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THE COGNITIVE AND EMOTIONAL CORRELATES OF NEGLECT
IN SCHOOL AGE CHILDREN

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Merrie M. Elisens, M.A.

Denton, Texas

August, 1997

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The purpose of this study was to examine the cognitive and emotional functioning of neglected, physically abused, and clinical control children between six and thirteen years of age who were referred for testing at the Dallas Child Guidance Clinic. Neglected and physically abused children had been identified as such by local DHS authorities. An object relations theoretical framework was utilized to develop hypotheses regarding the effects of neglect on children's functioning. The expectations that neglected children would be less cognitively capable in terms of abstract reasoning and perceptual interest and processing of their environment were supported by the findings, using WISC-R and WISC-III Similarities and Picture Completion subscales. Predictions that they would differ on Rorschach measures of conventionality of object perception, reality testing, information processing style, efficiency of processing, imagination, and ability to modulate affect were not supported. Interrater reliabilities for all Rorschach raw scores were above .84 except for CF (.71). Exploratory findings suggested that compared to Exner's normative data, all three clinical samples shared an avoidant information-processing style (high Rorschach Lambda) and restricted affective expression (low Rorschach Affective Ratio and Weighted Sum of Color) which were related to histories of deprivation (Neglect), trauma (Physical Abuse), or DSM-IV diagnoses such as depression (Clinical Controls). Children in the

neglected and clinical control groups were significantly less emotionally reactive than physically abused children (Affective Ratio). The neglected group appeared to have significantly more affective resources than physically abused or clinical control children.

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CHAPTER 1

INTRODUCTION

Child neglect has been recognized as a social problem since the early twentieth century, but only in the last decade has the scientific literature begun to reflect interest in neglect as a problem separate from child abuse (Paget, Philp, & Abramczyk, 1993). Much of the research continues to focus on "maltreatment" as a general phenomenon, including physical, sexual, and emotional abuse as well as neglect in children. Despite the fact that reported numbers of neglected children far exceed those of physically abused and sexually abused children, the primary focus of practitioners and researchers has been on the latter two forms of maltreatment. Thus, this study was designed to elucidate the problems typically found in this doubly neglected population (by caretakers as well as researchers). The focus was on the cognitive and socio-emotional functioning of neglected children.

Research on neglected populations has been characterized by conceptual, definitional, and operational difficulties. Neglect is difficult to define. It is even more difficult to obtain homogeneous populations of neglected children for study. The purpose of this section is to provide basic information about definitions, typologies, the research literature on neglect, and theories which may be applied to the phenomenon.

Neglect has been defined in numerous ways, from the simple and narrow definition given by Zuravin (1989, cited in Paget, et al., 1993, p. 130): "omissions on the part of the child's primary caretaker that ... places a child at risk for obvious immediate or near-immediate negative consequences... or actually results in negative consequences," to broadly inclusive ones such as Dubowitz, Black, Starr, and Zuravin's (1993) definition which considered any failure to meet a child's needs as neglect. Neglect is a complex and multi-faceted problem, and it has been differently addressed by professionals and policy makers who have focused on the problems associated with neglect from their own professional perspectives. Thus the U.S. Department of Health and Human Services (DHHS; 1988) operationally defines neglect as follows:

Physical neglect includes refusal of or delay in seeking health care, abandonment, expulsion from home or not allowing a runaway to return home, and inadequate supervision. Educational neglect includes permission of chronic truancy, failure to enroll a child of mandatory school age, and inattention to a special educational need. Emotional neglect includes such actions as chronic or extreme spouse abuse in the child's presence, permission of drug or alcohol abuse by the child, and refusal or failure to provide needed psychological care.

Public Law 93-247, and its subsequently amended definition provide the legal basis for DHHS policy:

The term "child abuse and neglect" means the physical or mental injury, sexual abuse or exploitation, negligent treatment, or maltreatment of a child by a person who is responsible for the child's welfare, under circumstances which

indicate that the child's health or welfare is harmed or threatened thereby, as determined by the Secretary. (above)

This study examined neglect as it was operationally defined by Child Protective Services in Texas: "danger to a child's physical health or safety caused by an act or failure to act by the person entitled to possession of the child" (1995, Peggy Nichols, pers. comm. CPS investigative supervisor). Although this definition has significant limitations (to be discussed below), it ensured that an independent agency had identified the child as neglected. It is helpful to examine the range of definitions which have been put forth, in order to gain an overall perspective on the phenomenon of neglect.

A broader definition of neglect was proposed by Dubowitz, Black, Starr, and Zuravin (1993). They contended that a narrow focus on the omissions of parental care failed to ensure adequate care of children, and that neglect should be considered "when basic needs of children are not met, regardless of cause" (p.12, emphasis in original). The broader definition was intended to acknowledge the multiple factors contributing to neglect, including parents, families, communities, and society. They also noted the importance of viewing neglect as existing on a continuum from optimal to extremely harmful conditions for children. They viewed neglect as heterogeneous in type, severity, and chronicity. The broader definition is most useful in attempting to define an optimal environment for children's development and in educating society regarding its failure to provide even an adequate environment for many of its children. For obvious reasons, it is not a feasible definition for the Child Welfare system or for purposes of recruiting neglected children for research.

Neglect is a multi-faceted phenomenon which encompasses many different failures of parental care, resulting from different causes. Researchers have attempted to conceptualize neglect according to various typologies to address the diverse behavioral patterns and consequences which are associated with child neglect. For example, neglect occurs when meals, clothing, and a safe place to sleep are not provided on a regular basis (physical neglect), as well as when a preschool child is permitted to play in a street unsupervised (supervisory neglect). The consequences may be quite different, as in the examples just given. These typologies generally focus on subtypes of neglect such as physical, supervisory, emotional, medical, or educational neglect.

In one example, Hegar and Yungman (1989) proposed a typology which included:

- 1) physical neglect (deprivation of basic necessities such as food, clothing, shelter, and hygiene);
- 2) developmental neglect (deprivation of experiences children need for growth and development, including supervision and services or care to promote education, health, and mental health);
- and 3) emotional neglect, which included general emotional neglect (parental failure to meet children's needs for attention, security, or self-esteem, and emotional nurture), and nonorganic failure to thrive. Nonorganic failure to thrive is a particular category of neglect in which the primary caretaker (generally the mother) either fails to feed the infant properly or fails to give him/her the emotional stimulation (holding, cuddling, talking, smiling) needed for growth. Emotional neglect, in their typology, included abandonment. Other typologies have sought to recognize other parameters which may influence the consequences of neglect. These include, among others, a differentiation between failure to provide care and delay in provision of care,

and consideration of variables such as the child's age and frequency and chronicity of neglectful behaviors (Zuravin, 1989, quoted in Paget, et al., 1993).

The wide variation in these typologies is indicative of the lack of consensus among researchers and clinicians regarding what constitutes neglect and how it is most usefully conceptualized. To some extent this reflects the relatively recent attention given by researchers to neglect as a separate and important category of child maltreatment. However, it probably also reflects the fact that neglect is a term which encompasses many different kinds of failures of parental care which frequently co-occur within families. Thus despite the fact that the different types of neglect may be differential in their effects, in practice it is almost never possible to isolate groups for study in which single types of neglect have occurred.

For this reason, samples of neglected children are likely to be much more heterogeneous than groups, for example, of physically abused children. However, because of the importance and the scarcity of research on the functioning of neglected children, this study defined neglect as it was defined by Child Protective Services in Texas (see definition above), despite its limitations. This rather narrow definition focuses on physical, medical, or supervisory neglect, and its operational interpretation may be subject to some variability from caseworker to caseworker. It also suffers from the criticism that at times, only one type of parental malfunctioning (abuse or neglect) may be documented for a given case, even though both may be present. It also combines subtypes of neglect. This definition has the advantage, however, of case designation by an agency legally charged with the task of identifying maltreated children, who would

otherwise be difficult to recruit. In addition, it strengthens the external validity of the study.

Significance of the Problem

Many researchers have urged redefinition of neglect to focus on the provision of children's basic needs rather than on parental inadequacy (Dubowitz, Black, Starr, & Zuravin, 1993; Helfer, 1990; and Hewlett, 1991). Helfer (1990) delineated seven "social selection policies" of our society which he believed created more neglected children than all other causes combined. These were: 1) funding of public education based on local property taxes; 2) failure to mandate that all children of drug/alcohol addicted parents be evaluated and provided a nurturing environment; 3) a medical care system which is tied to the workforce; 4) access to abortion based on ability to pay; 5) limited funding of Child Welfare resulting in limited, if any services for neglecting families in most areas; 6) lack of provision for housing of large numbers of families (homelessness); and 7) the failure of the court system to adequately ensure for provision of children's needs in cases of divorce.

The second National Incidence Study (NIS-2) in the United States of child abuse and neglect (U.S. Department of Health and Human Services, 1988) found that 9.1 children in every 1000 either were at risk of harm or had been harmed by physical neglect. The numbers for educational neglect and emotional neglect were 4.6 and 3.5 per 1000 respectively. According to the study, approximately 63% of children referred to Child Welfare and other agencies for child maltreatment were neglected.

Jones and McCurdy (1992), in a further analysis of the demographic characteristics of the NIS-2 maltreated children, noted that physical neglect was fairly evenly distributed among male and female children (51.5 and 48% respectively). They found that 43.6% of physically neglected children were white, while 36.8% were black and 17.1% were classified as "other". Other characteristics of physically neglecting families were: 1) 65% had an income of less than \$15,000 (with 24.8% of unknown income); 2) 43% were receiving Aid to Families with Dependent Children (AFDC), while 30% were not; 3) 29% of households were composed of two parents, with 37.3% headed by a female and 3.2% by a male; and 4) 20.1% of families had one child, 27.1% had two, 20.8% had three, and 23.9% had four or more children. They concluded that the physically neglected group differed from the other groups (physical abuse, sexual abuse, and emotional maltreatment) in several important ways: it contained the youngest victims (33% under three years), the largest percentage of blacks (36.8%), the youngest mothers (only 16% over 34), and the lowest incomes. As a result of their analysis, they concluded that neglect was primarily a problem of economics, and that minority status was not a determining factor.

Hewlett (1991) quoted alarming statistics related to children in the United States, noting that: 20% of children live in poverty; 330,000 children are homeless; adolescent suicide rates have tripled since 1960; 42% of fathers fail to see their children after divorce; 27% of teen-agers drop out of high school; and our infant mortality rate is much higher than that of other affluent countries (p. 14). She pointed out that Great Britain, France, Sweden, and Canada spend two or three times as much as the United States on

families with children, and that in 1987, less than 5% of the U.S. federal budget was spent on children compared to about 23% spent on the elderly. This "resource deficit" as she labeled it, is paired with a "time deficit" as well, as more mothers of young children are forced into the full-time work force as a result either of the pressures of spiraling costs on the family income or of divorce. She linked the increased parental absence to lack of attention to and encouragement of children's education as well as lack of needed supervision and training. She noted, however, that blame for the situation resided with global competitive pressures on employers and their employees, falling wages, deteriorating social supports, absentee fathers, and government and business policies hostile to families rather than on women with young children who work. Clearly, American children are suffering extensively from neglect which is being largely ignored both by those responsible for children's welfare and by researchers.

Overview of Literature

A brief overview of the literature on neglect will be presented as a prelude to the description of the focus of this research. Several recent reviews are available which include information about research on neglect (Ammerman, Cassisi, Hersen, & Van Hasselt, 1986; Crouch & Milner, 1993; Gelardo & Sanford, 1987; Paget, Philp, & Abramczyk, 1993). The Paget, et al. (1993) review will be highlighted in this section because it is not only the most recent, but also the most comprehensive one. Paget et al. (1993), in their review of the neglect literature, identified seven basic areas which had been explored by researchers, four of which are relevant to this study. They can be described as follows: a) sociodemographic correlates; b) parental characteristics; c)

parent-child interactions; d) effects on children's functioning. Their conclusions in these categories will be summarized below, with the exception of the effects on children's functioning, which will be described in detail in the next section.

Conclusions regarding the sociodemographic correlates of neglect are difficult to draw, according to Paget et al. (1993), due to extensive methodological problems. Some of the factors which have been associated with neglect are: material level of living; household crowding; low income, single family dwellings; numerous vacant houses in the neighborhood; number of unplanned pregnancies; and family history of alcohol abuse (especially among Native Americans). The strength of these conclusions is attenuated by methodological problems such as variation in data collection procedures; variation in criteria used to define neglect; failure to note co-occurrences of abuse with neglect; and failure to include upper-middle and upper class families.

Research on characteristics of neglecting parents has also been hampered by methodological problems, such as heterogeneity of samples, small sample sizes, and lack of cross-validation of self-report information. Paget et al.'s (1993) conclusions regarding this factor were that neglecting parents: a) report fewer behavior problems in their children relative to abusive parents; b) have similar problem-solving deficiencies to those of abusive parents; c) were less involved in informal helping networks and less socially participative (mothers) than non-neglecting mothers; d) chronically neglecting families had larger numbers of children and a greater multiplicity of problems than nonchronically neglecting families; and e) nonchronically neglecting families tend to live further from

other family members and experienced more injury and/or illness in the past three years compared to chronically neglecting or unconfirmed neglecting families.

Parent-child interactions in neglecting families have been studied utilizing primarily two theoretical perspectives, social learning theory and attachment theory. Findings, according to Paget, et al. (1993) can be summarized as follows: a) neglect is associated with an anxious/avoidant attachment style, with neglecting mothers being unresponsive; b) neglecting mothers score lowest on measures of overall sensitivity, and appear more withdrawn and uninvolved compared to control mothers, though not significantly different from abusive or retarded mothers; c) neglecting mothers speak less, use shorter and less complete utterances, more direct imperatives and fewer phrases conveying acceptance than either abusive or control mothers; d) neglected children tend to be passive, rated on a scale of difficult, passive, or cooperative; and e) neglected children tend to show low rates of positive social behavior, less verbal and nonverbal interaction, and high rates of physical aggression.

Focus of this Research

The focus of this research was on correlates of neglect and children's functioning. Since only one study has utilized a prospective design (Egeland, 1993; Egeland, Sroufe, & Erickson, 1983), and this study also was retrospective, causal inferences cannot be made regarding whether the characteristics of neglected children can be attributed to the neglect they have experienced. Thus this research examined cognitive and socio-emotional correlates, rather than effects, of neglect in children.

The purpose of this study was to utilize a psychoanalytic, object relations theoretical framework to study aspects of children's abilities to think, solve problems, and abstract principles from their experiences. It also looked at children's abilities to fantasize, and at their perceptions of things and people in their environment. Neglected children were compared to both physically abused children as well as clinical control children.

Early research utilized "maltreated" children as subjects, often including physically abused, neglected, and sexually abused children in general groupings. Later research has shown these groups to be etiologically distinct as well as differential in their consequences for children. This study utilized groups of children in whom only one type of maltreatment had occurred, as well as a nonmaltreated clinical control group.

A related problem is the failure of some researchers to probe for other types of abuse, after one type has been identified. In this study, subjects were referred for psychological testing after having been confirmed for at least one type of child abuse or neglect. They were also questioned regarding other types of maltreatment. Neglect, for instance, is often coincident with physical abuse and/or sexual abuse, and children who have been neglected only have been shown by studies in which they have been distinguished to differ significantly from children who are neglected and physically abused or neglected and sexually abused (Allen & Oliver, 1982; Crittenden, 1992; Eckenrode, Laird, & Doris, 1993).

Many studies have not used matched control or comparison groups, making it impossible to separate the correlates of maltreatment from those of numerous other

variables such as age, sex, socioeconomic status and family composition (Howing et al., 1989). This study initially planned to utilize two matched comparison groups, one of physically abused children and the other of nonmaltreated clinical control children, but due to very limited numbers of subjects in the Neglect and Physical Abuse groups, the groups were tested for any significant differences on demographic or base variables and controls were used for problematic variables..

Finally, failure to use standardized dependent measures is a prevalent shortcoming of studies of child maltreatment. Crouch and Milner (1993) point out the difficulty this creates for interpretation of results as well as for the attempts of others to replicate the work. This study employed standard psychological measures including the Wechsler Intelligence Scale for Children-Revised (Wechsler, 1974) and the Rorschach Test (Rorschach 1921/1942) .

Review of Literature on Child Correlates of Neglect

Cognitive, socio-emotional, and behavioral aspects of childrens' functioning have been examined in neglected children. Cognitive development of neglected children has been the focus of a number of studies: (a) language comprehension: Allen & Oliver, 1982; Fox, Long, & Langois, 1988; (b) school performance: Eckenrode, Laird, & Doris, 1993; Wodarski, Kurtz, Gaudin, & Howing, 1990; (c) IQ: Egeland, 1993; Erickson, Egeland, & Pianta, 1989; Hoffman-Plotkin & Twentyman, 1984; Rogeness, Amrung, Macedo, Harris, & Fisher, 1986; Sandgrund, Gaines, & Green, 1974; and (d) moral judgement: Smetana, Kelly, & Twentyman, 1984. These will be discussed below.

Cognitive Correlates. Neglect has been found to be significantly correlated with reduced abilities on verbal as well as auditory comprehension tests when neglected children were compared to control and abused preschool children by Allen and Oliver (1982). They concluded that early reports of language problems in abused children may have been due to "hidden neglect", since they found a high correlation between abuse and neglect, and abuse did not contribute significantly to their multiple regression analysis. Language comprehension in preschool and school-age children has also been shown to be more negatively affected by severe neglect than by general neglect or physical abuse (Fox, Long, & Langois, 1988). This suggests the importance of considering the severity of neglect as an experimental parameter, although few studies have done so.

School performance in neglected children (kindergarten through twelfth grade) has been found to be poorer than that in children belonging to any other category of maltreatment (Eckenrode, Laird, and Doris, 1993). This was a large study which compared school records (standardized test scores, grades, grade repetitions, and discipline referrals) of children identified by a social service agency as abused and/or neglected with non-maltreated children's records. They concluded that neglect appeared to have had a stronger negative influence on academic achievement than abuse, and suggested that neglect may in fact have a greater long-term impact than other forms of maltreatment. Another study found neglected as well as abused children (aged 8-16) showed lower overall school performance (grades, grade repeats, teacher estimates of work at below average levels) as well as lower standardized test scores than control children (Wodarski, Kurtz, Gaudin, and Howing, 1990). Also, neglected children, but

not abused children, had lower scores than controls on the language section of the standardized tests.

Numerous studies have documented cognitive difficulties in neglected children based on IQ comparisons. Egeland (1993) and Erickson, Egeland, and Pianta (1989) described some of the results of the Minnesota Mother-Child Interaction Project, which is a large prospective study of high risk mothers with their first-born children. At six months of age, there were no differences between neglected and control infants' scores on the Bayley Scales of Infant Development (Bayley, 1969). Between one and four years of age, neglected infant/toddlers tended to be delayed in a number of areas, including cognitive development, when compared to controls. Upon entering kindergarten, they had lower scores on Comprehension, Vocabulary, and Animal House subtests, as well as lower total scores on an abbreviated Wechsler Preschool and Primary Scales of Intelligence (Wechsler, 1967) than controls. They also tended to be inattentive, impatient, disrespectful, and have difficulty comprehending work. In kindergarten, 65% were referred for special help, and 58% were retained in the first two years of school. The authors found that neglected children had more varied and more severe problems overall than children who were physically abused, sexually abused, or children of psychologically unavailable mothers.

Hoffman-Plotkin and Twentyman (1984) found that among preschool children, those who had been abused as well as those who had been neglected scored significantly lower than nonmaltreated children on the Stanford-Binet Intelligence Scale (Terman & Merrill, 1967), Peabody Picture Vocabulary Test (Dunn & Dunn, 1981) and Merrill-

Palmer Scale of Mental Tests (Stutsman, 1931). Sandgrund, Gaines, and Green (1974), in an early study of intellectual functioning in children between five and twelve years of age, found that both abused and neglected children scored significantly lower than a control group on both verbal and performance scales of the age-appropriate Wechsler tests (Wechsler, 1967; Wechsler, 1974). Their results showed no significant gender differences.

Gender differences in IQ scores were observed among abused, neglected, and control children hospitalized for psychiatric treatment (Rogeness, Amrunga, Macedo, Harris, and Fisher, 1986). Among boys, the neglected group had significantly lower full scale IQ scores than both the abused and control groups, due primarily to lower verbal scale scores (lowest were Information and Vocabulary subtest scores); b) among girls, the abused and neglected groups both had significantly lower scores on Vocabulary, Information, and full scale IQ. Despite the fact that their sample was a specialized one (psychiatric patients), the similarity of their results with studies of more normal children lend support for their findings. The possibility of gender differences in the correlates of neglect and abuse is one which deserves further investigation.

The moral judgement of abused and neglected children has also been studied. Smetana, Kelly, and Twentyman (1984) found that neglected four to six year-old children were different from both abused and control children in their ego-centrism. In contrast to the other groups, the neglected children typically made no distinction between themselves and others when judging the wrongness of unfair distribution of resources or in assigning the amount of punishment deserved for all transgressions. The authors concluded that it

was important to study separate maltreatment categories, and that the social cognitive effects of neglect might be greater than those of abuse.

In summary, neglect appears to adversely affect broad areas of childrens' cognitive functioning including verbal and auditory comprehension of language, school performance (including standardized test scores and grades), IQ, and moral judgement. There appears to be some evidence suggesting that more severe neglect may have increasingly negative effects on language comprehension (Fox et al., 1988), although the severity of neglect is rarely considered in research studies. Studies of school performance suggest that neglect has a greater negative impact on children than physical abuse (Eckenrode et al., 1993; Wodarski et al., 1990). With regard to intellectual functioning as measured by IQ tests, neglected children typically score significantly lower than nonmaltreated children on verbal, performance and full scale IQs (Egeland, 1993; Erickson et al., 1989; Hoffman-Plotkin & Twentyman, 1984; Rogeness et al., 1986; and Sandgrund et al., 1974). Their scores are generally similar to those of physically abused children. It is not clear whether there are gender differences involved, since conflicting results have been obtained (Rogeness et al, 1986; Sandgrund et al., 1974). Studies of the moral judgement of abused children indicate that neglected children appear to have even more deviant views of their world than physically abused children (Smetana et al., 1984).

Socio-Emotional Correlates. Few studies have addressed the affective and/or social functioning of neglected children. Attachment styles (Crittenden, 1992; Egeland, 1993; Erickson, Egeland & Pianta, 1989), coping effectiveness and dependency (Egeland, 1993; Egeland et al., 1989) and depression (Kaufman, 1991) are parameters

which have been examined. Egeland (1993), and Erickson et al. (1989) found that between one and four years of age, neglected infants/toddlers tended to be less securely attached to their mothers, less able to cope, less self-assertive, more non-compliant and easily frustrated, lacking in persistence and enthusiasm, and more dependent than nonmaltreated children. They were typically more negative and more reliant on their mothers, yet not affectionate towards them. Upon entering kindergarten they were more dependent on teachers and more anxious about schoolwork than their nonmaltreated counterparts in the study.

Crittenden (1992), found that neglected children more often showed anxious/avoidant attachments with their mothers than did adequately reared or abused children. Kaufman (1991), in his study of depressive disorders in children, found that physically and emotionally abused children were significantly more depressed than nonmaltreated controls, whereas neglected children were not. It is possible that neglected children, while they continually seek the attention they lack, have not experienced the intensely painful rejecting behavior that physically and/or emotionally abused children have. This may suggest an explanation of the difference between the groups in Kaufman's study.

In summary, in the few studies that have addressed maltreated children's emotional functioning, it appears that neglected children tend to be less securely attached to their mothers and less able to cope with social demands than their nonmaltreated peers. They do not appear depressed compared to such controls, in contrast to physically abused children.

Behavioral correlates. A number of behavioral characteristics of neglected children have been studied, including impulsivity (Rohrbeck & Twentyman, 1986), prosocial behavior (Hoffman-Plotkin & Twentyman, 1984; Prino & Peyrot, 1994), aggression (Bousha & Twentyman, 1984; Crittenden, 1992 & 1994; Erickson et al., 1989; Hoffman-Plotkin & Twentyman, 1984; Prino & Peyrot, 1994; Reidy, 1977; Wodarski et al., 1990;), and passive-withdrawal (Crittenden, 1992; Egeland, 1993; Hoffman-Plotkin & Twentyman, 1984; Prino & Peyrot, 1994). The relatively large number of studies of behavior probably reflect the relative ease of observation of the phenomenon, compared to socio-emotional parameters.

Social behavior (compliance, aggression, social competence, and peer and family interactions) of abused and neglected children was the subject of a critical review by Conaway and Hansen (1989). They tentatively concluded that neglected children exhibited less aggressive behavior than abused children (direct observation), although both abused and neglected children may be perceived as more aggressive than peers. Conflicting results prevented conclusions about the relative social competence, rate of compliance, or level of problematic peer and family interactions of neglected children.

Rohrbeck and Twentyman (1986), using highly structured laboratory tests, found no significant differences among neglected, abused, and nonmaltreated children on several measures of impulsivity. They speculated that the failure to corroborate typical parent and teacher perceptions of abused and neglected children as restless and hyperactive might result from differential behavior patterns in more naturalistic settings.

This result highlights the importance of differences in methods of operationalizing variables studied.

Using behavioral observations, Hoffman-Plotkin and Twentyman (1984) found that neglected children displayed fewer social interactions in general than either abused or control children. In addition, both neglected and abused children were found to exhibit less prosocial behavior than comparison children. Prino and Peyrot (1994), using a composite of teacher ratings and ratings of children's verbal stories, also found that neglected as well as abused children showed significantly less prosocial behavior. Using projective drawings and teacher behavior ratings, they also found neglected children to be significantly more withdrawn than both abused and nonmaltreated control children.

A number of researchers have addressed the issue of aggression in maltreated youngsters. Unfortunately, the age of the subjects, setting for the behavioral observations, and measures used have varied widely, making it difficult to draw conclusions. The eight relevant studies (Bousha & Twentyman, 1984; Crittenden, 1992, & 1994; Erickson et al., 1989; Hoffman-Plotkin & Twentyman, 1984; Prino & Peyrot, 1994; Reidy, 1977; and Wodarski et al., 1990) are approximately evenly divided over the issue of whether neglected children are, like physically abused children, more aggressive than nonmaltreated children.

Neglected children appeared similar to control children and less aggressive than physically abused children in the three studies which included measures of fantasy aggression (Crittenden, 1994; Prino & Peyrot, 1994; Reidy, 1977). The children ranged in age from five to eight years. When behavioral observations in a day care situation

were the measure, neglected children both three to six years (Hoffman-Plotkin & Twentyman, 1984) and six to eight years (Reidy, 1977), were found to be similar to control children in levels of observed aggression. In a study which included home observations of children two to eight years (Bousha & Twentyman, 1984), neglected children were found to have higher levels of observed aggression than control children, similar to those of physically abused children.

In studies where parents and teachers were asked to rate children on their aggressive behavior, conflicting results have been obtained. Hoffman-Plotkin and Twentyman (1984), with three to six year-olds, Erickson et al. (1989) with four to six year-olds, and Reidy (1977), with six to eight year-olds, all found that parents and teachers rated neglected children as similar to physically abused children in aggression, and significantly higher than nonmaltreated children. On the other hand, Crittenden (1994) and Prino and Peyrot (1994), with five to eight year-olds and Wodarski et al. (1990) with eight to ten year-olds who responded to self-report questionnaires, found neglected children were rated (or rated themselves) as more similar to nonmaltreated children than to physically abused children in terms of aggressive behavior.

These often apparently conflicting results underscore the need to consider a child's age, setting, and source of information in evaluating aggression. Hoffman-Plotkin and Twentyman (1984) speculated that the difference between the aggressive behavior at home and in school among neglected children might result from the children's need to be aggressive in gaining attention from a non-responsive parent at home, whereas aggressive behavior at school was not reinforced. The fact that neglected children showed less

fantasy aggression than abused or control children may simply reflect their lesser capacity for fantasy in general due to lack of cognitive stimulation, since the production of other fantasy material was not measured. It may be that subtle differences in parent and teacher rating situations stimulate different results. For example, if neglected children are socially avoidant as their initial coping strategy, and the school or the home is large enough and the children spread out enough to permit them to use the strategy, they may appear nonaggressive. However, if the situation is small and the children crowded, the neglected child's lack of social skills may mean that he/she will become involved physical confrontations more often than nonmaltreated children who are more skilled at conflict resolution.

Passivity and social withdrawal have also been noted in neglected children. Crittenden (1992), in her study of children between one and four years of age, found that neglected infants were more passive with their mothers and more isolated in free-play than abused or comparison infants. Hoffman-Plotkin and Twentyman (1984) found that neglected children displayed fewer social interactions with peers than either abused or comparison children. Egeland (1993) reported that school-age neglected children were rated by teachers as being both more aggressive/acting out and more passive and withdrawn. Crittenden and DiLalla (1988) found that younger neglected children were initially more passive than controls, but tended to develop more difficult behaviors later. Neglected children were rated by teachers as significantly more withdrawn than either physically abused or nonmaltreated controls (Prino & Peyrot, 1994).

In summary, existing research suggests that neglected children exhibit a variety of socioemotional and behavioral problems relative to their nonmaltreated peers. They tend to be less securely attached to their caretakers in infancy, less persistent and enthusiastic, more easily frustrated, and more dependent than control infants/toddlers (Egeland, 1993; Erickson et al., 1989). Neglected children may be generally more passive than both nonmaltreated and abused children (Crittenden, 1992; Crittenden & DiLalla, 1988; Egeland, 1993; Hoffman-Plotkin & Twentyman, 1984; Prino & Peyrot, 1994). However, in some situations they may be more aggressive, e.g., with siblings (Crittenden, 1992); they appear to engage in fewer social interactions than their abused or nonmaltreated peers (Hoffman-Plotkin & Twentyman, 1984). Different methods of assessing aggression have yielded different conclusions regarding the levels of aggression in neglected populations relative to abused and comparison children. Self-report measures of aggressive feelings and projective measures of fantasy aggression suggest that neglected children's levels of aggression are more similar to those of nonmaltreated than abused children (Prino & Peyrot, 1994; Reidy, 1977; Wodarski et al., 1990). Behavioral observations of neglected children have shown conflicting results: they may appear more similar to abused children than controls, e.g. significantly more aggressive (Bousha & Twentyman, 1984; Reidy, 1977), or they may appear similar to nonmaltreated controls (Hoffman-Plotkin & Twentyman, 1984). Parent and teacher ratings of children's aggression in some studies portray neglected children as more aggressive than comparison children (Erickson et al., 1989; Hoffman-Plotkin & Twentyman, 1984; Reidy, 1977), whereas in others, neglected children have been rated as similar to

nonmaltreated children, that is, as significantly less aggressive than physically abused children (Crittenden, 1994; Prino & Peyrot, 1994; and Wodarski et al., 1990).

Psychoanalytic Theory

One of the major criticisms of the research in the field of child abuse is that it focuses on symptoms and has no unifying theory to guide efforts at understanding the problems (Finkelhor, 1988). Many of the research findings concerning the correlates of neglect in children can be easily understood within the framework of psychoanalytic theory in terms of the failure of adequate development of different aspects of the ego.

A number of recent developments in psychoanalytic theory are particularly relevant to the consideration of the etiology of neglect. More specifically, object relations deals with the way in which individuals attach or separate from others based on their unconscious representations of self and others (Arcaya & Gerber, 1990). These representations are introjected models of reality which are established internally in response to early interpersonal interactions and the relative adequacy of the caretaker's meeting of a child's early needs. These representations begin as vague sensations of bodily pleasure or pain and gradually become differentiated and (in normal development) relatively realistic representations of the self and the "object" (or "other") world. Initially these representations are tied to need gratification, but during the process of maturing, they evolve into intermediate and later, more abstract, symbolic representations not tied to situational demands (Arcaya & Gerber, 1990).

Westen (1990, p.670) defines object relations as "the cognitive, affective, and motivational processes mediating interpersonal functioning, and the enduring patterns of

interpersonal behavior that draw upon these intrapsychic structures and processes." The intrapsychic structures are thought to be based on past relationships with significant others, and to form the basis for the individual's day-to-day views of and experiences with others.

Mahler, Pine and Bergman (1975) describe the infant's process of establishing a sense of self apart from others, including mother/caretaker. From birth to about six months, the infant and mother have a "symbiotic" relationship; from about six to about ten months, the phase of differentiation culminates in the infant's ability to recognize mother as different. From the age of about 10 months to about 15 months, the infant "practices" his skills in locomotion and becoming independent of mother, though he/she still relies on her for security. From about 15 to 22 months, Mahler describes the child's "rapprochement" with mother, wherein the child recognizes her separateness and begins to see her own vulnerability, thus leading her to seek more assurances of her mother's love. From about 25 to 36 months, the infant is said to achieve definite individuality (separation/individuation), with a structured ego, a beginning superego, and, if caretaking conditions were favorable, the child will have gained the beginning of emotional object constancy. More recently, researchers have begun to examine the developmental processes involved in the formation of object representations, and also to study the problems which may develop if the process is affected by child abuse.

Eldridge and Finnician (1985), under the assumption that parenthood involves a re-experiencing of the needs and conflicts of childhood, suggest that abusing and neglecting parents' own needs were not met in childhood. Parents' responses to

infants'/childrens' restimulation of the unmet needs can be either nonattachment and nonrecognition of the needs of their offspring, resulting in gross neglect, or a turning to the child to meet the restimulated needs, resulting in frustration, rage, and abuse.

Fraiberg (1975) proposed that parents who were abused as children often lost the affective links to the experiences through repression and isolation of affect. This, she said, led to empathic failure in the symbiotic phase of the separation-individuation process with their infants, and could cause impairment of the ego functions of the infants. Some of the results she noted in a small sample of infants were listlessness, a lack of psychic investment in external reality, and hypersensitivity and irritability which indicated to her a failure of the normal development of a stimulus barrier.

Lerner and Lerner (1985) used Mahler's object relations theory (Mahler et al., 1975) and Piaget's theory of child development (Piaget, 1937) to develop an integrated psychoanalytic theory of thinking. According to Lerner and Lerner, the success of the infant's capacity to invest the mother with psychic energy as well as the mother's ability and willingness to serve as an auxiliary ego for her child form the basis for all subsequent relationships. Failures in this crucial interactive period they believed could result in severe cognitive restrictions, including an inability to use symbols, an impaired ability to fantasize, poor vocabulary development, impaired intellectual attainment, inability to grasp meaning or purpose, and a lack of interest in the environment.

Lerner and Lerner (1985) cited clinical examples of children in whom the symbiotic phase was disrupted and who showed evidence of impaired range of information and vocabulary, difficulty with tasks related to people or interpersonal

situations, lack of interest in people, and emotional unavailability. They note that Piaget emphasized the role of parental imitation of the young child's behavior as an aid in the development of internal symbols as representations of external objects. It is these internal representations which make possible the internalizing of learning skills, freeing the child from concrete reliance on external forms. Neglecting parents typically do not engage in such interactions with their children. Neglecting parents frequently fail to provide even basic physical care for their children, through absence, involvement with substance abuse, depression, or psychiatric disorder, among other reasons. They are much less capable in many instances of providing the emotional responsiveness and availability needed by their young children in order to allow the normal development of attachment, security, and self-object differentiation. Thus, psychoanalytic theory provides specific predictions of the possible results of parental neglect on children's thinking. Because it also provides a broad theoretical framework for unifying many of the cognitive and affective correlates of neglect, it is psychoanalytic theory which was utilized as the basis of this study of neglect.

Inhibition of negative impulses has been postulated by Parens (1979) to develop as a function of internalization of object representations (of parental prohibition) during the rapprochement phase of individuation (15-22 months). Since neglecting parents presumably are rarely available to prohibit behavior, such children can be expected to be deficient in this aspect of object relations.

The effects of physical abuse on children's object relations has been examined by Freedman, Ornduff, & Kelsey (1995). In a study utilizing an objective scoring system

for evaluating object relations and social cognition from Thematic Apperception Test (TAT) stories, they found that physically abused children: 1) viewed the object world (other people) with more negative affect; 2) showed a lesser capacity for investment in social relationships; and 3) held less accurate, complex, and logical assumptions regarding social interaction than nonabused control children. Though this study does not directly address neglected children, it does illustrate a new area of objects relations research which involves child maltreatment.

If we consider some of the empirical research findings regarding cognitive and socio-emotional correlates of neglect, it is evident that many of them follow from predictions of this theory. For example, the observed lower IQ scores, scores on Vocabulary, Comprehension, and Information subtests, decreased language comprehension and school performance can be seen as resulting from impairments in cognitive ego functions brought about by the caretaker's failure to provide empathy and serve as an auxiliary ego for her child early in his/her development. As Lerner and Lerner (1985) pointed out, without the caretaker's responsive attention, including imitation of the baby's behavior, the infant fails to develop the internal object representations which are essential to learning skills which do not rely on external forms. Many such skills underlie common tests of intelligence and language ability. In addition, the fact that neglected children are found to be less securely attached to their caretaker can be seen as an impairment of the normal development of object relationships, which results later in a wide range of social and emotional problems which may include a lower frustration tolerance, more aggressive behavior, and fewer social interactions. Lerner and

Lerner (1985) suggested that neglected children would show an impaired ability to fantasize, and this could explain the findings by Reidy (1977) that although neglected children were similar to abused children in their increased levels of behavioral aggression, they were similar to nonmaltreated controls in fantasy aggression (less fantasy aggression than physically abused children).

Ego Functions and Their Assessment

The concept of lack of development of certain ego functions in neglected children can be expanded upon using Bellak's (1973) description of twelve categories of ego functions. These are: 1) reality testing; 2) judgement; 3) sense of reality of both self and world; 4) regulation and control of drives, affects, and impulses; 5) object or interpersonal relationships; 6) thought processes (basic cognitive functions); 7) adaptive regression in service of the ego; 8) defensive functioning; 9) stimulus barrier; 10) autonomous function; 11) synthetic-integrative function; and 12) mastery/ competence. Many of these functions may be impaired in their development by inadequate parenting.

Assessment of ego functions can be accomplished using many different psychological tests. Some functions can be assessed using standard intelligence tests such as the WISC-R (Wechsler, 1974). The most obvious function is that of cognitive or thought processes. Neglected children have been shown to have lower IQ scores as well as lower scores on Vocabulary, Information, and Comprehension subtests than nonmaltreated children (Egeland, 1993; Erickson, Egeland, & Pianta, 1989; Hoffman, Plotkin, & Twentyman, 1984; Rogeness et al., 1986). An impairment in the ability to use symbols (concrete rather than abstract thinking) would be reflected in lower scores on the

Similarities subtest. A lack of interest in the environment may result in lower scores on the Picture Completion subtest. Kaufman (1979) described the Similarities subtest as a unique test of logical abstractive thinking. He described the Picture Completion subtest as measuring unique abilities of visual alertness, recognition, and identification. These abilities, according to psychoanalytic theory, should be compromised in neglected children. These two subtests, more than the others, are likely to reflect the hypothesized cognitive differences among the groups of children.

Projective Testing- The Rorschach. One of the most widely used tests of ego functions is the Rorschach Inkblot Test (originated by Hermann Rorschach, 1921). Projective testing techniques are based on the assumption that when presented with ambiguous stimuli, individuals tend to be influenced by their needs, interests, and overall psychological organization in the cognitive translation or interpretation of the stimuli (Murray, 1938; described in Exner, 1986). Although not initially conceived of as a projective test, the Rorschach has come to be considered one of the major projective personality tests. Originally designed as a test of perceptual ability which might facilitate diagnostic decisions, the Rorschach has evolved into a widely used test of personality characteristics. Among these are a number of indicators of the strengths and weaknesses of various ego functions.

The Rorschach consists of a sequence of ten inkblots which are presented in a standardized manner to an individual, with instructions merely to tell the examiner what the blot "might be." The objects suggested by the subject, as well as her/his descriptions of their locations and key qualities are then compared to common responses of others. A

number of competing methods of scoring and interpretation were developed in the United States in the twenty years following the introduction of the test, including those of Beck, Klopfer, Rapaport, Hertz, and Piotrowski (see discussion in Exner, 1986). Evaluation of the relative merits of the different systems was hampered by the fact that most users of the test typically employed more than one system in their administration, scoring, and interpretation.

In 1968, the Rorschach Research Foundation was established in order to study the relative utility of each of the systems and establish normative data. Eventually, in 1974, it presented a more empirically based "Comprehensive" system which incorporated the most valid aspects of each of the competing systems, in addition to some new approaches which were added during the course of the research. This system, which has become the most widely taught and used system, has quelled some of the most strident critics of the test who had protested its lack of standardization or empirical base. There remain many critics of projective testing who reject its use. However, its reliability and validity as examined in a number of studies reviewed by Parker, Hanson, and Hunsley (1988) and Atkinson (Atkinson, 1986; Atkinson, Quarrington, Alp, & Cyr, 1986) have suggested that it compares favorably with the reliability and stability of the Wechsler Adult Intelligence Scale (WAIS; Wechsler, 1955) and Minnesota Multiphasic Personality Inventory (MMPI; Hathaway and McKinley, 1951). Furthermore, its validity was found to be similar to that of the MMPI, and somewhat less than that of the WAIS.

A number of variables of the Rorschach have been used to evaluate various ego functions, several of which are relevant to the deficiencies typically noted in neglected

children as reviewed above. The first ego function delineated by Bellak (1973) is that of reality testing. This function includes the cognitive and sensory functions which enable the individual to determine the accuracy and source of their sensory information as well as their awareness of their internal states. One of the most frequently interpreted variables in Exner's Comprehensive System is the extended form quality, or X+% found in the record. This variable reflects the conventionality of the object forms given by the subject compared to a normative sample. It indicates the extent to which the subject responds to environmental stimuli similarly to those of others. Exner (1986) includes form quality as one of the most important elements of the Rorschach data. He notes that Rorschach himself postulated that the manner and quality of the form of a subject's responses represented his/her ability to perceive things conventionally, or realistically. A low percentage of good form quality responses then is indicative of limited perceptual accuracy and possibly poor reality testing. A significant body of research since Rorschach's death has focused on this element, and considerable support for his assertion has been found (Exner, 1986). Exner has found that the mean X+% for nonpatients, including children, is around 80%, with standard deviations around 10%. It is one of the most stable characteristics of an individual's Rorschach record, even in childhood.

Neglected children, due to a failure of normal individuation (and the resultant failure of development of intrapsychic autonomy, perception, and reality testing; Lerner & Lerner, 1985), as well as a hypothesized lack of interest in their environment, are expected to exhibit lower X+% scores, higher X-% scores (reflecting the arbitrary use of form), lower numbers of popular responses (P), and possibly more special scores

(including measures of negative affect as well as those of unusual or pathological combinations), reflected in higher WSUM6 scores. Although physically abused children can be expected to have problems with the process of individuation and especially in the development of their object relations, they did receive attention and responsiveness from their caretakers, although it was negative at times. Thus, their cognitive development is not expected to be as adversely affected as that of neglected children.

A second ego function discussed by Bellak is that of thought processes, or basic cognitive functions. It is these functions which Lerner and Lerner (1985) believed would show major impairment in neglected children. Examples they gave which pertain to Rorschach variables were impaired fantasy ability, and lack of interest in the environment. The human movement determinant (M) in Rorschach's test has long been thought to be a measure of the ability and tendency to fantasize (p. 327, Exner, 1986). M is one of the most complex and most frequently studied Rorschach variables. Exner (1986) has summarized much of the research. M has been found to correlate positively with abstract thinking (Schulman, 1953, from Exner, 1986); fewer M responses have been found in children's protocols, with a gradual increase in the mean M each year between 5 and 13 (Exner & Weiner, 1982, quoted in Exner, 1986); M has been positively correlated with fantasy (Dana, 1968, cited in Exner 1986), and daydreaming (Page, 1957, cited in Exner, 1986); and M has been associated with motor delays in social adjustment (Frankle, 1953, & Mirin, 1955, cited in Exner, 1986). Exner notes that M involves elements of reasoning, imagination, and an advanced form of conceptualization. It was utilized in this study as a measure of basic thought processes.

Abused children were expected to appear more similar to clinical control children than to neglected children in numbers of M. This is because abused children frequently receive the parental attention and responsiveness which are required for cognitive development, although much of the attention may be negative in character. Neglected children, on the other hand, often either do not see their parent(s) much (lack of supervision), or are ignored when with the parent. Thus the neglected child does not receive the benefit of observing and learning from adult reasoning or understanding about the environment, nor does he/she generally receive feedback about his/her thoughts or ideas. Abstract thinking, use of imagination, and reasoning was expected to be less developed in neglected children than in abused children, and this was expected to be reflected in lower numbers of M than in clinical control or abused children.

Lack of interest in the environment was expected to be reflected on the Rorschach in a negative organizational efficiency score (Zd). Exner (1978, quoted in Exner, 1986) found that subjects with Zd scores of less than -3.0 tended to be negligent in processing information, and also appeared to be more impulsive in their decision-making. He identified this style as "underincorporation". Children younger than 10 frequently have scores less than zero (Exner, 1986), and neglected children were expected to have significantly lower average scores than nonmaltreated children. Abused children, who did receive stimulation and needed responsiveness from their caretakers, were expected to be approximately as well organized as clinical control children on this measure. Neglected children frequently have poorly developed conceptual ideas because of the lack

of meaningful interaction with adults, and are thus handicapped in their ability to observe and organize their thinking with regard to their environment.

Other Rorschach scores which may be based on primary cognitive functions include response length (R) and percentage of pure form responses (F as the only determinant) in the record. This latter measure is called Lambda and high scores (meaning that a larger than average number of responses were based only on form, without consideration of any other aspect of the blot such as color, shading, etc.) are often found in individuals who ignore or neglect the complexities of the blots. Since this frequently reflects an overly simplistic, economical approach to the environment (Exner, 1986), it served as a measure of the typical cognitive functioning of neglected children. This style is also associated with a lower than average X+% and fewer P responses, which were also expected of neglected children, but not abused children. Again, neglected children typically do not have the opportunities for interaction and learning with an adult that even an abused child might have. This was expected to lead to a lack of identification of common societal constructs as well as a lack of complexity in the perceptual process.

A third ego function which can be evaluated using the Rorschach is the regulation and control of drives, affects, and impulses. Rorschach (1921/1942) originally proposed that responses in which color was an element involved the subject's affect, and that degrees of affective involvement could be inferred from the extent of the involvement of form in the color responses. The color-affect theory has frequently been controversial, but a number of studies reviewed by Exner (1986) have found that subjects often give

more responses to chromatic cards, and that C and CF responses predominate in young children, and that after age 15 FC answers begin to predominate (Ames, Metraux, & Walker, 1971/Exner, 1986). According to Exner (1986), research shows that a combination of the CF+ C variables tends to be more stable over time (retest correlation about .80) than either variable alone (range for either is from .51 to .66). The FC:CF+C ratio, according to Exner, provides an index of the extent to which a subject modulates his/her emotional discharges. Since less cognitive effort is required to identify colors than forms, those responses with less form involved may suggest a tendency toward more intense emotional behaviors or impulsiveness.

A modification of this ratio was used in this study according to Exner's interpretation. The extent to which a person is able to modulate his or her emotional discharges is expressed in the ratio of form-dominated color responses to color responses which contain form either only secondarily or not at all (FC:CF+C). Children up through age 12 give significantly more CF+C than FC responses, but it was expected that in neglected children this ratio would be even more extreme. Because physically abused children are likely to be exposed to an environment in which emotional discharges frequently are not modulated, they were expected to respond similarly to neglected children on this measure.

Methodological Problems

While researchers have begun to distinguish types of maltreatment, none have compared sub-types of neglect (e.g., physical neglect, emotional neglect, educational neglect, medical neglect, supervisory neglect). Although differences in the consequences

of these types of neglect might be expected, in actuality it is extremely difficult to find pure samples due to their high rate of coincidence. This study was no exception, due to the limited numbers of identified neglected children available.

Definitional problems make it difficult to compare studies of the same type of maltreatment, since the operational criteria for neglect or abuse may differ widely from one study to another (Howing, Wodarski, Kurtz, & Gaudin, 1989). The disadvantage of utilizing social service agency-identified children is that the definition of neglect is left to the agency to determine.

Researchers also have given little attention to the severity and chronicity of neglect in their subject populations (Crouch & Milner, 1993; Dubowitz et al, 1993), although both of these factors might be expected to influence the consequences of neglect for children. Although assessments of severity generally rely on degree of harm involved, controversy exists over whether actual harm alone or potential harm should be considered. Potential harm is a particularly important consideration for neglect since many forms of neglect do not have immediate or short-term consequences, but may have severe long-term psychological consequences (Egeland, 1993). The major problem in addressing potential harm is the difficulty of determining the likelihood that harm will result and deciding at what point the risk becomes neglect. Severity of the result also enters into this complex assessment, as when one compares missing a dose of antibiotic to leaving an infant alone in a bathtub. Due to the complexity of these issues and the limitations of Child Welfare, current practice emphasizes the actual occurrence of harm or imminent likelihood of serious harm. Although different levels of severity of neglect

were noted in the group selected for this study, it was not large enough to evaluate the effects of severity.

Most child maltreatment studies have utilized cross-sectional designs which preclude causal analysis of the variables studied. Prospective studies are needed to determine the sequence of events involved in and leading to child maltreatment. Because of the length of time required as well as the much larger subject population required for such a study, a cross-sectional design was utilized for this study.

Howing et al. (1989) noted the importance of verifying the absence of maltreatment in the control or comparison group, which is often not considered. In practice this is extremely difficult to do, since children who have been maltreated may not reveal their experiences even when questioned. Children in this study were questioned at the time of testing regarding any other types of abuse they may have experienced, although this cannot guarantee homogeneity of the groups on this issue.

Subject recruitment practices have been problematic in many studies. Crouch and Milner (1993) note that researchers' reliance on social service agencies for subjects results in subject groups whose validity is dependent on the confirmation process of the agency. In addition, such groups tend to be fairly homogeneous in terms of socioeconomic status and education, limiting the generalizability of findings. This study was unable to match subjects as planned on age, sex, ethnicity and socioeconomic status due to the limited numbers of neglected and physically abused subjects who had been tested.

The Present Study

This study was proposed to examine the cognitive and socio-emotional functioning in neglected children compared to physically abused children and to nonmaltreated children. Psychoanalytic theory provides numerous concrete predictions of possible negative impacts of neglect on ego functioning in children. Many of the problems previously discussed regarding the methodology of other studies are difficult to overcome because of the nature of neglecting families (i.e. the fact that many families are neglectful in several ways, not just one, in their care of their children; the difficulty of identifying and recruiting subjects without relying on social service agency definitions and validations). However, the relative lack of research on a population which may be even more at risk for negative outcomes than the more frequently studied physically and sexually abused populations justified this effort despite its shortcomings. This study utilized standardized dependent measures in order to maximize the validity of the results obtained.

Both the WISC-R and Rorschach tests were used to compare different aspects of ego functions (reality testing, basic cognitive functions, and regulation and control of drives) in three groups of children. One group was referred for evaluation at Dallas Child Guidance Center (DCGC) after being classified as neglected by the local social services agency (neglect group), one referred after having been identified as physically abused (physical abuse group), and the other group evaluated at the same institution but not referred for maltreatment (clinical control group). Reality testing was evaluated using the X+ and P variables on the Rorschach. Basic cognitive functions were compared using

the Similarities (abstract reasoning) and Picture Completion (interest in the environment) subtests of the WISC-R and the M (ability to fantasize), Zd, and Lambda (cognitive organizing abilities) scores on the Rorschach. Drive regulation was evaluated using the FC:CF+C ratio of the Rorschach. The groups' FSIQ, VIQ, and PIQ scores were also compared to evaluate the generality of any effect on Sim or PC scores. Groups were compared for age, sex, ethnicity, and socioeconomic status to the extent permitted by the data. No significant differences were expected among the groups' PIQ scores. Object relations theory suggested the neglected group might have somewhat lower FSIQ and VIQ scores.

Hypotheses

1. Neglected children were expected to show poorer reality testing than clinical control children or physically abused children, reflected in lower X+% and P scores, and also poorer cognitive organizing abilities, reflected in lower Zd scores on the Rorschach.

2. Neglected children were expected to show poorer basic cognitive functions than clinical control children or physically abused children, as evidenced by:

a) reduced ability to fantasize or use abstract reasoning. These deficits were expected to be reflected in fewer M responses on the Rorschach, and in lower scores on the Similarities subtest of the WISC-R, and

b) less interest in the environment. This was expected to be reflected by lower scores on the Picture Completion subtest of the WISC-R, and in higher Lambda scores on the Rorschach.

3. Neglected and physically abused children were expected to show poorer modulation of emotional discharges (regulation and control of drives, affects, and impulses) than clinical control children, reflected in lower FC:CF+C ratios on the Rorschach.

CHAPTER II

METHOD

Subjects

Subjects were 25 female and 43 male children, ranging in age from 6-13, evaluated at Dallas Child Guidance Center (DCGC), an outpatient clinic serving the evaluation and treatment needs of a broad range of problems of children in the Dallas area. Mean age of the subjects was 10.0 years. Fifty-seven percent of the children were Caucasian, 22% were African-American, and 21% were Mexican-American or Hispanic. About half of the latter subjects were referred to as Mexican-American and the remainder as Hispanic. Since Hispanic is the more inclusive term and preferred in the Dallas area, future ethnic references will utilize this term. School grade ranged from kindergarten through eighth grade, with a mean of 3.8, or completion of approximately mid-second semester of the third grade. The median number of siblings in the home (of origin if the child was placed out of the home) was one, with a range of 0-6. Seventy-nine percent of the sample had behavior problems including physical aggression, oppositional-defiant behavior, ADHD, fire-setting, lying, school and social problems, etc.

Information on several characteristics of the home were not available for significant numbers of cases in the sample, including caretaker age, AFDC status, and income. Available data are reported here for completeness and to partially characterize

the sample on these dimensions, but they are not used in data analyses. The mean caretaker age was 34.8, with a range from 21-50 (not available for 20 of the 68 cases, or 29%). The sample contained only 12% documented AFDC cases (status not available for 38% of sample). Of those for whom income information was available, 26% earned less than \$15,000 per year; 39% earned \$15-30,000 per year; 25% earned \$30-50,000 per year; and 10% earned more than \$50,000 per year (information was unavailable for 43% of cases). The missing information (on all three variables) was primarily found in the neglect and physical abuse groups, especially where children were placed outside the home.

Other characteristics of the home included the number of adults in the home, which ranged from one to five, with 35% of the children in single parent homes and 65% in homes with two (or more) parents/adults (although the majority of these were step-families). Regarding placement status, 65% of the children were living at home with one or more parents; 10% were placed with a relative; and 25% were in DHS custody (foster care or group home).

The median number of problems in the home (of origin if placed out of home) was two. Problems included drug/alcohol abuse (40% of homes documented), mental health issues (including depression or anxiety in a parent, as well as severe chronic illness- 29%), domestic violence (32%), and other (85%, including abandonment, adoption, catastrophic illness in the family, chronic unemployment, chronic marital problems, incarceration of a parent, chronic conflict between divorced parents over visitation, and problems of alcohol/drug abuse, domestic violence, or mental health issues

in the extended family, etc.). These data are based primarily on information contained in the social histories, and therefore dependent on information made available to the administrator of the testing. Thus in cases of children placed outside the home, parents were not available for interview and in most cases the DHS caseworker provided what sketchy information was known about the family. Information beyond the reasons surrounding the child's removal from the home was generally very limited. Since it is likely that these families have multiple problems, it is also likely that these figures represent underestimates of the problems in the sample.

Eighteen (26%) of the sample had documented histories of neglect, and were referred to DCGC by the state's Department of Human Services (DHS) following substantiation of neglect. In this study, neglect was defined as the Dallas County DHS defined it: cases resulted from physical neglect (lack of food, clothing, or shelter) or lack of supervision. Cases in which neglect was comorbid with sexual abuse, or where such abuse was suspected but not confirmed, were excluded from the study. One comparison group (N=19, or 28% of the sample) was composed of children from the same DCGC population with documented histories of physical abuse but no history of sexual abuse or neglect. A second comparison group (clinical control group) had no documented histories of neglect or other forms of child maltreatment, and was referred for evaluation of various behavioral or emotional problems. Thirty-one children (46% of the sample) comprised this group. Approximately 15-20% of these children had documented ADHD problems; a further 10-15% were evaluated for possible ADHD; approximately 20-25% had significant depressive symptoms, and about 25% were evaluated for referral

problems which included possible depressive or dysthymic symptoms (several of these overlapped with evaluations for ADHD). Other referral problems in this group included oppositional behavior, phobic reactions, poor peer relations, and academic problems.

Measures

Data used in this study were archival in nature, and included social histories, Wechsler Intelligence Scale for Children-Revised (WISC-R, and a few WISC-IIIs; Wechsler, 1974, 1991) IQ scores, and Rorschach Inkblot Test (Rorschach, 1921/1942) records.

Background Information. Demographic information including gender, age, ethnicity and socioeconomic status (determined by income only, due to lack of availability of other indications) were obtained from each subject's file, in addition to other pertinent information about the child's social situation. The latter included details such as placement status (parental or DHS custody), the number of other children in the family (of origin, if placed elsewhere), presence of a second parent or parent-figure in the home, presence of drug/alcohol abuse and/or mental retardation, mental health problems, domestic violence, age of the primary caretaker, AFDC status, and presence or absence of behavior problems. Details of the chronicity of the neglect or physical abuse, and of the children's histories were often lacking in case records. Much less information was available on children placed outside the home, and this occurred primarily in the neglect and physical abuse groups.

Intelligence. The variables utilized from the WISC-R/WISC-III were the Similarities and Picture Completion subtest scores. The WISC-R has excellent reliability

(average coefficients over the entire age range: FSIQ = .96; Verbal IQ = .94; and Performance IQ = .90) and satisfactory concurrent validity (median correlations between the WISC-R and Stanford-Binet, Form L-M: Verbal Scale: .75; Performance Scale: .68; Full Scale: .82; (Sattler, 1982). Stability coefficients for children retested after one month were .95 for the Full Scale, .93 for the Verbal Scale, and .90 for the Performance Scale. The individual subtest reliabilities (split-half) are lower ($r = .81$ for Similarities and $.77$ for Picture Completion) but still adequate (Sattler, 1982). The WISC-III has demonstrated correlations with the WISC-R of .89 (FSIQ), .90 (VIQ), and .81 (PIQ), giving adequate evidence that they measure essentially the same constructs (Wechsler, 1991). Thus hereafter they will be considered equivalent for purposes of this study. Kaufman (1979) described the Similarities subtest as measuring the shared (with other subtests) abilities of verbal comprehension and conceptualization, degree of abstract thinking, and distinguishing essential from nonessential detail, reasoning (verbal). He described the subtest's unique ability as logical abstractive thinking. He indicated that the Picture Completion subtest measured shared abilities of perceptual organization, verbal comprehension, distinguishing essential from nonessential details, holistic processing, visual organization without essential motor activity, visual perception of meaningful stimuli, and the unique abilities of visual alertness and visual recognition and identification.

Reality testing. The Rorschach X+% (% conventional form responses), the number of popular (P) responses, and Lambda (pure form response frequency), were utilized as measures of reality testing. The reliability of the X+% has been excellent,

with retest reliabilities consistently high (ranging from mid .80's to low .90's), and it was the only variable which showed consistently high reliability when studied longitudinally from 8 to 16 years (Exner, Thomas, & Mason, 1985, quoted in Exner, 1986). According to Exner (1986), Baughman (1954, quoted in Exner, 1986) found P to be one of the most stable aspects of the test. Short-term retest reliability was found to be .84-.88, and .79-.86 for long-term (Exner, 1978, 1983; Exner, Armbruster, & Viglione, 1978, reported in Exner, 1993). The variable has a limit of 13. P has been reported to have a negligible correlation with X+% (Exner, Viglione, & Gillespie, 1984, in Exner, 1993). Lambda varies from an average of 0.59 in adult nonpatients to approximately 0.8 in 7-8 year-old children, and 2.12 in a sample of adult character disorders (Exner, 1990).

Thought processes. The number of human movement responses (M) and the organizational efficiency (Zd) scores served as measures of basic thought processes. The average number of M responses in a protocol varies from 1.96 in 6 year-olds to 4.14 in 13 year-olds (Exner, 1990). The average Zd score for 6 year-olds is -1.38, and for 13 year-olds is 1.37.

Drive regulation. The ratio of FC to CF + C responses represents the subject's ability to regulate his/her emotional states. The average for six year-olds is 1.11: 5.56 (0.20), whereas that of 13 year-olds is 2.95: 5.73 (.51; Exner, 1990). This ratio was initially reduced to one number (named CR) for ease of statistical comparison, but significant numbers of 0 scores were found on both the FC and the CF+C side of the ratio, leading to a large number of missing cases for the variable. Thus it was recoded as an incremental categorical variable with seven values ranging from -3 to +3, and was

given the name "Color Balance" (CB). These values were assigned according to the degree of differential between the two sides of the ratio, using the following decision rules: e.g.: $-3 = FC+2 < CF+C$; $-2 = FC+1 < CF+C$; $0 = FC = CF+C$; $+3 = FC > CF+C+2$.

Procedure

All information was extracted from case files, copied without the subject's name, and filed according to a code number to protect confidentiality. Subjects were selected for the study based on age, availability of WISC-R/WISC-III and Rorschach data, and status as abused or neglected (identified by DHS), or with no history of abuse or neglect (control group). Some of the physically abused and control group children may also have been included in previous analyses of object relations functioning in studies by Ornduff's research group (Ornduff & Kelsey, 1996; Freedenfeld, Ornduff, & Kelsey, 1995), since virtually the same (large) database was used for this study. Most of these subjects were tested between 1987 and 1991, although a few were tested as early as 1982 or as late as 1995. Subjects were excluded from the study if case files were incomplete regarding variables of interest, if the Rorschach contained less than 14 responses, or if there was evidence of psychosis or IQ below 70.

WISC-R/WISC-IIIs and Rorschachs were administered as part of a larger test battery which included achievement, perceptual-motor, and other personality measures. All tests were administered individually by DCGC staff or trainees with at least a master's degree in psychology and formal training in psychological assessment. Testing was supervised by a licensed psychologist. WISC-R/WISC-III scale scores and subtest

scores were copied for subjects in each group and the relevant scores recorded for data analysis.

The Rorschachs for all subjects were scored originally according to Exner's Comprehensive System, although different versions may have been used by the test administrator depending on when the subject was tested. Protocols were rescored for this study by two scorers (the author and a doctoral level psychologist, Dr. Ted Coyle) with extensive experience using the Exner Comprehensive System. Exner's most recent (1990) revision was utilized for this study. Protocols in the Neglect and Physical Abuse groups were scored by Dr. Coyle and the author. The author scored all protocols in the control group as well, and Dr. Coyle scored those in the control group where the original scoring was not available (6 protocols) for interrater reliability of scoring. In order to prevent any bias in scoring, another student assigned sequential numbers to the protocols of the groups, in random order, so that the scorers were blind as to group membership. Interrater reliability was calculated between the two current scorers where applicable (on all protocols scored by Dr. Coyle), and between the author and original scorer in the remainder of the cases. Reliability was calculated separately for each variable as the category agreement formula given by Smith, Feld, and Franz (1992):

$$\frac{2 X (\text{the number of agreements})}{(N \text{ present scored by scorer \#1}) + (N \text{ present scored by scorer \#2})}$$

Results were: \underline{M} = .91; \underline{P} = .89; pure \underline{F} = .94 (basis of calculation of Lambda variable); Form quality ordinary = .88 (basis of X+% variable); and Z frequency = .93 (basis of Zd variable). Interrater reliability was lower for the C, CF, and FC variables (.72, .71, and

.63, respectively), so a third scorer and Rorschach expert, Dr. Aubrey Washington, scored the protocols with the highest numbers of disagreements for the color variables. This brought the reliabilities on the most difficult protocols (comparing the previous composite scores on these protocols to Dr. Washington's scores) up to: $C = .85$; $CF = .71$; and $FC = .84$. Although CF is not as reliable as the other Rorschach variables, it is consistent with other work in this area (Ashe, Nakata, Hibbard, Greene, & Lordinak, 1997) and adequate for the purposes of this study. After determination of interrater reliability, disagreements on scores were resolved by discussion and calculations for statistical purposes were made using composite scores resulting from the discussions.

A number of protocols were poorly inquired. In Rorschach testing, after the initial responses (objects or percepts) are obtained from the subject, the examiner goes through the cards once more asking the subject what about the blot suggested whatever percept was originally named. This inquiry is the process by which the determinants, such as C , CF , or FC , are established, and its complexity and the immediacy and time limitations of the testing situation make it particularly vulnerable to error when trainees are testing. The rescoring process for this study used Exner's conservative criteria for scoring of the determinants, without the option of inquiring further about responses which appeared likely to have included one of the color or shading determinants. This forced conservatism was biased in the direction of F (which basically operated as a default determinant for inquiries where insufficient information was acquired to score shading or color), and against color and shading. Although this study did not address shading directly, when shading was present but could not be scored due to insufficient inquiry, the

resulting score generally contributed to the F score of the protocol in question. The prevalence of this problem would be reflected in increased Pure F and Lambda scores as well as in decreased C, CF, and FC responses (it would also result in lower shading scores, but these were not calculated for this study). Poor inquiry would be expected to have little impact on the other Rorschach variables (M, P, X+%) because they are typically evident from the initial response and need little inquiry to establish them.

The X+%, M, Zd, P, Lambda and FC:CF+C scores were recorded for each subject. FC:CF+C scores were reduced to one number, called Color Balance (see previous definition), and then treated as a continuous variable for statistical purposes, as were X+%, M, P, and Lambda. Degree of underincorporation and overincorporation was defined by creating two variables, with all Zd scores above 0 set to 0 to evaluate underincorporation, and all scores below 0 set to 0 to evaluate overincorporation.

CHAPTER 3

RESULTS

Descriptive Analyses

Data Transformations. Frequency distributions, together with data on range, skewness, and kurtosis were examined for all variables to test for normality of distribution and linearity. Two variables were significantly skewed: R (skewness index = 1.7), and Lambda (2.3). Kurtosis was extensive in these variables (R: kurtosis index = 4.4; Lambda: 4.7). In order to normalize them, several transformations were made. The highest value of R, 53 (which was 4 standard deviations above the mean and 2 standard deviations above the next highest score) was recoded to reflect the next highest response plus one (38). After this process, the recoded R showed a skewness index of 1.0 and kurtosis index of .29. Because there was no clear outlier which accounted for the skewness of the Lambda distribution (it was due to an excessive number of high scores), a square root transformation was performed, after which the skewness was reduced to 1.6 and the kurtosis to 2.0. As was done for the subject with the extensive number of responses, one subject's IQ score of 141 was recoded to the next highest score plus one because of its status as more than 3 standard deviations above the sample mean. These transformed scores for R, Lambda, and FSIQ were used in all subsequent data analyses.

The FC and C variables were also significantly skewed (indices = 1.9 and 1.6, respectively), and kurtosed (indices = 3.8 and 1.8). This was due to a marked floor effect and the distribution did not lend itself to transformation.

Rorschach intercorrelations. A series of correlations was performed relating R to Rorschach variables X+%, Zd, Lambda, CB, M, and P to test for any confounding of these variables with record length. Because of the unusual distributions of some of the variables, both Pearson and Spearman correlation coefficients were compared, with very similar results except as follows. For Table 1: 1) M with R: Pearson = .33. ($p < .001$); Spearman = .11, (nonsignificant = n.s.); 2) M with overincorporation: Pearson = .43 ($p < .001$); Spearman = .20 (n.s.); 3) M with CB: Pearson = .28 ($p < .05$); Spearman = .23 (n.s.); 4) P with Zd: Pearson = .17 (n.s.); Spearman = .24 ($p < .05$); 5) X+% with underincorporation: Pearson = -.21 (n.s.); Spearman = .25 ($p < .05$); and 5) Zd with CB: Pearson = .22 (n.s.); Spearman = .27 ($p < .05$). For Table 4 the discrepant correlations were: 1) other home problems with underincorporation: Pearson = .40 ($p < .001$); Spearman = .27 (n.s.); 2) other home problems with Zd: Pearson = .28 ($p < .05$); Spearman = .19 (n.s.); and 3) total home problems with Zd: Pearson = .20 (n.s.); Spearman = .26 ($p < .05$). Other discrepancies were: 1) Lambda with FSIQ: Pearson = -.26 ($p < .05$); Spearman = .21 (n.s.) and FC with R: Pearson = .47 ($p < .001$); Spearman = .20 (n.s.). The majority of these differences were due to a few outliers in the distributions of one or both of the variables. Because of the continuous nature of the variables and the greater ease of interpretation of the Pearson r , it will be utilized throughout the data analysis and discussion.

R correlated significantly with only two of the Rorschach outcome variables of interest, negatively with X+% and positively with M (see Table 1 in Appendix). R has often been found to be correlated with other Rorschach variables, often several (for summary, see Meyer, 1992). In fact, although R was not correlated with most of the indices created by transforming or combining other Rorschach variables used in this study, it was correlated with the raw scores used to calculate several of the variables. Table 2 (see Appendix) compares correlations with R of the raw scores with their index variables. Note that CF and FC are only two of three raw scores used in the calculation of CB. The other, C, had a negligible correlation with R. F (pure Form responses) and FQo (Form quality ordinary) are the sole raw scores used for their respective indices.

It is not clear why CF and FC were correlated with R, whereas C was not. All four determinants (C, CF, FC, and F), as well as FQo are likely to increase as R increases, due to increased opportunities to utilize them. However, the rarity of the C variable may have obscured the relationship.

The indices, being arithmetic transformations of the raw score, are not expected to correlate with R. The strong negative relationship of X+% with R is unexpected, suggesting that the quality of the forms of the responses deteriorates with increasing length of protocol. The X+% value has already been corrected for R (FQo divided by R to produce X+%). The study sample mean for X+% was approximately half the value of Exner's normative 10 year-old value (0.41 compared to 0.76). This may reflect the difference between a clinical and a normative (nonclinical) sample. However, other studies have also found lower X+% scores in children. Using children from this same

database (DCGC archival test data) as well as those from a community sample recruited from local schools and churches, Coyle (1994) found an overall sample mean $X\%$ of 0.41 (S.D.=.12). His Community group mean (0.36, S.D.=.14) was significantly lower than the clinical groups (Physical Abuse group mean=.44, S.D.=.12; Clinical Control group mean = .42, S.D. = .10; $p = .05$), and interestingly, the community sample's FSIQ was significantly higher (FSIQ = 111, S.D. = 14.3) than the clinical control group sample (FSIQ = 99, S.D. 14.1). R in the present study was correlated significantly with FSIQ and Similarities (Sim). The correlation of M with R is expected, due to a greater number of opportunities for M with an increased number of responses.

Lambda, although not significantly related to R, showed a strong negative correlation with M (-.53) and FC (-.39). The lack of relationship with R was not surprising, since the calculation of the score includes a correction for R (Lambda= Pure F/ R-F). Because Lambda by definition is decreased as M and/or color responses increase (since an M or C/CF/FC score precludes an F score), negative correlations are expected with these variables. The sample mean for Lambda was much higher than Exner's normative value (2.22 compared with 0.49). It may be that children in the present study were much more defensive than the children in Exner's sample, but it is likely that at least some of the increase was due to the archival nature of the study and the increased use of F scores when color was not scorable.

The M variable was significantly correlated with several other Rorschach variables in addition to Lambda, including P, Zd, overincorporation, and CB. M also was significantly correlated with FSIQ. The centrality of M was unexpected, although several

of its correlations were not surprising. M is associated with the ability to delay gratification and use internal resources for problem-solving. Higher Zd scores are associated with an individual's increased tendency to invest effort into scanning activities, which are facilitated by the use of delaying tactics typical of high M respondents (Exner, 1993). Exner, Viglione, and Gillespie (1984, reported in Exner, 1993) found a significant positive relationship between M and Z frequency (basis of Zd score). Ability to delay gratification is needed for higher CB scores, since high scorers have a greater ability to modulate affect. M was strongly associated with overincorporation, suggesting that imaginative children also tend to organize their perceptions more than children who are more concrete in their perceptions. This effect was not seen when a Spearman correlation was used, indicating the possibility that outliers contributed significantly to the relationship. M was also positively correlated to CB, indicating that imaginative children tend to modulate their emotions to a greater extent than other children.

Other Rorschach intercorrelations which were significant were those between X+ and P (positive), and overincorporation and CB (see Table 1 in Appendix). Both X+ and P involve the ability to respond to common social expectations, although Exner reported a negligible correlation between them (Exner, Viglione, & Gillespie, 1984, reported in Exner, 1993). Overincorporation involves careful scanning of the environment to thoroughly process all elements; this style might easily be associated with one of modulating affective responses.

Demographic variable intercorrelations. A correlation matrix (using Pearson's r) for all variables using all subjects was used to assess degree of overall relationship among

the variables to assess their independence (see Tables 3-5 in Appendix). Because of the extent of the missing data for the AFDC (61% in the Neglect group and 30% in the Physical Abuse and Control groups), income (73% in the Neglect and Physical Abuse groups and 6% in the Control group), and caretaker age (50% missing for Neglect group; 37% missing from Physical Abuse Group; 13% missing from Control group) variables, they were not included in these or further analyses. The subject's grade was so strongly correlated with age (.95) that no new information was gained from considering it. Thus grade was also dropped from the analysis. For economy of presentation, binary coded variables will be point-biserial correlations or phi-coefficients. These, like the Pearson r , can be interpreted when squared as percent variance accounted for in one variable by the other.

Table 3 (see Appendix) presents the intercorrelations among the demographic variables. Only a few were significant: subject ethnicity (coded: 1= Other, 2=Caucasian) was negatively correlated with number of siblings in the original home, which suggests that African-American and Hispanic families tended to be larger. Placement status (Coded 1= home; 2= DHS or relative) was significantly negatively correlated with the number of adults (coded 1= one; 2= two or more) in the home of origin, indicating that the children placed outside the home most often came from single parent families. Number of siblings in the home was related to both placement status and behavior problems. Presence of drug and alcohol problems (coded 1 = no; 2 = yes) was positively associated with presence of domestic violence (coded the same way).

Demographic/Outcome variable correlations. Table 4 (see Appendix) presents the correlations between demographic and outcome variables. Caucasian subjects scored higher on the Similarities (Sim) and Picture Completion (PC) subtest scores as well as FSIQ scores and total number of Rorschach responses (R). Placement status was positively related to X+%, suggesting that placement outside the home was associated with children who were better able to perceive conventional forms in the blots. This was an unexpected finding. The effect may be mediated by R, which was larger in control children, and also negatively associated with X+%. Caucasians were less conventional (had lower X+% scores) than African-American or Hispanic children. Older subjects had higher CB scores, which is consistent with Exner's normative data on the color variables (CB correlation with CR = .83, $p < .001$). Number of siblings in the home was negatively correlated with Sim, PC, FSIQ, and R. Children in single parent homes tended to have higher M and P scores. Children with behavior problems or who lived in homes with drug or alcohol abuse tended to have lower PC scores. Children who lived in homes with domestic violence generally had lower R scores.

Children with other home problems tended to have higher FSIQ, Zd, and underincorporation scores. This may reflect the fact that often more information was known about Clinical Control children (many of the "other home problems" were less serious in the sense that they did not result in removal from the home). Removal, more common in the other two groups, resulted in a loss of attendant information about less serious ("other") problems in the home. Thus the Control group, whose IQs and Sim

scores were higher than the other groups' scores, is probably overrepresented among children classified as having "other home problems".

WISC-R/WISC-III and Rorschach variable correlations are presented in Table 5 (see Appendix). As expected among subscales in a major assessment instrument, Sim and PC were strongly correlated to FSIQ and to each other. M and R were also positively correlated with FSIQ in this sample. Lambda was negatively correlated to FSIQ. R was positively correlated to Sim scores.

Conspicuous by their absences were correlations between Rorschach M or Zd and age. These variables vary substantially with age in Exner's normative samples (Exner, 1993). M varies from 1.96 at age 6 to 4.14 at age 13 (the age limits of this study sample). Zd varies from -1.38 at 6 years to 1.37 at 13 years. The fact that there is no significant correlation with age ($M = .14$, $Zd = .14$, $p = n.s.$) may in itself suggest that this population is not maturing at an appropriate pace.

Group Demographic Comparisons

Preliminary analyses comparing the groups with respect to the following independent variables for each group were performed: gender, age, ethnicity, number of siblings in the home, presence of a second parent-figure in the home, presence of drug/alcohol abuse, presence of mental health problems, FSIQ (Full Scale IQ) and R (number of Rorschach responses).

Continuous demographic variables. One-way ANOVAs were used to compare the groups on the continuous variables subject age, number of siblings in the home, FSIQ, and R. Table 6 (see Appendix), which presents these results, includes analysis of R and

FSIQ in order to evaluate possible group differences on IQ and Rorschach productivity. FSIQ was slightly lower in the physical abuse and the neglect groups, but the difference was not significant. R (recoded to correct the outlier) was significantly larger in the control group protocols.

Categorical demographic variables. A Chi-square comparison was made of the groups for the gender, ethnicity, number of adults in the home (one vs. two or more), presence of drug/alcohol problems, domestic violence, mental health problems, and other home problems due to their noncontinuous nature (see Table 7 in Appendix). In some cases categories were collapsed or groups combined in order to ensure enough cases per cell for accuracy of the Chi-square statistic (i.e., ethnicity and other home problems). Of the 43% of the sample listed as "Other" ethnicity, 22% were African-American and 21% were Hispanic. Significantly higher numbers of children from the Neglect and Physical Abuse groups were in DHS custody, as expected. There were two significant differences among the groups: number of adults in the home and placement status. Approximately 75% of both control and physically abused children had two parents in the home, compared to only 28% of neglected children. The behavior problems and other home problems variables were significantly skewed, but due to the binary nature of the variables and the inherent skew in the population, it was not possible to correct the problem.

Comparison of neglect group with national study. The neglected children in this study were quite similar to the neglected population described by Jones and McCurdy (1992) from the second National Incidence Study (NIS-2) of child abuse and neglect.

Table 8 (see Appendix) compares the NIS-2 percentages of various demographic variables with the percentages for the neglected children of this sample. Note that the NIS-2 sample was composed solely of physically neglected children, whereas this study sample included these as well as children who lacked supervision.

This sample had a much smaller proportion of girls than the national study (28% compared to 48%). It also had a larger percentage of Caucasians and smaller percentage of African Americans than the national study, and less information regarding income and AFDC status (not included in Table 8). The present study's neglected sample has generally similar proportions of "Other" ethnic minorities, two-parent homes, and relative numbers of children in the homes. Thus it appears to be representative of a national neglected population from a demographic perspective and findings should be generalizable to other neglected populations.

Outcome Variable Comparisons

Table 9 (see Appendix) presents the group and sample means as well as the standard deviations and F values for each of the outcome variables. The only variable which was significantly different among the groups (as measured by one-way analyses of variance) was PC (Picture Completion).

An important aspect of outcome variable results can be seen from the standard deviations for the variables by group in Table 9. The level of within group variance was high in most groups for most variables, although there tended to be more variance in the neglected group, especially for M and the Zd variables. The standard deviations are

notably higher in each group than in Exner's normative data sample and this increased variance mitigates against finding significant group differences.

Table 10 (see Appendix) compares the sample means with the normative (non-clinical) data (Exner, 1993) for each of the Rorschach variables of interest. The value for 10 year olds is given, since the mean age of the sample was 10. Five of the nine sample means are quite similar to Exner's normative sample means, including M, Pop, Zd, R and CR. Although the CR variable was not utilized as planned for this study, it was calculated from group means for the FC, CF, and C variables (FC group mean/ CF group mean + C group mean) both for Exner's 10 year-old normative group and for the study sample, in order to compare this study sample to normative data. The standard deviations are much higher in the study group because of the large range in ages (6-13), whereas the normative comparison is a group of 10 year-olds. Four sample means reflect notable differences between this study's sample and Exner's normative sample: X+% is much lower than the 76% Exner found (Exner, 1990), Lambda is much higher than in the normative sample, and C, CF, and FC values are much lower than in Exner's sample. Thus, it may be that the present study's sample is made up of children who are somewhat less adept at recognizing common percepts, and who are generally much more likely to oversimplify their perceptual world. They may be less responsive emotionally.

Hypothesis Tests

In order to test the research hypotheses, t-tests were utilized to examine specified group differences:

1. Hypothesis 1: Neglected children were expected to show poorer reality testing than clinical control children or physically abused children, reflected in lower X+% and P scores, and also poorer cognitive organizing abilities, reflected in lower Zd scores on the Rorschach. This hypothesis was tested using a t-test for each variable, comparing the neglected group's mean to that of the combined physically abused and clinical control children's group mean. Table 11 (see Appendix) presents the group means and t values for each variable. The means were very similar for X+% and P. One-tailed probability tests were used due to the directional nature of the hypothesis. None of these variables distinguished the groups. To test for any confounding of record length (R), group means for each variable were tested using an analysis of covariance procedure with R as a covariate. This did not significantly change the initial results. Age was also used as a covariate to evaluate its ability to explain some of the within groups variance, but this also did not significantly change the initial results.

2. Hypothesis 2: Neglected children were expected to show poorer basic cognitive functions than clinical control or physically abused children, as evidenced by:

a) reduced ability to fantasize or use abstract reasoning. These deficits were expected to be reflected in fewer M responses on the Rorschach, lower scores on the Similarities (Sim) subtest of the WISC-R/WISC-III, and

b) less interest in the environment. This was expected to be reflected by lower scores on the Picture Completion (PC) subtest of the WISC-R/WISC-III, and in higher Lambda scores on the Rorschach. This hypothesis was tested using one-tailed t-tests comparing the mean of the neglected group with the mean of the combination of the

physically abused and clinical control children's groups on each variable. Neglected children in fact showed only two significant differences from physically abused and control children on these measures. Table 12 (see Appendix) shows the group means, t values, and probabilities for each variable. Neglected children were, indeed, less able to correctly identify important details presented in their environment than were physically abused or clinical control children (reflected by lower PC scores). They also showed a reduced capacity for abstract reasoning, as measured by Sim. They showed about the same abilities to utilize fantasy (reflected by M) as the abused and control children.

3. Hypothesis 3: Neglected and physically abused children were expected to show poorer modulation of emotional discharges (regulation and control of drives, affects, and impulses) than clinical control children, reflected in lower CB scores from the Rorschach. This hypothesis was tested using a t-test. There was no difference between the neglected and physically abused children's mean ratio (-0.38) and that of the control group (-0.35; see Table 13 in Appendix). The near zero negative value of the means indicates that generally the children in both groups had slightly more CF + C responses than FC responses. Caution is needed in interpreting this balance for the sample, because overall these children used color less in their responses than Exner's normative group did, so the numbers that make up the balance are smaller and more subject to the floor effect (mean total numbers of CF per protocol for the Neglect, Physical Abuse, and Clinical Control groups were 1.67, 1.05, and 1.32, respectively, compared to Exner's non-clinical 10 year-old mean normative value of 3.68).

Stepwise discriminant function analysis was used to determine whether group membership could be predicted more accurately from children's functioning on a combination of the various tests of ego functions (Sim, PC, X+%, Zd, Lambda, CB, M, and P). All of these were treated as continuous variables. Stepwise entry of variables was used to assist in the determination of the importance of each specific variable in predicting group membership, as well as to provide a comprehensive test of redundancy among findings. Age and R were entered into the analysis in order to control for within groups variance and prior group differences. When subjects were grouped separately into the three study groups (Neglect, Physical Abuse and Clinical Control), only 51% of the cases were correctly classified. Although grouping the subjects to compare the neglected children with the other two combined groups brought the correct classification rate up to 74%, this was primarily an artifact of the uneven split in terms of group numbers, and only 4 of 18 neglected cases were correctly classified. Thus this analysis indicated that PC was the only variable which showed significant group differences, that it was insufficient to predict group membership, and that no other variables further improved prediction.

Exploratory Analyses

In view of the failure of the Rorschach variables of interest to distinguish the groups, other related variables were compared. Neglected, physically abused, or control children might differ, not on their modulation of their affect, but rather on their responsiveness to affective stimulation. This is measured by the number of responses to the chromatic Rorschach cards (cards VIII-X) compared to the number of other responses

(number of responses VIII-X/ number of responses I-VII). This is called the Affective Ratio, or Afr. Individuals who respond to the multi-colored (last three) cards with increased numbers of percepts compared to the number of responses given to the first seven (primarily achromatic) cards have been interpreted by Exner (1993) as being attracted by emotional stimulation. In fact, children in the physical abuse group showed significantly higher responsiveness to emotional stimulation, as measured by Afr, than the children in the other two groups (see Table 14 in Appendix). Exner's norm for Afr (non-clinical 10 year-olds) is 0.63. The difference between the Neglect and Physical Abuse groups indicates that neglected and clinical control children tend to be less responsive to emotional stimuli than physically abused children.

Another Rorschach index of affective functioning is the "Weighted Sum of Color" (WSC). This index consists of the equation:

$$WSC = .5 (FC) + 1.0 (CF) + 1.5 (C)$$

It is generally interpreted to reflect affective resources (Exner, 1993). As previously discussed, the levels of color use were much lower in these protocols; thus the sample mean for WSC, 2.37 (S.D.=1.88), was notably lower than Exner's mean for non-clinical 10 year-olds, 5.16 (S.D.=1.25). Comparing the grouping prediction for Hypothesis 3 (comparison of the neglected and physically abused children's mean to the clinical control children's mean), there was no significant difference initially. However, after age and R were used as covariates (due to the variation of the C variable with age, the CF variable with R, and the initial group differences in R), the effect was significant (two-tailed $p = .02$), although in the opposite direction than would be expected. The result suggests that

neglected and physically abused children (mean = 2.61, S.D. = 1.88) have more affective resources available to them than clinical control children (mean = 2.10, S.D. = 1.88).

The FC value is interpreted to represent a cognitively-modulated affective response. Although the ratio of FC: CF + C (CB or extent to which subjects are capable of modifying their affective responses) was not significantly different between the two hypothesized groups, the numbers of FC in each group were significant when age and R were used as covariates (mean for Neglect + Physical Abuse = 1.35, S.D. = 1.58; mean for Control = 1.06, S.D. = 1.44; $p = .02$). This is opposite the direction predicted by the hypothesis.

CHAPTER IV

DISCUSSION

This study has examined the cognitive and emotional functioning of neglected, physically abused, and clinical control children using an object relations theoretical perspective. The expectations that neglected children would be less cognitively capable in terms of abstract reasoning (Sim) and perceptual interest and processing of their environment (PC) were supported by the findings. Predictions that they would differ on conventionality of object perception (P) or reality testing (X+%), complexity of approach to the environment (Lambda), efficiency of processing (Zd), imagination (M), and ability to modulate affect (CB) were not supported.

The fact that Sim and PC in fact distinguished the neglected children from the other two groups lends support for the idea that neglected children's cognitive functioning, more specifically their capacity for abstract reasoning and ability to attend to and effectively process environmental stimuli, is less than that of physically abused and clinical control children. PC and Sim were the only two of the measures used that distinguished the Neglect from the Physical Abuse and Control groups as hypothesized. The PC result suggests that neglected children are indeed not as attentive to or able to process environmental cues as physically abused or control children are. Lerner and

Lerner (1985) theorized that neglected children would be less interested in their environment (which is mediated by basic cognitive functions), and in fact, as this study has operationalized the construct, they do appear either less interested or less capable of interpreting environmental stimuli. The Sim subtest was also significantly lower in neglected children based on a one-tailed test. This supports the hypothesis that neglected children are less able to use abstract reasoning than are physically abused or control children. Based on intellectual testing, then, at least two cognitive functions are significantly impaired in neglected children.

None of the Rorschach hypotheses were supported by this study. One possible explanation of these findings is that, in fact, neglected children are not significantly different from abused and clinical control children in the specific cognitive functions measured. Another possibility is that the children in this DCGC sample were not as seriously neglected as children in other studies, or that their neglect was less chronic and therefore less damaging. Alternatively, it is possible that the abilities on which the children differ are not the same as those addressed in this study, or that some of their cognitive abilities are different, but that the Rorschach measures used are not sufficiently sensitive to measure them for this purpose. The group sizes for the maltreated children were quite small (Neglect = 18; Physical Abuse = 19). Statistical power is dependent in part on sample size and it is possible that with larger samples of neglected children and use of more sensitive measures, some of the hypotheses might have been supported.

Although M is believed to reflect elements of abstract reasoning abilities (operationalized in this study as Sim) and also was predicted to be lower in neglected

children, the groups did not differ significantly in numbers of M. The idea that M and Sim are measuring different constructs is supported by the fact that they are not significantly correlated with each other, even when R and age were controlled (Pearson correlation coefficient = -.00). M is also interpreted to reflect capacity for imagination, and these results indicate that neglected children are approximately as imaginative as physically abused or clinical control children, and similar to Exner's normative sample (see Table 10 in Appendix). This is interpreted according to object relations theory to mean that neglected children are as capable of imagination or fantasy as other children their age regardless of experience with their caregivers.

Other predicted group differences utilizing Rorschach variables also did not appear. X+% and P scores were very similar between the two groups, and neither the overall Zd score nor the separated underincorporation and overincorporation scores distinguished the neglected group. Neglected children did not appear to be less adept at perceiving conventional percepts (X+%) or less able to organize their perceptions (Zd), as these constructs were measured in this study, than were physically abused or control children. The children in both groups were also just as able to recognize the most commonly seen percepts (P). Thus, neglected children appeared about as capable of utilizing shared social perceptions as physically abused and control children.

In comparison to Exner's non-clinical normative sample, the Lambda and CB (and WSC) results were unusual. The groups did not differ significantly from each other for the Lambda and CB variables. However, Lambda values were much higher and color responses were much lower in the present study sample than in Exner's sample. This may

indicate that most children in the DCGC sample tended to ignore stimulus complexity by oversimplifying their perceptions. Alternatively, it may suggest another interpretation of high Lambda scores, such as given by Exner (1993). He said the high Lambda style served young children well, who were often unable to cope with the complexity of their world, but that in cases where the style persisted into adolescence, it was sometimes generated by "a sense of social deprivation and an excessive preoccupation with need gratification" (p. 405). This may well characterize much of the DCGC sample. Since these children's Lambda was high compared to other 10 year-olds, it may reflect the greater neediness and deprivation (especially of the neglected and physically abused groups) of this clinical sample compared to Exner's nonpatient children.

The fact that these children had lower overall color scores (FC, CF, C, WSC) would indicate that the children had fewer affective resources available from which to draw. Object relations theory predicts that neglected children have not been given the basic cognitive structures needed to modulate their affective discharges, while physically abused children also grow up without a demonstrated model of affective regulation (since parental affect is often unregulated). The results of this study suggest that physically abused and neglected children do not differ from clinical control children in their affective regulation (CB is not significantly different). In contrast, when either WSC or FC are considered, physically abused and neglected children do show significant differences from clinical control children, in that they appear to have more affective resources available and more well controlled emotional experience than the control sample.

Although the findings that the maltreated children essentially are more emotionally resourceful and modulated than clinical control children run counter to the study's hypothesis regarding affect, it could result from the contribution to the clinical control mean of the 15-25% of the clinical control children who were referred for Attention Deficit-Hyperactivity Disorder testing. They would be expected to have lower FC scores reflecting their impaired ability to modulate their emotional responses. Alternatively, the results could be interpreted in light of the fact that physically abused children, for instance, probably learn early that modulation of their own angry feelings has self-protective consequences. This modulation would therefore be reinforced despite the contrary model of parental behavior they observe.

It may be that neglected children must learn to cope precociously with interpersonal problems without benefit of parental aid, and this may make them look "older" on the FC score (FC increases with age in children). Campo (1988) has described what she called "precocious ego development" in children, reflected in higher than usual M scores relative to Animal Movement (FM) scores. She said the high M was associated with an early introversive style which resulted from an attempt to use adult defensive resources before the child's cognitive abilities had matured (possibly due to lack of parental support). She felt the precocious style (though initially helpful to the child) led to a rigidity in coping style which later interfered with developmental adjustments. FC, as representative of a more mature regulation of emotional life, may suggest a similar precocity in this sample.

Although it was not included in the hypotheses, the Affective Ratio (Afr), a measure of a subject's responsivity to emotional stimulation, showed a significant difference between the Physical Abuse group and the other two groups. The neglected and clinical control children showed significantly lower responsiveness than did physically abused children, whose group mean was the same as Exner's normative (non-clinical) mean for the age of ten. This finding is interesting in light of the fact that, although the mean CB was somewhat higher for the physically abused group, the difference was not significant, indicating that physically abused children regulate their emotional reactions about as much as the other children. The Afr, on the other hand, suggests that neglected and clinical control children respond significantly less often to emotional stimulation than do physically abused children. The children do not differ in terms of their modulation of their feelings when they express them, they simply do not respond as much as physically abused children in this sample (and nonpatient children in Exner's sample) do in emotional situations. This result is consistent with the Hoffman-Plotkin, and Twentyman (1984) finding that neglected children displayed fewer social interactions than abused or control children and Crittenden's (1992) finding that neglected children were more passive and socially withdrawn than abused or comparison children.

The fact that the clinical control group also showed less reactivity to social stimulation is expected given that this clinical control sample was not a "normal" control group but a comparison group which was comprised of nonmaltreated but nonetheless disturbed children. These results could be explained due to the proportion of the clinical control children that were depressed, since depression is associated with a lower Afr and

WSC than those found in nonpatients (according to Exner's standardization data on nonpatient and inpatient depressive adults, Exner, 1990). Diagnostic and Statistical Manual diagnoses were not generally included in the testing reports, so this information was not quantified or included as part of the present study, other than the general observations of referral problems discussed previously.

There were large differences between the study sample and Exner's non-clinical normative sample on the Lambda and color variables. There was a very pronounced floor effect in the color variables. Excessive numbers of zero scores lowered the amount of variance in the groups. The Lambda and color variable differences from the normative values could be interpreted in at least three different ways. First, Exner's sample was a non-clinical group whereas the present study consists only of children referred for clinical testing and/or treatment. Thus some differences are to be expected in an instrument primarily used to detect clinical problems. This interpretation assumes that these differences are reflective of actual differential affective and stimulus processing abilities.

Second, the differences could also have resulted from poor inquiry (or poor recording of response) for a small number of subjects at the time of the testing. If this were the case, it would cause Lambda to be artificially inflated and the C, CF and FC numbers to be reduced in this study. Therefore, these differences from the normative values, which in fact occur in the direction which is predicted from the nature of the problem, may be partially an artifact of administration errors. It is virtually certain that at least some portion of the difference in scores between the current study sample and the normative data is attributable to this problem. However, it is not possible to determine

how much, if any, of the elevation in Lambda or the suppression of the color variables may be due to administration errors versus psychological constriction in the sample. There is no reason to suspect that there was any differential effect of the administrative errors on any of the three groups compared for the present study. Thus although the raw scores may not reflect the extent of color use intended by the subject (on the poorly inquired protocols), the poorly inquired protocols are likely to have been equally distributed among the groups, leaving the validity of group differences on the variables intact.

A third possible explanation for the high Lambda and low color scores is drawn from a study of adults with panic disorder (de Ruiter & Cohen, 1992). They suggested that such patients suffered from a deficit in negative affect-regulating capacity, coincident with defenses such as repression, avoidance, denial, and reaction-formation against dependency needs. They found evidence for an avoidant information-processing style (86% of panic disorder group had Lambda > .99 compared to nonpatient 5%), a constricted affective life (WSC = 1.55 compared to nonpatient mean = 4.52), and low Afr (.51 compared to nonpatient mean = .69). They interpreted a low Food content category in the group as indicative of a reaction-formation against dependency needs. Although the de Ruiter and Cohen study addresses a specific clinical adult population, their hypotheses and findings may present a larger framework from which to interpret the results of the current study of clinical children. The similarity of the results to those of the children in the current study is unusual. The means for the total sample of these children compared to Exner's non-clinical 10 year-old sample show the same pattern:

Lambda = 2.22 versus 0.49; WSC = 2.37 versus 5.16; Afr = .53 versus .63. In fact, in a group of neglected children, one might logically expect to see a denial of, or reaction formation against dependency needs, since presumably many of them had not been met historically for the children. Object relations theory predicts a lack of interest in the environment, but this could also be interpreted as an avoidant information processing style (represented by high Lambda). It is possible that the low levels of color use in the sample reflect, as suggested by de Ruiter and Cohen, a deficit in negative affect-regulating capacity. The fact that the maltreated groups actually had higher WSC scores than the clinical control group would be consistent with the possibility (discussed earlier) that the clinical control group contained more depressed subjects than the maltreated groups.

An interesting question was raised by the correlations of R with both FSIQ and Sim (the correlation with PC was .23 but not significant): what common construct may be responsible for the shared variance? One possible explanation for this relationship is that R represents a capacity for verbal fluency. There is some support for the verbal fluency hypothesis because Verbal IQ (IQ on the verbal portion of the test) was positively correlated to R, explaining 10% of the variance between them. The Performance IQ correlation with R was only marginally significant, and only explained 4% of the variance. Also, the correlation with Sim was larger than the FSIQ correlation, explaining 9% of the variance between R and Sim. M was also correlated with IQ, and has frequently been associated with intelligence (Exner, 1993). Many of the qualities

associated with M correlate with IQ, e.g. capacity for imagination, abstract reasoning, delay of gratification, etc.

The negative correlation of X+% and R was surprising. However, given the relatively finite number of ordinary form percepts for the blots, it might be expected that in protocols of extended length, some of the percept qualities would be poorer as the subject tried to produce more responses. This association has characterized other studies as well (Coyle, 1997, personal communication). X+% was also correlated positively with P and negatively with Zd. Thus children who recognize the most common percepts (P) also tend to give more conventional responses. High Zd scores result from "overincorporation", or cautious scanning of the stimulus in order to take in everything of importance. Such individuals tend to try to include all aspects of the blot rather than ignoring some aspects that are difficult to integrate. These types of responses tend to be less conventional and receive lower X+% scores.

Limitations and Strengths of the Study

The current findings should not be interpreted to mean that neglect has little effect on children's cognitive and emotional functioning. It is clear from numerous studies that neglected children's language functioning (Allen & Oliver, 1982), school performance (Eckenrode, Laird, & Doris, 1993), IQ (Egeland, 1993; Hoffman-Plotkin, & Twentyman, 1984), and moral judgement (Smetana, Kelly, & Twentyman, 1984) are impaired relative to nonmaltreated peers. They have been found to be less securely attached to their mothers, less able to cope (Erickson, et al., 1989), more passive and withdrawn (Crittenden, 1992), and to be involved in fewer social interactions in general than either

abused or control children (Hoffman-Plotkin & Twentyman, 1984). This present study attempted to identify a theoretical framework which could be utilized to clarify the mechanisms by which these problems associated with neglect in children develop. The fact that few of the hypotheses were supported suggests the need for further study on this issue including, ideally: larger samples, prospective rather than retrospective or archival work, and the development of other working theories regarding the ways in which neglect impacts children's functioning.

Demographically, this study's neglected sample was similar to a nationally documented neglected population. This and the fact that many of the outcome variables were similar to normative sample data, suggest that the data obtained from this sample can be generalized to other such populations. Ethnic minorities were well represented in the sample. In the present study, the neglect group had a higher percentage of Caucasians and a lower percentage of girls than the national study reported by Jones & McCurdy (1992). This section will discuss some of the problems with the study which may affect the validity or interpretation of the findings.

This present study sample was somewhat unusual in its gender composition. Although there were no significant group differences, only 37% were female. This is likely to be an artifact of the referral process: children who cause problems at school or at home tend to be referred for testing more often than children who may have been removed from their home for abuse or neglect. In the age range covered by the study, 6-13, more boys typically are referred for testing and treatment than girls. It is doubtful that this has an effect on the results since analyses of outcome variables grouped by gender

showed no significant differences. However, the sample may be biased in underrepresenting the kinds of problems girls experience.

Children who were placed outside of the home were more likely to have come from single-parent homes. This finding supports other work which indicates that neglecting families tend to be more vulnerable than nonmaltreating families in many ways, including having fewer caretakers available to aid in child care and other family responsibilities (Jones and McCurdy, 1992). This characteristic of the sample both lends external validity to the study because of its similarity to the national sample, and complicates the interpretation of the Sim and PC results due to possible confounding of caregiving quality and number of caregivers in the home.

In view of Paget et al.'s (1993) statement that family income is an important variable in understanding neglect, it is unfortunate that the information regarding income and AFDC status were largely unavailable from the archival records, as was information regarding parental education and occupation. This information would have significantly improved the overall characterization of the sample and perhaps shed some light on pre-existing group differences which may have influenced the results of this study. It is possible that the Sim and PC effects are related to lower income in the neglected group, since that group had the highest frequency of single parent homes (which are generally associated with lower incomes than two-parent homes). Hewlett (1992) indicated that living standards for ex-wives decreases 30% after divorce, and that two thirds of divorced fathers fail to pay child support (Nussbaum, 1988, quoted in Hewlett, 1992). Of the six (out of 18) families for whom information was available in the present study, four had

incomes less than \$15,000 and two were in the \$15-30,000 range. The results must be viewed with caution, therefore, because of the possible confounding of socioeconomic status (SES) with ethnicity. SES was not able to be addressed in this archival study due to lack of sufficient information in the case files.

As is typically the case, ethnicity was significantly related to FSIQ. It was also correlated with Sim, PC, and R. Caucasians generally had higher IQ scores as well as longer Rorschach records than African-Americans or Hispanics. This is consistent with Sattler's (1988) summary of Verbal, Performance, and FSIQ scores in African-American and white children. Although none of the ethnic group differences were significant, African Americans were more common in the neglected group (39%) than in the control group (16%) or physically abused group (16%). Hispanics were more common in the physically abused group (32%) than in the neglected (22%) or control (13%) groups. It is possible that the significance of the Sim and PC differences may be influenced by the ethnic composition in the groups, or more likely, by a mediating variable such as income or SES. Unfortunately, the latter data are not available to test this. Ethnicity has too often been used to make causal inferences about relationships among variables when in fact the relationship was due to one or more mediating variables such as SES.

Furthermore, in this study, both minorities may have had significant problems with a test tailored to middle-class white English-speaking children, particularly the Sim subtest because of the highly verbal nature of the task. Little information was given in the social histories regarding language/verbal facility, although at least one child's parent requested an interview in Spanish. However, if ethnicity were the primary influence, one

would expect its effect to be less salient on a performance (more non-verbal) task such as PC, for African-Americans (Saccuzzo, Johnson, & Russell, 1992) as well as Hispanics (Sattler, 1988). Hence if the effect were due primarily to ethnicity rather than to cognitive differences, PC should show less of an effect than Sim, but in fact the effect size was large for PC and only moderate for Sim. This supports the idea that the Sim and PC group differences are reflective of true cognitive differences between the neglected and the physically abused and control children. Number of siblings was also negatively associated with the same variables: FSIQ, Sim, PC, and R, and this effect most likely also mediated the ethnicity of the subject (which was negatively related to number of siblings), in that African-Americans and Hispanics tended to have more children than Caucasians.

Children in DHS or relative custody also tended to have somewhat higher X+% scores. The correlation with X+% should not be interpreted to mean that such children are more conventional; rather the effect is probably mediated through the R variable. This relationship was not sufficiently large to be reflected in higher scores for the two groups containing most of the children placed outside the home (Neglect and Physical Abuse). However, it suggests that the longer protocols of the Control group (with significantly higher R scores) were likely to contain more poor form quality percepts as well as increased numbers of responses. X+% was negatively associated with ethnicity, meaning that African-American and Hispanic-Americans were generally more conventional in their perceptions, but again, this effect was probably mediated by R.

Although the children in the present study sample as a whole were much less accurate in identifying percepts ($X+\%$) than Exner's non-clinical normative sample, the children in the present study showed abilities similar to a local non-clinical community sample (Coyle, 1994). Thus the reality testing of the children in the present study may not differ significantly from other non-clinical children in the same region.

It is possible that the samples used in this study were too small to detect the differences hypothesized between the groups on the Rorschach. Every effort was made to seek out further neglected child cases at DCGC, to no avail. Haller and Exner (1985) stated that small sample sizes create conditions under which even small variations in scores could influence or reduce the magnitude of a correlation. The small sample size of this study, together with the increased heterogeneity of the neglected group (since types of neglect were not separated), have been noted by Paget et al. (1993), as methodological problems which characterize the few available studies on neglected children. Due to its retrospective nature, this study, like most others, does not permit causal relationships to be determined. Like previous studies, this one was unable to assess and control for severity of neglect. As previously noted, defining, identifying, and working with neglecting families and children is very difficult, and this study shares the limitations mentioned above.

The cluster of five variables related to home environment, drug/alcohol abuse, domestic violence, other home problems, and total home problems are very much dependent on the quality and completeness of the social history information drawn from the file. In extracting this information, care was taken by the author to record multiple

problems when present and to be as complete as possible. However, due to the: 1) significant numbers of children placed outside the home (where information generally provided about home problems was scarce due to the absence of the parent); 2) very brief reports on older testing cases; and 3) significant possibilities either that an informant omitted or the clinician or trainee neglected to record information about one or more of these problems (especially when there were multiple problems), they cannot be considered dependable. Their primary purpose in this study was generally to characterize the sample demographically.

This study has a number of strengths relative to other research in this area. First, these children were asked about different types of abuse, in order to minimize confounding of types of maltreatment which would obscure findings (although in any study of maltreated/nonmaltreated children it is possible that either the children or their parents did not report existing abuse of whatever type). Second, standardized dependent measures were used to ensure replicability of findings. Third, scrupulous efforts were made to ensure interrater reliability of Rorschach scoring, thus improving the accuracy and therefore the power of the test to detect differences (measurement validity). Fourth, although numbers of cases were insufficient to permit matching, the groups were compared on significant demographic and base variables such as age, ethnicity, IQ, etc. and no significant differences were found except on the R variable. Fifth, the use of DHS-identified cases of neglect and the similarity of the group to the national sample gives assurance that the findings are generalizable to other populations (external validity).

Conclusions

Although this results of this study failed to support most of the research hypotheses, it makes a worthwhile contribution to the scarce literature on neglect and its effects on children. The results have demonstrated the negative effects of neglect on children's abstract reasoning abilities and their interest in and attention to their environment. These effects on their ego functioning were predicted by object relations theory. Other predicted differences on Rorschach measures were not found. It was predicted that the neglected children would show less conventionality of object perception (P), poorer reality testing (X+%), avoidant information processing style (Lambda), less efficiency of processing (Zd), and less use of imagination (M). Neglected as well as physically abused children were predicted to show less ability to modulate affect (CB) than clinical control children, and this hypothesis also was not supported.

However, several exploratory findings did demonstrate group differences in color/affect variables on the Rorschach. A measure of responsiveness to emotional situations (Afr) showed significantly less responsiveness in neglected and clinical control children than in physically abused children. WSC, a measure of the level of affective resources available, was relatively higher in the neglected and physically abused group compared to the clinical control group, but also lower in the total sample than in Exner's normative sample. These findings were interpreted to suggest that neglected and clinical control children were more constricted in their affective responsiveness than physically abused children. This could be due to social deprivation and passivity among neglected children or to depression and other clinical disorders in the control group. The apparent deficit in emotional resources in the control group was likely to have been influenced by

the frequency of depression in that group. Based on the high Lambda scores in the sample as a whole, all groups appeared much more defensive and avoidant than Exner's non-clinical group. The pattern of findings regarding color variables and Lambda suggested that the children in the present study also may be seen as using an avoidant processing style (high Lambda) and a constricted affective life (low Afr and WSC), resulting from earlier histories of deprivation (Neglect group) and/or emotional trauma (Physical Abuse and Clinical Control groups).

Several problems with the data set make interpretation of the results complex. First, it is possible that socioeconomic differences in the groups may have contributed significantly to the Sim and PC results. Missing data prohibited clarification of differences in SES, but other related variables (percentage single parent homes, ethnicity, number of siblings) suggested that ethnicity might be confounded with SES. Secondly, due to a technical problem with the archival Rorschach data, it is possible that the high Lambda and low color scores for the total sample may be partially artifacts of administration procedures for a few subjects. It appears unlikely, however, that this accounts wholly for the large differences in the scores (compared to Exner's nonclinical sample).

Demographically, this sample is generally reflective of other documented samples of neglected children. The non-significant findings on the Rorschach hypotheses suggest that neglected children do not differ from physically abused and clinical control children on the specific cognitive functions tested. Alternatively, these children may not have been neglected severely enough to impair their functioning on the measures used. The

small sample size may have reduced statistical power below that required for discovery of small effect-size differences in the functioning of the children in the different groups.

Object relations theory has provided a useful tool for understanding the internal cognitive and emotional functioning of maltreated children, and others have successfully utilized other measures in demonstrating negative effects of maltreatment on children's object relations (Freeddenfeld, Ornduff, & Kelsey, 1995; Ornduff & Kelsey, 1996; Ornduff, S.R., Freeddenfeld, R.N., Kelsey, R.M., & Critelli, J.W., 1994; Pistole, D.R. & Ornduff, S.R., 1994).

This study raises more questions than it answers. Neglected children clearly are damaged cognitively and emotionally, apparently by the inconsistency of their caregivers and the lack of needed physical and emotional support. However, because of difficulty gaining sufficient background information about the subjects' histories and family circumstances, as well as some technical difficulties with the archival Rorschach, it was impossible to draw firm conclusions regarding the outcomes. Several interesting observations were made, suggesting that this might be a useful conceptualization of the problem. Future research should utilize a prospective design rather than retrospective (and archival), and larger and better characterized samples of neglected children are needed.

APPENDIX
TABLES

Table 1

Rorschach Variable Correlations^a

| | M | P | Lambda ^{b,c} | X ⁺ % | Zd | Overin- corporation | Underin- corporation | CB ^d |
|-------------------------|--------|--------|-----------------------|------------------|-------|------------------------|-------------------------|-----------------|
| R ^c | .33*** | .15 | .12 | -.31* | .14 | .22 | -.03 | -.13 |
| M | - | .44*** | -.53*** | .50*** | .30* | .43*** | .12 | .28 |
| P | | - | -.12 | -.11 | -.17 | -.02 | -.27* | -.11 |
| Lambda ^{b,c} | | | - | - | -.01 | -.11 | -.06 | -.11 |
| X ⁺ % | | | | | -.27* | -.24* | -.21 | .05 |
| Zd | | | | | - | .78*** | .88*** | .22 |
| Overin- corporation | | | | | | - | .38*** | .38*** |
| Underin- corporation | | | | | | | - | .03 |

Note. N = 68 except as noted.

^a Pearson's r. ^b Square root transformation. ^c N = 67 ^d A high score indicates greater modulation of affect. ^e Recoded to delete outlier.

*p < .05. ** < .01. *** < .001.

Table 2

Comparison of R with Raw Scores and Rorschach Indices

| Raw Score | Correlation ^a with R | Index | Correlation ^a with R |
|-----------|------------------------------------|------------------------------|------------------------------------|
| CF | .37** | CB ^b | -.13 |
| FC | .47*** | CB ^b | -.13 |
| F | .64*** | Lambda ^{c,d} | .12 |
| FQo | .64*** | X ^{g%} ^e | -.31* |

^a Pearson's r; $N = 68$ except as noted. ^b Composed of FC:CF + C.

^c Composed of F/ R-F. ^d $N = 67$. ^e Composed of FQo/ R.

* $p = .01$. ** $p < .01$ *** $p < .001$.

Table 3

Correlations^a Among Demographic Variables

| | Placement Status | Age | Behavior Problems | # Adults in Home | # Sibs | Drug/Alcohol Abuse | Domestic Violence | Mental Health Problems | Other Home Problems | Total Home Problems |
|--------------------------------|------------------|------|-------------------|------------------|--------|--------------------|-------------------|------------------------|---------------------|---------------------|
| Ethnicity ^b | -.23 | -.01 | -.23 | .17 | -.42** | .01 | .00 | .08 | .23 | .11 |
| Placement Status ^c | - | -.11 | .16 | -.29* | .33** | -.10 | .08 | -.07 | .06 | .05 |
| Age | | - | .00 | -.05 | .11 | -.06 | .18 | .14 | .14 | .06 |
| Behavior Problems ^d | | | - | -.07 | .33** | .09 | .05 | -.02 | -.11 | .06 |
| # Adults in Home ^e | | | | - | .00 | -.05 | -.04 | .19 | -.05 | -.01 |

Note. N=68 except for: N=67: Total Home Problems; N= 66: # Siblings; N=65: Behavior Problems, Drug/Alcohol Abuse, Domestic Violence, Mental Health Problems. Information on home problems (Drug/Alcohol Abuse, Domestic Violence, Mental Health Problems, Other, and Total Home Problems) is less dependable than that for other variables (see text explanation).

^a Pearson's r. ^b Coded 1 = other, 2 = Caucasian. ^c Coded 1 = home, 2 = DHS or relative.

^d Coded 1 = no, 2 = yes. ^e Coded 1 = one, 2 = two or more.

*p<.05. ** p<.01. ***p<.001

(table continues)

Table 3 (continued)
Correlations^a Among Demographic Variables

| | Placement Status | Age | Behavior Problems | # Adults in Home | # Sibs | Drug/Alcohol Abuse | Domestic Violence | Mental Health Problems | Other Home Problems | Total Home Problems |
|-------------------------------------|------------------|-----|-------------------|------------------|--------|--------------------|-------------------|------------------------|---------------------|---------------------|
| # Siblings | | | | | | | | | | |
| | | | | | | | | | | |
| Drug/Alcohol Abuse ^d | | | | | | | | | | |
| | | | | | | | | | | |
| Domestic Violence ^d | | | | | | | | | | |
| | | | | | | | | | | |
| Mental Health Problems ^d | | | | | | | | | | |
| | | | | | | | | | | |
| Other Home Problems ^d | | | | | | | | | | |
| | | | | | | | | | | |
| Total Home Problems | | | | | | | | | | |

Note. $N = 68$ except for: $N = 67$: Total Home Problems; $N = 66$: # Sibs; $N = 65$: Behavior Problems, Drug/Alcohol Abuse, Domestic Violence, Mental Health Problems. Information on home problems (Drug/Alcohol Abuse, Domestic Violence, Mental Health Problems, Other, and Total Home Problems) is less dependable than that for other variables (see text explanation).

^a Pearson's r . ^b Coded 1 = other, 2 = Caucasian. ^c Coded 1 = home, 2 = DHS or relative.

^d Coded 1 = no, 2 = yes. ^e Coded 1 = one, 2 = two or more.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 4

Correlations^a Between Demographic and Outcome Variables

| | FSIQ ^b | R ^b | Sim | Pc | Lambda _c | M | P | X ² % | Zd | Over- incorporation | Under- incorporation | CB |
|-----------------------------------|-------------------|----------------|--------|-------|---------------------|--------|--------|------------------|------|------------------------|-------------------------|--------|
| Ethnicity ^d | .53*** | .30* | .49*** | .37** | -.12 | .08 | -.01 | -.24 | .05 | .01 | .09 | -.02 |
| Placement Status ^e | -.17 | -.05 | -.16 | -.10 | -.02 | .14 | .14 | .25* | .02 | -.07 | .08 | .03 |
| Age | -.04 | -.01 | .11 | .11 | -.01 | .14 | .11 | .13 | .14 | .22 | .03 | .33*** |
| Behavior Problems ^f | -.19 | -.08 | -.19 | -.25* | .14 | -.07 | .01 | .16 | -.02 | -.19 | -.11 | .00 |
| # Adults in Home ^g | .10 | -.16 | .14 | .19 | .05 | -.33** | -.32** | -.21 | .09 | .13 | .03 | .07 |

Note. N=68 except for; N=67: Lambda; Total Home Problems; N=66: # Siblings; N=65: Behavior Problems, Drug/Alcohol Abuse, Domestic Violence, Mental Health Problems. Information on home problems (Drug/alcohol Abuse, Domestic Violence, Mental health Problems, Other, and Total Home Problems) is less dependable than that for other variables (see text explanation).

^a Pearson's r. ^b Recoded to delete outlier. ^c Square root transformation. ^d Coded 1 = other, 2 = Caucasian.

^e Coded 1 = home, 2 = DHS or relative. ^f Coded 1 = no, 2 = yrs. ^g Coded 1 = one, 2 = two or more.

* p ≤ .05. ** p < .01. *** p ≤ .001.

(table continues)

Table 4 (continued)

Correlations^a Between Demographic and Outcome Variables

| | FSIQ ^b | R ^b | Sim | Pc | Lambda ^c | M | P | X ⁺ % | Zd | Over- incorporation | Under- incorporation | CB |
|--|-------------------|----------------|-------|-------|---------------------|------|------|------------------|------|------------------------|-------------------------|------|
| # Siblings | -.38* | -.30* | -.31* | -.26* | .00 | .00 | -.10 | .02 | .06 | .02 | .12 | -.18 |
| Drug/ Alcohol Abuse ^f | -.12 | -.23 | -.11 | -.27* | -.01 | .07 | .01 | .04 | .14 | .03 | .18 | -.13 |
| Domestic Violence ^f | -.23 | -.26* | -.24 | -.11 | .19 | -.11 | .12 | .22 | .00 | .01 | .00 | .14 |
| Mental Health Problems ^f | .05 | .01 | .01 | .17 | -.05 | .05 | -.07 | -.21 | .01 | .06 | -.03 | .06 |
| Other Home Problems ^f | .27 | -.10 | .24 | .06 | .03 | -.08 | -.09 | .01 | .28* | .01 | .40*** | -.02 |
| Total Home Problems | -.06 | -.31** | -.11 | -.10 | -.08 | .00 | .00 | .08 | .20 | .07 | .24* | .00 |

Note. $N = 68$ except for: $N = 67$: Lambda; Total Home Problems; $N = 66$: # Siblings; $N = 65$: Behavior Problems, Drug/Alcohol Abuse, Domestic Violence, Mental Health Problems. Information on home problems (Drug/alcohol Abuse, Domestic Violence, Mental health Problems, Other, and Total Home Problems) is less dependable than that for other variables (see text explanation).

^a Pearson's r . ^b Recoded to delete outlier. ^c Square root transformation. ^d Coded 1 = other, 2 = Caucasian.

^e Coded 1 = home, 2 = DHS or relative. ^f Coded 1 = no, 2 = yes. ^g Coded 1 = one, 2 = two or more.

* $p \leq .05$. ** $p < .01$. *** $p \leq .001$.

Table 5

Correlations^a Between IQ and Rorschach Variables

| | FSIQ | Sim | Pc |
|---------------------|--------|------|--------|
| R | .26* | .30* | .20 |
| Lambda ^b | -.26* | -.14 | -.13 |
| M | .30* | .11 | .07 |
| F | .17 | .09 | -.01 |
| X ⁺ % | .04 | -.03 | -.05 |
| Zd | .02 | -.01 | .03 |
| Overincorporation | .01 | .06 | .01 |
| Underincorporation | .03 | .03 | .03 |
| CB | .22 | .18 | .17 |
| Sim | .75*** | - | .57*** |
| Pc | .59*** | - | - |

Note. N = 68, except as noted.

^a Pearson's r. ^b N = 67.

* p < .05. **p < .01. ***p < .001.

Table 6

Group Demographic Comparisons Based on ANOVA

| | | Neglect (N=18) | Physical Abuse (N=19) | Clinical Control (N=31) | F Value | Sample (N=68) |
|-------------------|---------|-------------------|--------------------------|-------------------------------|---------|------------------|
| Age (years) | mean | 9.8 | 9.9 | 10.1 | .11 | 10.0 |
| | S.D. | 2.5 | 2.2 | 1.9 | | 2.1 |
| # Siblings | mean | 2.35 | 1.72 | 1.29 | 3.16* | 1.68 |
| | S.D. | 1.86 | 1.45 | 1.03 | | 1.44 |
| | Missing | | | | | (2.94%) |
| FSIQ ^a | mean | 92.7 | 96.3 | 99.6 | 1.98 | 96.8 |
| | S.D. | 12.1 | 11.1 | 12.0 | | 11.8 |
| R ^a | mean | 20.3 | 19.2 | 23.5 | 3.18* | 21.4 |
| | S.D. | 6.2 | 5.5 | 6.6 | | 6.4 |

^a Recoded to delete outlier.

* $p < .05$

Table 7

Group Comparisons of Categorical Demographic Variables

| | | Neglect % (N=18) | Physical Abuse % (N=19) | Clinical Control % (N=31) | χ^2 | Sample % (N=68) |
|-----------------------|----------------------|------------------------|-------------------------------|---------------------------------|----------|-----------------------|
| Gender | 1 female | 28 | 37 | 42 | 0.98 | 37 |
| | 2 male | 72 | 63 | 58 | | 63 |
| Ethnicity | 1 other | 61 | 47 | 29 | 5.03 | 43 |
| | 2 Caucasian | 39 | 53 | 71 | | 57 |
| Placement Status | 1 home | 39 | 42 | 93 | 20.79** | 65 |
| | 2 relative or DHS | 61 | 58 | 7 | | 35 |
| No. Adults in Home | 1 = 1 | 67 | 26 | 23 | 10.62* | 35 |
| | 2 = 2+ | 33 | 74 | 77 | | 65 |
| | Missing | | | | | (1.5) |
| Behavior Problems | 1 no | 28 | 18 ^a | 19 | .66 | 21 ^b |
| | 2 yes | 72 | 82 | 81 | | 79 |
| No. Home Problems | 1 = 0,1 | 33 | 32 | 50 ^c | 4.39 | 40 ^d |
| | 2 = 2 | 33 | 53 | 30 | | 37 |
| | 3 = 3,4 | 33 | 16 | 20 | | 22 |
| | Missing | | | | | (1.5) |

^a N=17. ^b N=66. ^c N=30. ^d N=67. ^e N=28. ^f N=65. ^g N=37. ^h Two groups were combined in order to provide as nearly 5 cases per cell as possible for the χ^2 analysis.

* p < .01. ** p < .001.

(table continues)

Table 7 (continued)

Group Comparisons of Categorical Demographic Variables

| | | Neglect % | Physical Abuse % | Clinical Control % | χ^2 | Sample % |
|---------------------------|---------|--------------|---------------------|--------------------------|----------|-----------------|
| | | (N=18) | (N=19) | (N=31) | | (N=68) |
| Drug/ Alcohol Abuse | 1 no | 44 | 63 | 68 ^c | 2.61 | 60 ^f |
| | 2 yes | 56 | 37 | 32 | | 40 |
| | Missing | | | (10) | | |
| Mental Health Problems | 1 no | 78 | 79 | 61 ^e | 2.41 | 71 ^f |
| | 2 yes | 22 | 21 | 39 | | 29 |
| | Missing | | | (10) | | |
| Domestic Violence | 1 no | 72 | 53 | 75 ^c | 2.82 | 68 ^f |
| | 2 yes | 28 | 47 | 25 | | 32 |
| | Missing | | | (10) | | (4) |
| Other Home Problems | 1 no | | 13.5 ^{g,h} | 17.9 ^e | .23 | 15 ^f |
| | 2 yes | | 86.5 | 82.1 | | 85 |
| | Missing | | | (10) | | (4) |

^a N = 17. ^b N = 66. ^c N = 30. ^d N = 67. ^e N = 28. ^f N = 65. ^g N = 37. ^h Two groups were combined in order to provide as nearly 5 cases per cell as possible for the χ^2 analysis.

* $p < .01$. ** $p < .001$.

Table 8

Demographic Comparison of Neglect Group with NIS-2 Study

| Variable | NIS-2 ^a | This Study |
|---------------------|--------------------|--------------------|
| Female | 48% | 28% |
| Caucasian | 44% | 57% |
| African-American | 37% | 22% |
| “Other” Ethnicity | 17% | 21% |
| Income < \$15,000 | 65% | (40%) ^b |
| Income unknown | 25% | 73% |
| 2 parents | 29% | 33% |
| 1 child in home | 20% | 12% |
| 2 children in home | 27% | 29% |
| 3 children in home | 21% | 23% |
| 4+ children in home | 24% | 35% |

^a Data obtained from Jones and McCurdy, 1992. ^bQuestionable due to significant missing data.

Table 9
Group Comparisons of Outcome Variables

| | | Neglect (N=18) | Physical Abuse (N=19) | Clinical Control (N=31) | F Value | Sample (N=68) |
|---------------------|------|-------------------|--------------------------|-------------------------------|------------|-------------------|
| Sim | mean | 9.2 | 10.2 | 11.2 | 1.97 | 10.4 |
| | S.D. | 4.0 | 3.3 | 2.9 | | 3.3 |
| PC | mean | 8.7 | 10.7 | 11.4 | 5.08* | 10.5 |
| | S.D. | 3.1 | 2.9 | 2.6 | | 2.8 |
| M | mean | 3.2 | 2.7 | 2.5 | 0.43 | 2.8 |
| | S.D. | 3.1 | 2.6 | 1.9 | | 2.4 |
| P | mean | 5.4 | 4.9 | 4.8 | 0.49 | 5.0 |
| | S.D. | 2.5 | 2.1 | 2.1 | | 2.0 |
| Lambda ^a | mean | 1.3 | 1.1 | 1.4 ^b | 0.77 | 1.31 ^c |
| | S.D. | 0.76 | 0.52 | 0.80 | | 0.72 |
| X ⁺ % | mean | 0.44 | 0.42 | 0.39 | 1.34 | 0.41 |
| | S.D. | 0.11 | 0.13 | 0.10 | | 0.11 |
| Zd | mean | -1.13 | 0.37 | -0.35 | 0.46 | -0.36 |
| | S.D. | 5.6 | 2.9 | 5.1 | | 4.8 |
| Overincorporation | mean | 1.3 | 1.3 | 1.9 | 0.40 | 1.5 |
| | S.D. | 2.6 | 1.9 | 2.7 | | 2.5 |
| Underincorporation | mean | -2.5 | -0.9 | -2.2 | 1.32 | -1.9 |
| | S.D. | 4.2 | 1.6 | 3.3 | | 3.2 |
| CB | mean | -0.61 | -0.15 | -0.35 | 0.31 | -0.37 |
| | S.D. | 2.00 | 1.64 | 1.68 | | 1.74 |

^a Square root transformation. ^b N = 30. ^c N = 67.

* $p < .01$.

Table 10

Comparison of Rorschach Variable Means with Normative Data

| | | Study Sample ^a | Exner ^b (10 year olds) |
|---------------------|------|------------------------------|--------------------------------------|
| R | mean | 21.65 | 20.97 |
| | S.D. | 6.96 | 1.92 |
| M | mean | 2.78 | 3.65 |
| | S.D. | 2.45 | 1.63 |
| P | mean | 5.01 | 6.07 |
| | S.D. | 2.18 | .84 |
| X ⁺ % | mean | 0.41 | 0.76 |
| | S.D. | 0.11 | 0.08 |
| FC | mean | 1.22 | 2.55 |
| | S.D. | 1.51 | 0.96 |
| CF | mean | 1.22 | 3.68 |
| | S.D. | 1.26 | 1.29 |
| C | mean | 0.32 | 0.13 |
| | S.D. | 0.58 | 0.34 |
| CR (FC/CF+C) | mean | 0.77 | 0.67 |
| | S.D. | * | * |
| Lambda ^c | mean | 2.22 | .49 |
| | S.D. | 2.74 | 0.23 |

^a N = 68. ^b from Exner, 1993. ^c original untransformed value. ^d N = 67.

* Not available: the mean was calculated from the FC, CF, and C score means (see text for explanation).

Table 11

t Test Results for Hypothesis 1

| | | Neglect (N=18) | Physical Abuse and Control (N=50) | t value |
|--------------------|------|-------------------|---|------------|
| X ⁺ % | mean | 0.44 | 0.40 | 1.25 |
| | S.D. | 0.11 | 0.11 | |
| P | mean | 5.4 | 4.9 | 0.97 |
| | S.D. | 2.48 | 2.07 | |
| Zd | mean | -1.14 | -1.08 | -0.81 |
| | S.D. | 5.62 | 4.42 | |
| Underincorporation | mean | -2.45 | -1.72 | -0.85 |
| | S.D. | 4.22 | 2.80 | |
| Overincorporation | mean | 1.33 | 1.64 | -0.45 |
| | S.D. | 2.61 | 2.44 | |

Table 12

t Test Results for Hypothesis 2

| | | Neglect (N=18) | Physical Abuse & Control (N=50) | t value |
|---------------------|------|-------------------|---------------------------------------|---------|
| M | mean | 3.22 | 2.62 | .89 |
| | S.D. | 3.01 | 2.18 | |
| Sim | mean | 9.22 | 10.80 | -1.73* |
| | S.D. | 3.96 | 3.07 | |
| PC | mean | 8.72 | 11.14 | -3.1** |
| | S.D. | 3.08 | 2.75 | |
| Lambda ^a | mean | 1.30 | 1.31 ^b | -.06 |
| | S.D. | .76 | .71 | |

^a Square root transformation. ^b N = 49.

* p < .05. **p < .01.

Table 13

t-Test Results for Hypothesis 3

| | | Neglect & Physical Abuse (N=37) | Clinical Control (N=31) | t value | Significance |
|----|------|---------------------------------------|-------------------------------|---------|--------------|
| CB | mean | -0.38 | -0.35 | .00 | .96 |
| | S.D. | 1.81 | 1.68 | | |

Table 14

Group Comparisons of Rorschach Affective Ratio and Weighted Sum of Color

| | | Total Sample N=68 | Physical Abuse N=19 | Neglect N=18 | Clinical Control N=31 | F value | Significance |
|-----|------|-------------------------|---------------------------|-----------------|-----------------------------|-------------------|--------------|
| Afr | mean | 0.53 | 0.63 | 0.49 | 0.51 | 3.22 | 0.05 |
| | S.D. | 0.19 | 0.27 | 0.15 | 0.14 | | |
| WSC | mean | 2.37 | 2.37 | 2.86 | 2.10 | 3.17 ^a | .05 |
| | S.D. | 1.88 | 2.06 | 1.69 | 1.88 | | |

^a ANCOVA, controlling for age and R.

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