exclude:
"Take what you want." (not a command)
"If you want it, you ask properly." (This is not a command as the child is given a choice and does not have to respond.)
"Come on." (not a command)
The word "just." (Ignore this word when it is used in a sentence containing a command. Code the command as if the word "just" were not included.)

If a command requires a motoric response, but the response is not visible due to the camera angle, then code the command and score Off-Camera (OC) for the Compliance code. (See Child Behaviors.)

A. **ALPHA COMMANDS (AC)**

These are commands, rules, questions, or suggestions to which only one specific verbal or motoric response is appropriate and feasible.

1. LABELED COMMANDS:

Must have a clearly specified objective.
Must be explicitly stated, leaving no doubt as to what the child is supposed to do, such as instructions to the child to start doing a specific thing.

Examples:
"Eat your meat."
"I want you to ..."
"I would like you to ..."
"You need to ..."
"You better ..."
"Finish eating." (The child must start eating within five seconds to comply.)
"Sit closer to the table" or "Lean closer to the table" (The child must move noticeably closer to the table.)
"Put your chair down." (The child must put the chair down so that all four legs are on the floor, or so that the child appears to be sitting on a level surface if you cannot see the chair well enough.)

Also included:
"Say when." (The child must indicate that he has received enough of the item to comply.)
"Shut up" (The child must not speak for five seconds to comply.)
"Be quiet." (The child must not speak for five seconds to comply.)
"Speak up." (The child must repeat or rephrase statement to comply.)
"Please." or "Thank you." (When stated in a command form indicating that the child should say please or thank you, the child must say "please" or "thank you" to comply.)
"Turn around." (The child must turn so that he is facing in a forward direction, i.e. facing the table.)

2. STOP COMMANDS:

Must have a stated referent to distinguish them from vague commands.
Must instruct the child to cease an ongoing behavior or not to begin a behavior that is about to take place.
Must allow the child five seconds to initiate inhibition of behavior and the child must maintain inhibition for at least five seconds to be scored as compliance.

3. QUESTION COMMANDS:

Must be prefaced by a question and involve a motoric response.
Must be scored as question commands, even if they are also stop commands.

Examples:
"Why don't you stop kicking the table?"
"Can you tell me...?"
"Shouldn't you use your fork instead of your hands?"
"Hand me the salad, will you?"

Exclude:
"What did I just tell you?" (This is not a command and is considered a request for information.)

4. GENERAL CONTINGENCY STATEMENTS:

Include Permission and Rule statements which contain contingencies and "If...then" statements.

Are contingency statements that may be warnings, or refer to positive, neutral or negative consequences, or negative events not administered by either parent, such as natural consequences. The statement must imply direction, letting the child know what the parent wants him to do.

SCORE ACCORDING TO THE RESPONSE MADE TO THE DESIRED COMMAND AND NOT TO THE CONSEQUENCE

Examples:

"If you don't stop playing with your food, I'm going to take it away."
"If you don't stop playing with your knife, you will get hurt."
"I'll be so proud of you if you finish all your dinner." (also code on the Interaction sheet as a positive statement)
"I'll be so proud of you if you stop talking now and start eating. (also code on Interaction sheet as a positive statement)
"You can either finish your dinner or not have dessert with the rest of us."
"You may sit down right now or go to your room."

Exclude:

Statements in which the child is given a choice between two or more options, but no negative consequence is stated and no change in behavior is requested. These are general statements which offer the child a choice and neither option is implied or stated to be preferable, i.e. "You may have milk or water." (This is not a command Unless the child asks for something different which the parents do not want him to have. In such a case, milk or water would clearly be the parents' preference, and would be considered a General Contingency statement. In this case the child is commanded to take either milk or water. If the child takes either of these choices, code the action as compliance. If the child insists and takes either nothing or the choice that the parent finds unacceptable, code this as non-compliance.

5. PERMISSION AND RULE STATEMENTS:

Include statements or rules that specify a behavior to be initiated or inhibited in the present with no contingency stated.

Examples:
"There will be no more eating with your hands."
"You could use a fork."
"You should not talk with your mouth full."
"You may take more bread."
"It would be nice if you ..." (as opposed to "I want you to...")

B. BETA COMMANDS (BC)

These are generally poor commands to which the child has little or no opportunity to comply.

1. VAGUE COMMANDS:

Include commands to which compliance is difficult if not impossible.
Lack an operational referent in behavior.
Are the opposite of Labeled commands.
Includes commands to which more than one response is possible.

ALL VAGUE COMMANDS ARE SCORED AS NON-COMPLIANCE (NC)

Examples:
"Be nice to your sister."
"Just be good for a while longer."
"Calm down."
"Do it right."
"Try your best."
"Think hard."
"Be careful."
"Good enough."
"Wait."
"Wait a second (or a minute)." (This is considered Vague because one can't be sure what the parent means by "wait" or know how to measure compliance.)
"Shhh."
"Sit still."
"Sit up."
"Lean up."
"Don't do that."
"Use your napkin." or "Use your fork." (Any statement commanding the child to "use" something is considered vague unless the statement is further qualified, i.e., telling the child what to use it for.)

Exclude:
"Use your napkin to wipe your face." (This is a Labeled command because it tells the child what to do with the napkin.)

Special cases:
If a pronoun is used in a command, consider the command as Vague, unless you are 95% certain that you know what the pronoun is referring to, based on the context of the situation. If you are confident that you know what the pronoun is referring to, score the command as an Alpha Command.

Examples:
"Don't use that." (The child puts his fork in the glass to stir.)
"Don't do that." (The child throws her napkin on the floor.)
"Put it down." (The child picks up his steak with his hands.)
"Eat that." (The parent points to a specific food object.)

2. CHAIN COMMANDS

A series of logically or practically related commands that are given within 5 seconds.
Each command must be a complete command by itself.
Score compliance only if all commands in the series are complied with.
If a command is issued and then complied with by the child, and then another command is issued within five seconds, score these as two separate commands even though they occurred within five seconds.

SCORE AS COMPLIANCE or NONCOMPLIANCE (C, or NC).
TIME COMPLIANCE STARTING FROM THE END OF THE LAST COMMAND ISSUED.

Examples:
"Sit down and start eating."
"Face forward and leave your sister alone."
"Instead of talking to your sister, start eating." (This is not a chain command, but is scored as a single command referring to the eating command.)

3. REPEATED COMMANDS (RC)

The parent issues the same command or similar versions of a command within five seconds.
Code as a Repeated Command whether the command is repeated once or more.
Include commands in which the child does not hear the command the first time and says "what" or "huh" in between the parental commands. Hence, any time

a command is repeated within five seconds regardless of the child's verbal responses, unless the verbal response is an act of compliance itself, the command is scored as a repeated command. In this case the second command is scored as a separate command of whatever type it would be, as it stands alone and the child would receive a Compliance score for the first command.

IF ONE OR MORE OF THE COMMANDS WITHIN A REPEATED COMMAND IS/ARE VAGUE, BUT AT LEAST ONE ALPHA COMMAND IS ALSO WITHIN THE COMMAND, THEN SCORE THE COMPLIANCE TO THE COMMAND AS IF THE COMMAND WAS AN ALPHA COMMAND AND NOT A VAGUE COMMAND. A REPEATED COMMAND IS SCORED AS A VAGUE COMMAND ONLY IF ALL OF THE COMMANDS WITHIN IT ARE VAGUE.

SCORE THE RESPONSE ACCORDING TO THE LAST TIME THE COMMAND WAS ISSUED.

Exclude:

Commands referring to past or future behavior are not scored as commands. To be considered past or future a referent must be stated or content must be such that the behavior is not meant to take place in the dinner setting. To be considered a future command, the desired behavior must be such that it cannot realistically be started within five seconds or is clearly not meant to be started within five seconds. However, if a child is instructed to cease a behavior that he has just stopped doing within the last five seconds - code the command and whether or not the child complies by continuing to not exhibit the behavior for five seconds after the command is issued.

Examples:

"Take out the garbage after dinner".
"If you had done what I told you earlier, you wouldn't have this problem."
"If you had done your work last night you would be free to play tonight."
"Be nice to your sister when we are gone."
"Eat all of your dinner." (THIS CAN BE SCORED AS A COMMAND EVEN THOUGH IT MAY BE UNLIKELY THAT THE CHILD WILL FINISH WITHIN FIVE SECONDS. IF CHILD INITIATES THE APPROPRIATE RESPONSE THEN CODE AS COMPLIANCE.)

II. **CHILD BEHAVIOR** (child responses to parental commands)

A. **COMPLIANCE (C)**

The child obeys or complies with a parental command or with a series of commands within a Chain Command, within five seconds of the completion of the command.

Any of the following qualify as compliance:
Appropriate verbalization within 5 seconds after a command requiring a verbal response.
Movement toward a specified goal object within 5 seconds.
Initiation of a specified task within 5 seconds.
Inhibition of a specified motor or verbal response for 5 seconds.

Initiation of the inhibited response must also occur within 5 seconds of the termination of the parental command to qualify as Compliance.
If the child meets the above criteria for all of the commands in a chain command, then score as Compliance.

For chain commands, start timing after the last command is issued to score as Compliance.

Also include as Compliance:
If a child is commanded but has complied before the parent finishes stating the command, score compliance at the instant that the command was completed.
If a child is commanded but the parent has just completed the task that the child was commanded to do, score compliance at the instant that the command was completed.

B. **NON-COMPLIANCE (NC)**

The child refuses to comply or does not respond to parental command within five seconds. Score in the interval in which the fifth second occurs.
If the child failure to initiate compliance within 5 seconds of the termination of the parental command, score as Non-compliance.
Also score as Non-compliance the child's failure to maintain inhibition of a prohibited response for 5 seconds.

Compliance rules for stop commands:
The Child is allowed five seconds to initiate inhibition of behavior and must maintain inhibition for at least five seconds.

Timing for Compliance:
The target child is allowed five seconds to initiate the behavior that he is commanded to do.

This five second period is measured from the end of the last word in the command. A command has ended as soon as the actual directive statement has ended and not necessarily at the end of the sentence.

Example:
"Eat your meat because I spent all day preparing this meal and don't want it going to waste;" start timing after the word "meat".

C. OFF-CAMERA (OC)

If a behavioral response is assumed to have taken place but cannot be seen due to the person being out of camera range, code as Off-Camera.

INTERACTION/INAPPROPRIATE/ POSITIVE STATEMENTS

III. INTERACTION (POSITIVE, NEUTRAL, NEGATIVE)

The general affect and quality of the interval.
If the interval contains any solicitation, command or verbal interaction - code as interaction.
A response to a solicitation or command is not needed to code an interaction.
If a family member makes a vague or general solicitation and only the child responds - code under Child and Other Interaction.
If a family member makes a vague or general solicitation and no response is given, or someone other than the child responds - code under Family Interaction. The interaction must be verbal or clear behavior acknowledging another.
Included in the definition of interaction are responses such as laughing or "um hum" or clearly shaking head as an acknowledgment.

Decision rules:

When judging the quality of the interaction, all members involved in the interaction must be considered. If one negative interaction occurs, score the interval as negative, even if another positive event occurred during the interval. However, if a parent makes a positive statement to the target child during the interval, be sure to mark its occurrence under the Positive Statements column. If any positive behavior occurs during the interval, score the interval as positive for the members involved i.e., Family, Child and Other, or both, unless a negative interaction also occurs. The passing of food, or related items, is scored as a neutral interaction if verbal interaction is included and conversation is extended beyond the request, or offer, and response. No interaction is scored if no verbal behavior is included or verbal interaction is limited to the passing itself. A "thank you," or similar praise is recorded under the Positive Statements code, but may not be a sufficient criterian for scoring the interval itself as Positive.

Family interaction:

Members must interact with family members other than the target child. If family members interact only with the target child, code as Child and Other.

Exclude:

Do not score the gestures or verbalizations of an infant or young child (defined as any child seated in a high-chair or a booster seat) unless a response is made by another family member. If a response or a solicitation is made by the target child to the infant, code as Child and Other interaction using the target child's behavior as the determinant for the quality of the interaction. If any other family member responds or solicits the infant, code as Family interaction and use the behavior of this person or persons to determine the quality of the interaction. Code separately for Child and Other and Family.

A. POSITIVE INTERACTION (+):

Includes any interaction which is clearly positive, that is an interaction in which a reasonably good tone of voice is used by both or all members involved.

Also includes laughing; defined as a person laughing aloud, pleasantly and in an agreeable manner.

B. **NEUTRAL INTERACTION (O):**
Encompasses normal table conversation with minimal positive or negative affect, in which the tone of voice used and the content of the conversation are also considered.

C. **NEGATIVE INTERACTION (-):**

Includes any interaction which is clearly negative such as: scolding, anger, exasperation or a negative tone.
Also includes any family member making fun of, humiliating, shaming or embarrassing another person. The tone of voice (nastiness or derisiveness) as well as the language used, are of prime importance in meeting the criteria for scoring an interaction.

OCCURRENCE OF ANY OF THE BEHAVIORS DEFINED UNDER THE CATEGORY OF INAPPROPRIATE CHILD BEHAVIOR.

Examples:
"You stupid kid!" (said in a derogatory fashion).
"How did you get a 90 on your test? You must have cheated!"
"Can't you do anything right?"
Laughing used as a form of put down.
"I don't care!" or "I don't care what you did." (said in angry tone)
"Stop picking at your food." (said in angry tone)

D. **INAPPROPRIATE CHILD BEHAVIOR**

The occurrence of any of the following inappropriate behaviors. Place a check in the designated column labeled Inappropriate to denote the occurrence of this type of behavior.

1. WHINING, CRYING, YELLING

Crying and yelling are self-explanatory.

Whining includes the following situations:
Child whines over minor injuries or not getting what the child wants or requests.
Child nags parent in order to get something or get something done.
Child seeks attention by whining.

2. AGGRESSION

This includes behaviors in which the child damages or destroys an object or attempts or threatens to damage an object or injure a person. The potential for damage to objects or injury to persons is the critical factor, not the actual occurrence.

Examples of aggression toward a person include: biting, kicking, slapping, hitting, or grabbing an object roughly away from another person, or threatening to do any of the preceding.

3. DEVIANT TALK

This encompasses all inappropriate child verbal behavior, including stated refusals to comply (not the act of non-compliance), even if compliance would be expected to occur at a later time. Thus, any time the child states that he will not comply with a parental command, score as inappropriate behavior.
Deviant talk also includes disrespectful (sassy) statements or gestures, profanity, and commands to parents that threaten aversive consequences.

4. HUMILIATE

When the child makes fun of, shames or embarrasses another person. The tone of voice (nastiness or derisiveness) as well as the language used, is of prime importance in meeting criteria. Derisive or inappropriate laughter can also be humiliating.

Examples:
"You dumb old grouch!" (said in a derogatory fashion)
To a sib, "How did you get a 90 on your test? You must have cheated!"
"Can't you do anything right?"
Laughing as a form of put down.

ALL OF THE ABOVE INAPPROPRIATE CHILD BEHAVIORS ARE SCORED THE SAME

E. OUT OF SEAT :

Includes any time the child stands or leaves his seat.
Also includes any time both buttocks are off the seat.

Code Out of Seat regardless of whether parental permission has been granted, and code only once in a 10 second interval.

F. POSITIVE STATEMENTS

Any statement referring to the child or the child's prior, ongoing, or future behavior that is positive in evaluation or shows approval. Any time a parent offers to do something for the child which may be seen as pleasing or positive, even if it is a future reference.
All time references are included.

A POSITIVE STATEMENT IS CODED WHETHER IT OCCURS AS A RESPONSE, SOLICITATION, OR DURING AN INTERACTION. THIS IS DONE UNDER THE CATEGORY OF "PARENT TO CHILD POSITIVE STATEMENTS." THUS, ANY TIME A PARENT OFFERS PRAISE, REWARD, OR GRATITUDE TO THE TARGET CHILD - IT IS CODED BY CHECKING THAT A POSITIVE COMMENT WAS GIVEN TO THE TARGET CHILD IN THAT INTERVAL. THIS IS AN INTERVAL MEASURE AND IS ONLY CODED ONCE PER INTERVAL REGARDLESS OF HOW MANY TIMES IT HAS OCCURRED IN THAT INTERVAL.

Examples:
(Parent) "Would you pass me the salad?"
(Child) Passes the salad
(Parent) "Thank you" (praising child for his behavior)
(Parent during ongoing interaction) "It is nice to see that you are doing better in math now." (praising child for his accomplishment)

SCORE ALL THREE OF THE FOLLOWING CATEGORIES AS POSITIVE STATEMENTS:

1. LABELED VERBAL REWARDS IN WHICH A SPECIFIC BEHAVIOR IS SPECIFIED

Examples:
"You did a nice job on that task."
"I like it when you do as you are told."
"Your teacher said that you are doing well."

2. UNLABELED VERBAL REWARDS IN WHICH THE POSITIVE BEHAVIOR IS NOT SPECIFIED

Examples:
"Thank you"
"You're welcome"
"Good"
"You are such a good kid."

"Wow!"
"Right" (stated as positive or reinforcing)

3. DESCRIPTIONS OF THE CHILD DENOTING BETTER THAN AVERAGE PERFORMANCE

Examples:
"You did that very well."
"Billy is doing well."
"You are doing a fine job."

APPENDIX C

VIDEOTAPE PROCEDURES

APPENDIX C

Instructions for Operating Videotape Equipment

1.
Remove tripod from case and set up. Make absolutely sure that all the legs are tightly secured so that it will not collapse on you.

2.
Gently remove the camera from the case and secure it to the top deck of the tripod, using the screw that is tightened by the knob underneath that deck.

3.
Remove the record/playback unit from the case. The batteries should be kept charged by the last user of the equipment and can be found in the pocket inside the case or inserted in the side of the unit. If there is any doubt as to the amount of charge on the batteries, use the power-pack for the recording. Insert either a charged battery into the side of the unit or the output cord from the power-pack into the back, under the fold-down flap. If the power pack is used make sure it is plugged in and that the on switch is pushed in.

4.
Plug the thick black cable from the camera into the side of the record/playback unit. It will only go in one way, so make sure that the marks on the cable and unit are lined up properly.

5.
Turn the power on by the switch on the upper left side of the record/playback unit.

6.
Press the eject switch just below the power switch, insert a tape and gently close the deck. The unit will automatically wind the tape a little so don't let it worry you.

7.
Do not rewind the tape. Just press the record and play buttons on the unit at the same time and it will automatically put the pause on also.

8.
Take the cap off the lens and set the focus on the lens. This is done by zooming in on an object, as close as the lens will allow, and turning the outer front ring around the lens until the object appears as sharp as possible. Select an object near the center of the table to focus on so that you achieve an average focus for the whole family. Then zoom back to widen the shot until the entire family is included.

9.
When the family is seated and ready to begin eating, acknowledge that you are ready to begin. Tell the family that you would like to tape them for 20 minutes or until they are done eating and that you would like them to try to behave as they normally would. Do your best to be as unobtrusive as possible.

10.
Start taping and look at the time on your watch so that you know when 20 minutes is up. There is a counter on the recorder which will give you the exact time of the recording. If the family is almost done eating at 20 minutes or finishes a little early, you may record them as they sit and talk or start to clean up. It never hurts to get extra data!

11.
After 20 minutes, press the stop button on the recorder and inform the family that you are done taping. Thank them for their cooperation and begin dissassembling the equipment.

12.
Place the equipment back in its appropriate place in the case.

13.
Put the tape back in its case making sure you have first put the name of the family and the date of testing on the tape.

14.
Thank the family again before you leave.

15.
Say good-bye and leave!

The Hitachi Equipment

1.
Remove camera from case.

2.
Remove tripod adapter, lengthen, and lock the silver lever on the side.

3.
Line the tripod adapter up on the bottom of the camera, with the contact points properly together, and tighten.

4.
Screw the camera on to the tripod by tightening the lower knob first and then the upper one.

5.
Remove the handle and attach to the front of the tripod adapter.

6.
Remove viewer and screw on to the top of the camera.

7.
Line up the cable from the viewer with the "VF" input on the back of the camera. This is done by making sure that the cable is facing up and then carefully inserting the delicate contacts into the "VF" input.

8.
Remove the microphone and attach to the right side of the camera. This is done by lining up the plastic guide and screwing the microphone on to the camera.

9.
Plug the microphone cable into the "mic" input on the back of the camera.

10.
Make sure that all the switches are set properly on the camera. The "white balance" should be all the way to the right. The "display" switch should be on off.
The "pwr" switch should be on normal.

11.
Follow the rest of the procedure on page one.

WHAT TO SAY WHEN VIDEOTAPING FAMILIES AT DINNERTIME

When they come to the door, introduce yourselves, and say that you're there to do the videotaping as previously arranged. Tell them that you need a few minutes to set up the equipment and ask where you might do that so as to get the best possible view of everyone. Remind them that the actual taping will take 20 minutes and that they should simply act as if you were not there, as much as possible. If they try to engage you in conversation during the taping politely say, "Please just try to act as if we were not here." If they try to talk about problems the family or children are having, politely tell them that Dr. Horn does not want the videotape people to hear anything about such problems but that they may call Dr. Horn if they so desire. The family will already have been told that you are only there to videotape. Under no circumstances accept an offer of anything to eat. Politely thank them and say that you ate before you came (it might be a good idea if you actually did this). When the 20 minutes are up quietly dismantle the equipment, thank them for allowing you to come, and leave. Do not stand around talking to the family when you are done. Remember at all times that you are representatives of the MSU Psychological Clinic and the Child Behavior Project. Dress neatly (no jeans or sweatshirts). Do not swear or spit on the carpet, and all will go well.

SOUND ON SOUND

The purpose of this procedure is to create a new videotape containing the original audio and video tracks from the family observation tape, in conjuction with the audio interval track from the cassette deck. This can only be done with the use of the Beta Hifi Toshiba unit. The Sony unit will serve as the playback unit while the Toshiba will record. The video and audio portions of the playback tape will be separated. The video portion of the family tape will be plugged into the video input on the Toshiba. The audio portion will be plugged into either the left or the right audio input. The output from the cassette deck will be plugged into the other audio input on the Toshiba. The Toshiba will be set-up to blend the two sound tracks so that both audio signals will be placed on both audio tracks of the new tape.

INSTRUCTIONS

Use only the left output of the cassette deck to run into the Toshiba audio input.

Turn on the tape deck, Toshiba, T.V., and the Sony Beta unit, including the power supply.

Make sure that the "VCR" light is lit on the Toshiba.

Make sure the Toshiba is switched to Beta III.

Put the original tape in the Sony unit.

Put the blank tape into the Toshiba.

Reset the counters on the cassette deck and the Sony.

Push "Record" then wait about one second and push the "Pause" button on the Toshiba.

Push the "Pause" then the "Play" buttons on the Sony.

Determine where the voice track on the cassette tape actually starts. Set it so that you know when the voice will start in order to match it properly with the beginning of the video tape.

Push the "Play" button on the cassette deck.

Release the pause buttons on both the Toshiba and the Sony at the same time.

Each family on the tape will last about 20 minutes. Make sure that you are watching to see when the family taping is finished.

Stop the Toshiba first by using the "Pause" button.

APPENDIX D

CODING SHEETS

APPENDIX D

CODING SHEET

1

INTERACTION/INAPPROPRIATE/POSITIVE

TAPE #_____ FAMILY____________________ #_____ DATE OF TAPING_______________

CODER - NAME________________________ DATE_____________ TIME_________________

INTERVAL	INTERACTION CHILD & OTHER	FAMILY	INAPPROPRIATE INAPPROPRIATE	OUT OF SEAT	SELF-STIM	POSITIVE STATEMENTS 0 to C POS STATEMENTS

CODING SHEET

2
OTHER TO CHILD

TAPE #_____ FAMILY____________________ #_____ DATE OF TAPING__________

CODER - NAME____________________ DATE__________ TIME__________

COMMAND INTERVAL	PERSON	COMPLIANCE

APPENDIX E

INSTRUMENTS

APPENDIX E

PERSONALITY INVENTORY FOR CHILDREN

REVISED FORMAT ADMINISTRATION BOOKLET

by ROBERT D. WIRT, Ph.D.
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Revision by DAVID LACHAR, Ph.D.

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Los Angeles, California 90025

This inventory consists of statements about children and family relationships.

DIRECTIONS: FIRST FILL IN THE INFORMATION REQUESTED ON THE ANSWER SHEET. TO ASSIST YOU IN FILLING IN THIS INFORMATION LOOK AT THE THE EXAMPLE OF A COMPLETED ANSWER SHEET ON THE FOLLOWING PAGE.

AFTER FILLING IN THE INFORMATION REQUESTED ON THE ANSWER SHEET, READ EACH OF THE STATEMENTS IN THIS BOOKLET AND DECIDE WHETHER IT IS *TRUE* OR *FALSE* AS APPLIED TO THE CHILD.

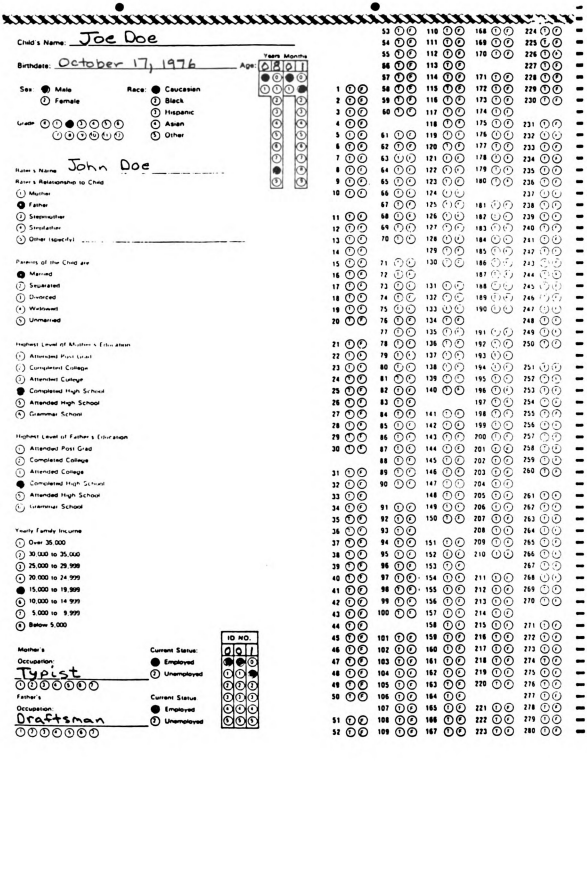
LOOK AT THE EXAMPLE OF THE ANSWER SHEET SHOWN AT THE RIGHT. IN THE EXAMPLE THE PARENT DECIDED THAT STATEMENT 25 WAS TRUE AS APPLIED TO THE CHILD AND STATEMENT 26 WAS FALSE AS APPLIED TO THE CHILD.

Section of answer sheet correctly marked

	T	F
25	●	ⓕ
26	ⓣ	●

IF A STATEMENT IS *TRUE* OR *MOSTLY TRUE*, AS APPLIED TO YOUR CHILD, USE A PENCIL TO BLACKEN THE CIRCLE LABELED T (SEE 25 IN THE EXAMPLE). IF A STATEMENT IS *FALSE* OR *NOT USUALLY TRUE*, AS APPLIED TO YOUR CHILD, BLACKEN THE CIRCLE LABELED F (SEE 26 IN THE EXAMPLE).

IN MARKING YOUR ANSWERS ON THE ANSWER SHEET, *BE SURE THAT THE NUMBER OF THE STATEMENT AGREES WITH THE NUMBER ON THE ANSWER SHEET*. MAKE YOUR MARKS HEAVY AND BLACK. ERASE COMPLETELY ANY ANSWER YOU WISH TO CHANGE. DO NOT MAKE ANY MARKS ON THIS BOOKLET.


Child's Name: Joe Doe
Birthdate: October 17, 1976
Years Months
Age: 0 2 0 1
Sex: Male / Female
Race: Caucasian / Black / Hispanic / Asian / Other
Grade:
Rater's Name: John Doe
Rater's Relationship to Child
Mother
Father
Stepmother
Stepfather
Other (specify)
Parents of the Child are
Married
Separated
Divorced
Widowed
Unmarried
Highest Level of Mother's Education
Attended Post Grad
Completed College
Attended College
Completed High School
Attended High School
Grammar School
Highest Level of Father's Education
Attended Post Grad
Completed College
Attended College
Completed High School
Attended High School
Grammar School
Yearly Family Income
Over 35,000
30,000 to 35,000
25,000 to 29,999
20,000 to 24,999
15,000 to 19,999
10,000 to 14,999
5,000 to 9,999
Below 5,000
ID NO.
Mother's Occupation:
Typist
Current Status: Employed / Unemployed
Father's Occupation:
Draftsman
Current Status: Employed / Unemployed

DO NOT MAKE ANY MARKS ON THIS BOOKLET

PART I

1. My child often plays with a group of children.
2. My child hardly ever smiles.
3. Other children often get mad at my child.
4. My child worries about things that usually only adults worry about.
5. My child has many friends.
6. My child seems average or above average in intelligence.
7. My child's manners sometimes embarrass me.
8. My child has a good sense of humor.
9. My child sometimes sees things that aren't there.
10. My child is worried about sin.
11. Other children don't seem to listen to or notice my child much.
12. My child sometimes undresses outside.
13. My child has little self-confidence.
14. I often wish my child would be more friendly.
15. My child can comb his (her) own hair.
16. My child is usually rejected by other children.
17. My child seems to enjoy destroying things.
18. Now and then my child writes letters to friends.
19. Thunder and lightning bother my child.
20. The school says my child needs help in getting along with other children.
21. My child often asks if I love him (her).
22. Other children look up to my child as a leader.
23. My child could ride a tricycle by age five years.
24. My child sometimes gets angry.
25. My child frequently complains of being hot even on cold days.
26. My child's behavior often makes others angry.
27. Recently my child has complained of eye trouble.
28. Others think my child is talented.
29. My child frequently has gas on the stomach (sour stomach).
30. My child is good at lying his (her) way out of trouble.
31. My child often cheats other children in deals.
32. My child is good at leading games and things.
33. At one time my child had speech difficulties.
34. Pestering others is a problem with my child.
35. My child can cut things with scissors as well as can others of his (her) age.
36. My child doesn't seem to care to be with others.
37. My child has difficulty doing things with his (her) hands.
38. Others think my child is mean.
39. My child seems to know everyone in the neighborhood.
40. My child would never take advantage of others.
41. My child can be left home alone without danger.
42. My child jumps from one thing to another.
43. My child has been in trouble for attacking others.
44. My child seems too serious minded.
45. My child has more friends than most children.
46. When my child gets mad, watch out.
47. My child really has no real friend.
48. My child is as happy as ever.
49. My child often complains that others don't understand him (her).

GO ON TO THE NEXT PAGE

50. My child has very few friends.
51. My child likes to play active games and sports.
52. Sometimes I worry about my child's lack of concern for others' feelings.
53. Often my child is afraid of little things.
54. My child tends to see how much he (she) can get away with.
55. My child almost never argues.
56. My child often disobeys me.
57. My child likes to show off.
58. Others have said my child has a lot of "personality."
59. My child goes to bed on time without complaining.
60. My child likes to "boss" others around.
61. Reading has been a problem for my child.
62. A scolding is enough to make my child behave.
63. My child sometimes disobeys his (her) parents.
64. My child is in a special class in school (for slow learners).
65. My child usually plays alone.
66. My child sometimes eats too many sweets.
67. My child often brings friends home.
68. My child learned to count things by age six years.
69. My child could print his (her) first name by age six years.
70. My child doesn't seem to learn from mistakes.
71. My child can't seem to wait for things like other children do.
72. My child always does his (her) homework on time.
73. My child is usually a leader in groups.
74. Sometimes my child lies to avoid embarrassment or punishment.
75. Other children make fun of my child's different ideas.
76. Sometimes my child's muscles twitch.
77. My child worries about talking to others.
78. My child first talked before he (she) was two years old.
79. School teachers complain that my child can't sit still.
80. My child has some bad habits.
81. Several times my child has spoken of a lump in his (her) throat.
82. My child frequently has nightmares.
83. My child almost never acts selfishly.
84. My child is usually in good spirits.
85. My child seems fearful of blood.
86. My child seems more clumsy than other children his (her) age.
87. My child will do anything on a dare.
88. My child sometimes becomes envious of the possessions or good fortune of others.
89. Shyness is my child's biggest trouble.
90. Usually my child gets along well with others.
91. My child gets lost easily.
92. My child often has headaches.
93. My child seems to get along with everyone.
94. My child is easily embarrassed.
95. My child is very popular with other children.
96. My child gets confused easily.
97. My child is almost always smiling.
98. My child loses most friends because of his (or her) temper.
99. My child is shy with children his (her) own age.
100. My child was difficult to toilet train.
101. My child wants a lot of attention when sick.

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102. My child can count change when buying something.

103. My child can tell the time fairly well.

104. Many times my child has become violent.

105. My child can take a bath by *him (her) self*.

106. Recently my child has complained of chest pains.

107. There is seldom a need to correct or criticize my child.

108. My child has as much pep and energy as most children.

109. Recently the school has sent home notes about my child's bad behavior.

110. Sometimes my child will put off doing a chore.

111. My child often talks about death.

112. My child has been difficult to manage.

113. Sometimes my child's room is messy.

114. My child is usually afraid to meet new people.

115. My child almost never needs punishing or scolding.

116. My child could eat with a fork before age four years.

117. Often my child complains of blurring (blurred vision).

118. My child needs protection from everyday dangers.

119. My child respects the property of others.

120. Frequently my child will put his (her) hands over his (her) ears.

121. Everything has to be perfect or my child isn't satisfied.

122. Spanking doesn't seem to affect my child.

123. My child talks a lot about his (her) size or weight.

124. My child often will cry for no apparent reason.

125. My child will worry a lot before starting something new.

126. My child usually looks at the bright side of things.

127. My child often has crying spells.

128. Sometimes my child gets hot all over without reason.

129. My child seems tired most of the time.

130. Others have remarked how smart my child is.

131. My child takes illness harder than most children.

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(unless instructed to stop at the end of Part I)

PART II

132. My child tends to pity him (her) self.
133. Others always listen when my child speaks.
134. Several times my child had complaints, but the doctor could find nothing wrong.
135. I often wonder if my child is lonely.
136. Usually my child takes things in stride.
137. My child is likely to take remarks the wrong way.
138. Little things upset my child.
139. My child keeps thoughts to him (her) self.
140. It has been a long time since our family has gone out together.
141. My child has never mentioned his (her) heart racing or pounding.
142. My child has usually been a quiet child.
143. At times my child has seriously hurt others.
144. My child has never had cramps in the legs.
145. At times my child yells out for no reason.
146. My child is liable to scream if disturbed.
147. My child has no special talents.
148. Our family seems to enjoy each other more than most families.
149. My child broods some.
150. My child could do better in school if he (she) tried.
151. My child never liked to be cuddled.
152. Our marriage has been very unstable (shaky).
153. The child's father seems jealous of the child.
154. I am afraid my child might be going insane.
155. My child seldom talks about sickness.
156. My child has had convulsions.
157. My child often gets up at night.
158. Most of my child's friends are younger than he (she) is.
159. There is a lot of swearing at our house.
160. My child never takes the lead in things.
161. My child takes criticism easily.
162. My child sometimes swears at me.
163. My child is not worried about disease.
164. My child seems bored with school.
165. The child's parents are now separated or divorced.
166. My child gets exhausted so easily.
167. I can't get my child to do his (her) school lessons.
168. My child stays close to me when we go out.
169. Often my child goes about wringing his (her) hands.
170. The child's parents have broken up their marriage several times.
171. Sometimes my child runs errands for me.
172. It is not too unlikely that my child will stay in the house for days at a time.
173. My child has had brief periods of time when he (she) seems unaware of everything that is going on.
174. My child has never had face twitchings.
175. My child usually runs rather than walks.
176. My child is different from most children.
177. My child is afraid of dying.
178. My child believes in God.
179. My child doesn't seem to care for fun.
180. Often my child will sleep most of the day on a holiday.
181. My child often stays in his (her) room for hours.
182. My child has never had any paralysis.

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183. My child seldom breaks rules.

184. How to raise the child has never been a problem at our house.

185. Several times my child has threatened to kill him (her) self.

186. My child usually doesn't trust others.

187. My child has many friends of the opposite sex.

188. My child seems unhappy about our home life.

189. Others often remark how moody my child is.

190. The trouble with my child is a "chip on the shoulder."

191. Nothing seems to scare my child.

192. My child doesn't seem to be interested in practical things.

193. My child can't seem to keep attention on anything.

194. The child's parents are not active in community affairs.

195. My child tends to swallow food without chewing it.

196. My child loves to stay overnight at a friend's house.

197. School has been easy for my child.

198. My child can't sit still in school because of nervousness.

199. I do not approve of most of my child's friends.

200. Constipation has never been a problem for my child.

201. My child is often restless.

202. Several times my child has been in trouble for stealing.

203. My child seldom complains of stomachaches.

204. My child has never failed a grade in school.

205. My child is afraid of strangers.

206. The child's parents can't seem to live within their income.

207. My child loves to work with numbers.

208. My child has never been in trouble with the police.

209. My child seldom visits a doctor.

210. My child's favorite stories are fairy tales or nursery rhymes.

211. The child's father doesn't understand the child.

212. Dizzy spells are no problem with my child.

213. The child's father drinks too much.

214. My child tends to brag.

215. My child would rather be with adults than with children his (her) own age.

216. My child tends to be pretty stubborn.

217. My child seldom talks.

218. Our whole family seldom gets to eat together.

219. Reading is my child's favorite pastime.

220. The child's father usually makes the important decisions at our house.

221. "Bad days" are frequent with my child.

222. My child insists on keeping the light on while sleeping.

223. My child seems to prefer adults to children.

224. My child is dependent on others.

225. My child gets common colds more often than most children.

226. The child's parents disagree a lot about rearing the child.

227. Often my child locks himself (herself) in the bedroom.

228. Often my child will laugh for no apparent reason.

229. My child sometimes skips school.

230. My child is not as strong as most children.

231. Others have remarked how self-confident my child is in a group.

232. Others often remark how sensible my child is.

233. My child seems to understand everything that is said.

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234. Sometimes the child's father will go away for days after an argument.

235. Money seems to be my child's biggest interest.

236. I have often found my child playing in the toilet.

237. The child's father sometimes gets drunk and mean.

238. My child is a healthy child.

239. My child thinks others are plotting against him (or her).

240. Usually my child plays inside.

241. The child's father seldom misses work.

242. Often my child takes walks alone.

243. The child's parents have set firm rules that must be obeyed.

244. Often my child will wander about aimlessly.

245. Several times my child has threatened to run away.

246. At times my child has difficulty breathing.

247. There is always a lot of argument at our dinner table.

248. My child plays with friends who are often in trouble.

249. My child seldom has nose bleeds.

250. My child has never been expelled from school.

251. My child whines a lot.

252. My child has never run away from home.

253. My child shows unusual talent.

254. Speaking up is no problem for my child.

255. I had an especially difficult time with temper tantrums in my child at an early age.

256. Sharing things has been no problem for my child.

257. The child's parents always discuss important matters before making a decision.

258. My child smokes at home.

259. The child's father frequently "blows up" at the child.

260. My child is shy with adults.

261. I have heard that my child drinks alcohol.

262. My child is rather absent-minded.

263. My child is afraid of the dark.

264. My child boasts about being sent to the principal in school.

265. My child never has fainting spells.

266. The child's father is too strict with the child.

267. My child will never clean his (or her) room.

268. My child is able to keep out of everyday dangers.

269. Most of my child's time is taken up watching television.

270. Frequently my child has a high fever.

271. The child's father is hardly ever home.

272. Sometimes I don't understand what my child means.

273. My child is exceptionally neat and clean.

274. My child speaks of him (her) self as stupid or dumb.

275. There is a lot of tension in our home.

276. Several times my child has threatened to kill others.

277. The child's father spends very little time with the child.

278. My child seldom has back pains.

279. The child's father has very little patience with the child.

280. The child's parents frequently quarrel.

GO ON TO THE NEXT PAGE
(unless instructed to stop at the end of Part II)

Instructions: Below is a list of items concerning children's behavior or the problems they sometimes have. Please read each item carefully. After you have done so please fill in one of the numbered spaces to the right that best describes how much you think your child has been bothered by this problem during the past month. Mark ONLY ONE numbered space for each item and do not skip any items. DO NOT USE A BALLPOINT PEN. If you change your mind, erase your first mark completely. Please do not make any extra marks on the sheet. Please read the example before beginning.

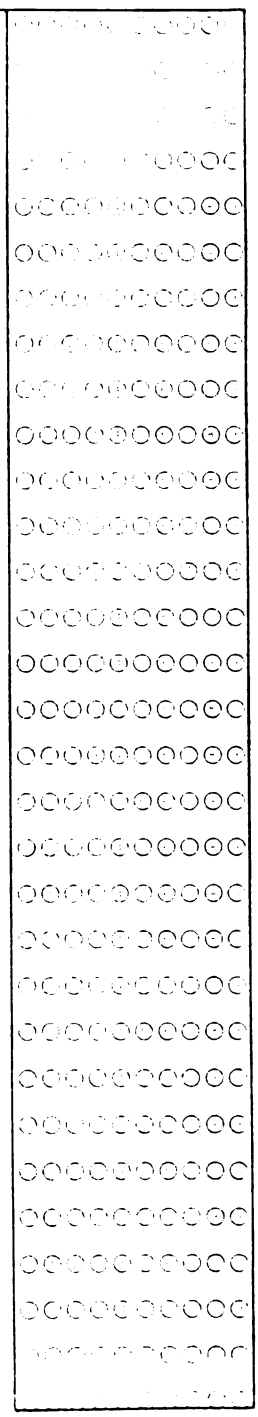
Definition of the Four Scale Points:

0....NOT AT ALL
1....JUST A LITTLE
2....PRETTY MUCH
3....VERY MUCH

Example: Doesn't clean up his/her room.....

By filling in space 1, this person answered that his/her child doesn't clean up his/her room "just a little."

1. Disturbs other children.....
2. Restless or overactive.....
3. Has temper outbursts, explosive and unpredictable..... behavior.
4. Inattentive, easily distracted.....
5. Constantly fidgeting; restless in the "squirmy" sense.....
6. Excitable, impulsive.....
7. Demands must be met immediately; easily frustrated.....
8. Cries often and easily.....
9. Fails to finish things he/she starts; short..... attention span.
10. Mood changes quickly and drastically.....



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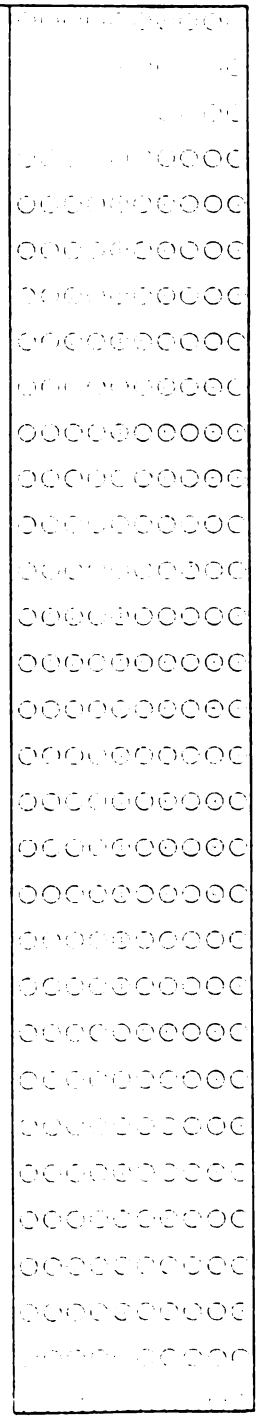

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