CONSEQUENCES OF PHYSICAL ABUSE AND NEGLECT IN CHILDREN

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ABSTRACT. Research interest in the effects of abuse and neglect in children is relatively recent. Clinical case reports suggested pervasive deleterious physical and psychological consequences of maltreatment. Indeed, empirical efforts confirm these initial impressions. Abused and neglected children display deficits in intellectual and academic functioning. In addition, they exhibit a variety of internalizing and externalizing disorders, such as depression, anxiety, social withdrawal, aggressiveness, and conduct problems. Despite the above findings, a number of methodological shortcomings limit conclusions drawn from the literature. These include: (a) use of heterogeneous subject samples, (b) failure to match subjects on relevant variables, and (c) use of psychometrically weak assessment devices. This review examines functioning in abused and neglected children in four areas: (1) medical, (2) cognitive and intellectual, (3) emotional adjustment and psychopathology, and (4) social development. Several recommendations for future research are offered, including the need for increased: (a) descriptive information about abused and neglected populations, and (b) use of assessment instruments which delineate specific deficits in child functioning.

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Recent years have witnessed a burgeoning of professional and popular interest in child maltreatment. Heightened activity in this area is partly due to the dramatic increase in the report of child abuse and neglect (see American Humane Association, 1984; Russell & Trainor, 1985). Indeed, epidemiological studies indicate that there were 929,310 documented cases of child abuse and neglect nationwide in 1982 (American Humane Association, 1984). This represents a 123% increase since 1976 and a 9% increase over 1981.

Considerable data have been adduced over the past 25 years concerning the psychological characteristics of parents who abuse and maltreat their children (Friedrich & Wheeler, 1982). Also, much has been written on the effectiveness and impact of removing the child from the abuser's presence (Kempe, 1976; Williams, 1983). Yet, the study of victims of maltreatment is a relatively recent phenomenon.

A review of the child abuse and neglect literature reveals a number of factors that limit interpretation of the data. First, there is no universally accepted definition of child abuse. No clear delineating line exists regarding the continuum of parental disciplining practices. Similarly, there is a lack of consensus on the definition of "neglect." In a critique of work in this field, Besharov (1981) points out that the absence of accepted operational definitions results in a lack of: (a) comparability of research findings, (b) measurement reliability, and (c) taxonomic delineation. Indeed, subject samples are varied in terms of type and extent of abuse. For example, only recently have researchers examined physical maltreatment and sexual abuse separately. It is now believed that the latter has distinct antecedents and consequences (Kempe & Kempe, 1984). In addition, few investigations differentiate physically abused from neglected children. Such heterogeneous subject samples obfuscate interstudy generalizations or comparisons. Second, methodological weaknesses preclude the drawing of definitive conclusions from research on child maltreatment. Plotkin, Azar, Twentyman, and Perri (1981) criticize the inadequate experimental designs frequently employed in child maltreatment research, although recent efforts reflect the use of more sophisticated methodological strategies (e.g., Schneider-Rosen, Braunwald, Carlson, & Cicchetti, in press).

The purpose of this paper is to review research in four areas of functioning in physically abused and neglected children: (1) medical and neurological status, (2) cognitive and intellectual functioning, (3) emotional adjustment and psychopathology, and (4) social development. Although no universally accepted definition of child maltreatment (which consists of physical abuse and neglect) exists, the following suggestion by Helfer (in an Editorial Comment of Besharov, 1981) is offered as a starting point: abuse and neglect consist of "any interaction or lack of interaction between a caregiver and a child which results in nonaccidental harm to the child's physical or developmental state" (p. 383). Since the causes and sequelae of sexual abuse appear to be separate and distinct from other forms of physical maltreatment (see Kempe & Kempe, 1984), only studies examining physical abuse and neglect will be considered.

MEDICAL AND NEUROLOGICAL EFFECTS OF ABUSE

It is impossible to understand the psychological sequelae of abuse and neglect without examining its physical effects. While the role of physical trauma in psychological deficits has yet to be determined, there are indications that medical complications associated with maltreatment can be severe and debilitating. Consequently, a brief
review of the varied medical consequences of abuse and neglect is warranted.

Only recently have many "accidental" injuries in children been attributed to parental abuse. Kempe, Silverman, Steele, Droegemueller, and Silver (1962) were the first to describe the "battered-child" syndrome. Manifestations of the syndrome include: subdural hematoma (with or without fracture of the skull), fracture of the long bones, multiple soft tissue injuries, poor skin hygiene, malnutrition, and poor general health. Additional syndrome characteristics are reflected by a marked discrepancy between clinical findings and historical data supplied by the parents. Observations that lesions are in different stages of healing, and the fact that no new lesions occur while the child is in the hospital or a protected environment, also contribute to the diagnosis. Fontana, Donovan, and Wong (1963) expanded their definition of the syndrome of child abuse to include emotional abuse and neglect. They cautioned physicians that obvious signs of being "battered" may not be present in all cases of child maltreatment. Additional symptoms may consist of ocular injuries; hypernatremic dehydration; unexplained ruptures of the stomach, bowel, liver, or pancreas; and poisoning (Fontana, 1984).

The "classic" signs of severe physical abuse are the unusual bone changes that infants exhibit under radiologic examination. The wider part at the extremity of the shaft of the long bones is often fragmented by twisting or pulling of a limb. Bone growth is vigorous in infants and young children, so new bone forms on these fragments. These immediately observed changes in bone tissue can result in permanent defects in skeletal structure (Fontana, 1984). Thus, posture and range of motion of severely abused children can be limited throughout life.

The most severe effect of physical maltreatment, of course, is death. The actual number of children who die each year as a result of abuse and neglect is unknown. Estimated fatality rates of physical abuse vary widely, ranging from less than 2% to 25% depending upon the sample (Smith & Hanson, 1974). For example, a controlled study of 134 battered children admitted to a hospital in Birmingham, England found that 8% died as a result of injuries (Smith & Hanson, 1974). Kempe and others have reported similar rates in this country (e.g., Kempe & Kempe, 1978). A report by the American Humane Association (1984) showed no sex difference in fatality rates. Nevertheless, abused younger children were more likely to die from maltreatment. Interestingly, this survey found that neglect is the most frequent type of maltreatment associated with death.

There is a strong relationship between physical abuse and central nervous system (CNS) damage. However, it is often difficult to ascertain whether impairment is a result or precipitant of the abuse (Sandgrund, Gaines, & Green, 1974). According to Buchanan and Oliver (1977), as many as 11% of children in an institute for the retarded had sustained brain damage as a direct consequence of abuse.

Cerebral palsy has also been associated with physical maltreatment. A retrospective study examined abuse in 86 children diagnosed with cerebral palsy (Diamond & Jaudes, 1983). Abuse was judged to have caused the cerebral palsy in 9% of the cases, while it was found to follow the diagnosis in an additional 9%. Also, 14% of the sample evinced additional symptoms of maltreatment, including physical marks indicating possible past history of abuse, omission of proper medical care, presence of preventable skin diseases, and presence of psychosocial stress.

Green, Voeller, Gaines, and Kubie (1981) examined neurological impairment in low SES abused, neglected, and control children. A battery of neuropsychological tests and an electroencephalogram were administered. On the basis of this assess-
ment and an independent examination, a pediatric neurologist (who remained blind to group membership) assigned a global rating of neurological status (1-2 = No Impairment, 3-4 = Equivocal Functioning, 5-6 = Moderate Impairment, 7-8 = Severe Impairment). Unfortunately, only the global ratings were reported. Data indicated that abused and neglected children were significantly more neurologically impaired than the adequate care group. Further, neurological deficits were most clearly evident in perceptual-motor tasks. Green et al. (1981) stated that dysfunctions were subtle, and may not have been detected by routine neurological examination alone.

Additional research has shown a high incidence of neuropsychological impairment, particularly verbal deficits, in juvenile delinquents who have been physically abused (Lewis & Shanok, 1977; Lewis, Shanok, Pincus & Glaser, 1979; Tarter, Hegedus, Winsten, & Alterman, 1984). In one study, Tarter et al. (1984) administered the Pittsburgh Initial Neuropsychological Test System (PINTS: Goldstein, Tarter, Shelly, & Hegedus, 1983) to 27 court-referred adolescent delinquents with a prior history of abuse. Seventy-four nonabused court-referred subjects matched for age, sex, race, SES, and severity of delinquent crimes served as controls. Two tests of perceptual motor functioning (Trailmaking A and the Purdue Pegboard) differentiated the groups at a statistically significant level. These investigators speculate that verbal deficits (possibly caused by early abuse) may lead to an inability to self-regulate conduct through a failure to acquire rule governed behavior. This, in turn, contributes to the development of delinquent behavior.

Friedrich and Boriskin (1976) reported a number of child characteristics which may precipitate violent behavior in parents. These are: prematurity, physical or mental handicaps, and poor health. However, it is unclear whether health differences between abused and nonabused children are a direct consequence of abuse, or if they existed prior to maltreatment. For example, in a study of the relationship between child health and maltreatment, Sherrod, O'Connor, Vietze, and Altermeier (1984) found that abused children have more incidents of bacterial and viral infection requiring medical attention than non abused controls in the first 6 months of life. The average age for the first documented incident of abuse was 13 months. These investigators conclude that a high level of illness in abused children appears early and declines over time, a pattern suggesting that poor health precedes abuse.

Comment

Data clearly attest to the varied physical consequences of child maltreatment. These range from relatively nonspecific medical complications to fatality. Moreover, there is an association between abuse and various physical handicaps and severe development delays. Studies reviewed in this section involve populations that have come to the attention of medical authorities due to injuries. However, more subtle CNS and physical impairments may result from maltreatment. Cafley (1972) describes the formation of petechial (pinpoint) hemorrhages in brain tissue as a function of violent shaking in infants. Likewise, several sources report arrested CNS development from environmental deprivation and malnutrition (e.g., Gottlieb, 1978). In addition, skull fractures and cerebral hemorrhage sometimes evade diagnosis. Use of more sophisticated neurological assessment techniques, such as computerized tomography, will greatly assist in identifying the extent and severity of CNS impairment in maltreated children.

It is difficult to determine direction of causality with regard to abuse and physical
damage. For example, Sherrod et al. (1984) found that health problems predated maltreatment in a sample of abused infants. Diamond and Juades (1983), on the other hand, reported that cerebral palsy was a direct consequence of abuse in a portion of their subjects. The issue is further complicated when alternative explanations are offered for some neuropsychological deficits. Morgan (1979) contends that verbal deficiencies in abused children may be caused by parental punishment during crucial language acquisition periods rather than CNS damage. Prospective longitudinal studies are definitely warranted in order to help delineate the correspondence between physical trauma and child maltreatment.

**INTELLECTUAL AND COGNITIVE FUNCTIONING**

There is considerable empirical support for greater prevalence of intellectual deficits and academic underachievement in maltreated as contrasted to nonmaltreated children. Indeed, such data have been obtained using a variety of intelligence tests and cognitive functioning measurement instruments. Some of these include: the Wechsler Intelligence Scale for Children (WISC, WISC-Revised), Wechsler Preschool and Primary Scale of Intelligence (WPPSI), Stanford-Binet Intelligence Test (S-B), and the McCarthy Scales of Children's Ability. Despite the consensus of decreased intellectual ability in this population, the cause of deficits remains speculative. As with physical effects, it is uncertain whether intellectual deficits are products or precipitants of abuse. Further, it is difficult to ascertain if cognitive impairment is due to CNS damage or environmental factors.

**Intellectual Deficits**

Early reports of intellectual functioning in abused and neglected children revealed deficits, although control groups were rarely employed. For example, Elmer and Gregg (1967) found that 57% of their abused sample obtained Full Scale WISC IQs below 80. Several other studies report IQs in the borderline and retarded range in 26%–42% of their maltreated samples (Hyman & Mitchell, 1975; Kempe & Helfer, 1972; Martin, Beezley, Conway, & Kempe, 1974; Morse, Sahler, & Friedman, 1970).

In one of the few controlled investigations, Gregg and Elmer (1969) contrasted 30 infants with suspected abuse to those with accidental injuries. Clinicians' ratings of intelligence revealed that 42% of the abused infants, as compared to 18% of the controls, were judged mentally retarded. Sandgrund et al. (1974) examined performance on the WISC and WPPSI of 60 abused, 30 neglected, and 30 nonabused controls ranging in age from 5 to 13 years. Groups were matched on age, sex, and SES. Results indicated a disproportionate number of Full Scale IQs below 70 in abused and neglected children relative to controls. Twenty-five percent of the abused sample were mentally retarded, as compared to 20% of neglected children and 3% of the controls. Average Full Scale IQs were 82 for abused children, 80 for neglected children, and 92 for controls. Similar patterns were found in abused and nonabused children using the Slosson Intelligence Test for Children (Barahal, Waterman, & Martin, 1981) and the WISC-R (Salzinger, Kaplan, Pelcovitz, Samit, & Kreiger, 1984). However, in both studies abused children achieved IQs in the normal range. Oates, Peacock, and Forrest (1984), on the other hand, found statistically significant deficits in abused ($\bar{X} = 95$) relative to control children ($\bar{X} = 107$) on the WISC-R. Neglected children differed significantly from nonabused controls only on verbal IQ.
Several research efforts evaluated early developmental and cognitive functioning in abused infants and toddlers. For example, Fitch, Cadol, Goldson, Wendell, Swartz, and Jackson (1976) compared performance of 63 abused and 63 control children on the Bayley Scales of Infant Development or the McCarthy Scales of Children’s Ability. Subjects ranged in age from birth to 6 years. Both groups were retested again 6 months later. A wide disparity between abused and control groups were found. Specifically, abused infants tested with the Bayley Scales obtained a mean Mental Development Index of 86, while control infants had a mean of 105 ($p < .05$). Similar impairment in abused infants was noted on the Psychomotor Development Index of the Bayley. On the McCarthy Scales, abused preschoolers received an average General Cognitive Index Score of 78, while their nonabused counterparts had a mean of 95. Retesting yielded a similar pattern of results for both measures. Applebaum (1977) reported similar findings using the Bayley Scales in 2 to 2½ year-old abused and nonabused toddlers.

Koski and Ingram (1977) compared abused, failure to thrive (neglected), and nonmaltreated infants on the Bayley Scales. Abused and neglected children were selected from a pediatric ward while controls were recruited from a free clinic in the area and matched on age. Statistical analysis revealed differences between maltreated and control children on several subscales. For example, the mean Mental Development Index was 88 for abused children, 87 for neglected children, and 107 for controls. Similarly, the mean Psychomotor Development Index was 90 for the abused group, 86 for neglected children, and 106 for controls. These results point to cognitive and developmental delays in maltreated populations. In addition, they suggest few differences between abused and neglected children.

Friedrich, Einbender, and Luecke (1983) assessed 11 abused male preschoolers and 10 matched nonabused male preschoolers on the McCarthy Scales. Statistically significant differences between groups were found on the General Cognitive Index ($\bar{X}$ for abused = 83; $\bar{X}$ for nonabused = 98). Significant differences between conditions were also obtained on the Verbal and Memory subscales. Friedrich et al. (1983) concluded that abused children exhibit impaired verbal abilities and greater distractability. Perry, Doran, and Wells (1983), on the other hand, compared abused and nonabused preschoolers matched on SES and family structure using additional cognitive assessment instruments. Five measures of verbal and intellectual functioning were employed, including the Peabody Picture Vocabulary Test (PPVT) and a developmental profile. Abused children scored significantly lower on all five measures. For example, on the PPVT, the abused group obtained an average standard score equivalent of 89, as compared to 108 for controls.

Hoffman-Plotkin and Twentyman (1984) evaluated 14 abused, 14 neglected, and 14 control children on the Stanford-Binet, PPVT, and Merril-Palmer Scale. Children ranged from 3 to 6 years of age and were recruited from local preschool day care centers. Length of time between last documented instance of abuse or neglect and testing averaged between 2½–3 years. As predicted, abused and neglected children evinced lower scores on all three measures of intellectual functioning when compared with controls. The two maltreatment groups did not, however, differ significantly from each other. Average Stanford-Binet IQs of abused, neglected, and control children were 79, 83, and 102 respectively.

Tarter et al. (1984) examined the effects of prior abuse on intellectual functioning in juvenile delinquents using the WISC-R, WAIS, and PPVT. Subjects without a history of physical abuse scored significantly higher on the Comprehension and
Similarities subtests of the Wechsler Scales, and also obtained higher Verbal IQs on the WISC-R and WAIS. The abused group also scored lower on the PPVT, although this difference was not significant.

**Academic Achievement**

Academic skills have also been investigated in maltreated children. Given that IQ is highly correlated with academic achievement, it would be predicted that abused and neglected children evince problems in this area. Studies which have assessed abused and neglected children using standardized achievement tests are discussed below.

Morgan (1979) contrasted psychoeducational profiles of 42 children in special classes for the emotionally disturbed who were identified as abused with 57 control children from the same classes who had no known history of abuse. Children were matched on age, diagnostic category, sex, and intelligence. Results of evaluation with the Illinois Test of Psycholinguistic Abilities (ITPA) showed that abused children were deficient on five subjects. Greatest deficits were exhibited on Auditory Closure and Verbal Expression. Further, males displayed more problems than females.

In a comparison of abused and nonabused male preschoolers on the Wide Range Achievement Test (WRAT), no differences were found between groups on reading, spelling, and arithmetic (Friedrich et al., 1983). While there were significant intellectual deficits in the abused children, these were not reflected in academic achievement. The investigators interpret their findings as partial support for the usefulness of a day treatment program, from which children were recruited, focusing on readiness skills in preventing and overcoming academic handicaps.

Salzinger et al. (1984) also compared abused and nonabused children on the WRAT and recent class grades. Significantly more “abused” children were found to be performing 2 or more years below grade level on the English and mathematics subtests of the WRAT, and were obtaining failing grades which lead to placement in special classes. No differences were found between children who had been targets of abuse and nonabused siblings on any measure of academic standing.

Finally, Tarter et al. (1984) compared 27 abused and 74 nonabused court-referred delinquents on the Peabody Individual Achievement Test (PIAT) and the Detroit Tests of Learning Aptitude (DTLA). Abused delinquents had lowered performance on an auditory attention span subtest of the DTLA and the Reading Comprehension subtest of the PIAT. These findings provide additional evidence that abused delinquents suffer from circumscribed verbal and linguistic deficits.

**Comment**

Data from the aforementioned studies clearly indicate that abused and neglected children are at risk for intellectual impairment and poor academic achievement. IQ scores tend to be depressed and range from levels of mental retardation to low normal functioning. Specific areas of cognitive impairment have yet to be ascertained, however. Several investigations highlight verbal deficits in abused populations (e.g., Tarter et al., 1984), and future research must determine whether impairment is pervasive or specific to certain types of functioning.

Most studies reviewed in this section included infants and preschoolers. A variety of standardized measures of cognitive development and intellectual functioning were
employed. A lag in cognitive development appears at a very young age in infants who have been abused. The few reports involving older abused children and adolescents found intellectual deficits as well (e.g., Oates et al., 1984; Tarter et al., 1984). Thus, it is clear that cognitive impairment is a significant correlate of abuse throughout the childhood years.

Since no prospective study of intellect prior to abuse is available, the extent to which intellectual deficits and lags in cognitive development contribute to abuse cannot be specified. As with child health factors, low IQ may be a precipitating factor of abuse. For example, it has been suggested that children with lower general adaptive functioning would be more "difficult" to manage. Therefore, they are more vulnerable to expression of parental frustrations (Friedrich & Boriskin, 1976).

It is also difficult to determine the process through which abuse and neglect may lead to intellectual deficits. Three possible explanations are considered: First, IQ impairment may be a direct consequence of CNS damage (Brandwein, 1973). Such trauma may be subtle and difficult to detect via typical screening procedures. Similarly, physical effects of neglect (i.e., malnutrition) may lead to CNS impairment. Second, intellectual deficits may be a function of environmental impoverishment and lack of stimulation (Elmer, 1977). Thus, the circumstances which accompany abuse, rather than the abuse per se, may be important determinants of IQ. Finally, poor test performance may be caused by anxiety and/or inhibitions in abused children (Cicchetti, Carlson, Braunwald, & Aber, in press). Given the history of highly aversive child-adult interactions, these children may be poor "test-takers" rather than intellectually deficient. Of course, there may be an interaction between these processes. Additional research is needed to clarify: (a) the causal relationship between maltreatment and intelligence, and (b) the processes through which abuse and neglect contribute to impairment.

**BEHAVIORAL DISORDERS AND PSYCHOPATHOLOGY**

A number of studies have delineated behavioral and personality dysfunction in physically abused and neglected children. While these investigations point to a high incidence of maladjustment in this population, no syndromal pattern specific to abuse has been found. Rather, findings cut across diagnostic categories and personality deviations. One reason for such lack of convergence is the complex interaction between abuse and other factors which may play a causative role in psychopathology. Neurological impairment, poverty, disruptive family systems, stress, and inadequate parenting skills, may all contribute to psychological maladjustment (Martin & Beezley, 1974). Such confounding influences are difficult to control for in research designs, and plague many investigations of abuse and neglect.

**Clinical Observations**

Several case studies and descriptive reports have outlined the impact of abuse and neglect on emotional adjustment in children. Skuse (1984) reviewed the sparse literature on one of the most severe forms of maltreatment: the "closet" child. "Closet" children experience extreme neglect and, in many instances, severe abuse as well. They are often kept isolated in closets or rooms for extended periods of time. These unfortunate children experience sensory deprivation and malnutrition as well as physical abuse. In one case, a 13-3/4-year-old girl was discovered after having spent much of her life confined in a chair (Curtiss, 1977). In addition to severe neglect,
she was physically punished whenever she made a sound. At the time of her
discovery, she was unable to talk, walk, or interact socially. However, this type
of maltreatment is so severe, and its physical effects so pervasive and debilitating,
that generalization to other forms of abuse and neglect must be made with caution.

Investigations of less severely maltreated children also reveal psychological malad-
justment in this population. For example, Green (1978a) examined physically abused
children who were seen at a hospital clinic. They exhibited poor ego functioning,
anxiety, hyperactivity, sleep disturbance, social detachment, hyperaggressiveness,
self-destructive behavior, and, on occasion, psychotic episodes. In addition, they
displayed delayed cognitive and language abilities and employed primitive ego
defense mechanisms (i.e., denial, projection, splitting).

Green (1983) distinguishes between acute and long-term effects of abuse. Acute
symptoms consist of severe anxiety reactions due to threat of “annihilation” and
“abandonment” during the abusive episode. Long-term implications include the
forementioned pathological states (e.g., hyperactivity, sleep disturbance). In addi-
tion, he posits that most victims of child abuse meet DSM-III diagnostic criteria
for Post-Traumatic Stress Disorder. Other frequently applied diagnoses included:
Conduct Disorder, Anxiety Disorders, Dysthymic Disorder, and Specific Devel-
opmental Disorders (Axis II).

Martin and Beezley (1977) described 50 abused children (ranging from 22 months
to 13 years) who were “less severely battered” than most abused children cited in
the literature. A number of adjustment difficulties were found. These included
behavioral deviance (primarily conduct problems), low self-esteem, withdrawal,
compulsiveness, and academic underachievement. In addition, extent and severity
of symptoms appeared to be related to environmental factors, such as number of
home changes, the child’s sense of “impermanence” in the present home, family in-
stability, a punitive home, and parental psychopathology.

Martinez-Roig, Domingo-Salvary, Llorens-Terol, and Ibanez-Cacho (1983) con-
ducted retrospective interviews with parents and relatives of maltreated children
less than 14 years of age. The authors’ definition of maltreatment was broad, en-
compassing emotional as well as physical abuse and neglect. More severe forms
of maltreatment were associated with neurotic disorders and delays in locomotor
development. Unfortunately, little information was provided regarding demographic
characteristics of the children or diagnostic criteria employed. Thus, interpreta-
tion of these data is difficult. Previous investigations, however, corroborate the find-
ing of greater prevalence of developmental disorders in maltreated children (e.g.,
Johnson & Morse, 1968; Martin & Beezley, 1977).

**Controlled Investigations**

Several studies have found a high incidence of internalizing disorders (i.e., prob-
lems of the self, such as anxiety and depression) in abused and neglected children
and adolescents. Clinical observations have highlighted the low self-esteem and
withdrawal in maltreated children (e.g., Martin & Beezley, 1977). Group com-
parison studies have confirmed these initial observations. For example, Green
(1978b) examined abused, neglected, and control children (aged 5 to 11) using
psychiatric interviews with mothers. When compared to neglected and control
children, abused subjects displayed more self-destructive behaviors (suicide attempts,
suicide gestures, and self-mutilation). Abused children most often exhibited these
behaviors following abuse or prior to separation from parents. They were also described as having a sense of worthlessness, "badness," and "self-hatred."

In a series of investigations, Kinard (1980, 1982a) evaluated emotional adjustment in abused and nonabused children. Both the Piers-Harris Children's Self-Concept Scale and the Tasks of Emotional Development Test (a projective technique) revealed significant differences between groups (Kinard, 1980). Abused children were found to exhibit more depressive affect (sadness, unhappiness) than the nonabused group. In addition, they evidenced difficulties in tasks measuring sense of trust and separation from mother. In general, they appeared to have distorted perceptions of interpersonal relationships with peers and caregivers. Kinard (1982a) also examined the relationship between characteristics of abuse (severity, frequency, time interval between abuse and testing, etc.) and self-concept using the aforementioned instruments. Results indicated that self-concept was negatively correlated with severity of injury. Similarly, recent abuse was strongly associated with feelings of unhappiness. Thus, it is evident that physical abuse is not a homogeneous construct. Rather, effects of abuse are differentially determined by topographical characteristics.

Self-report measures also document emotional disturbance in abused children. Kazdin, Moser, Colbus, and Bell (1985) examined incidence of depression in physically abused and nonabused psychiatric inpatients (ages 6 to 13). Measures included the Children's Depression Inventory (CDI), Bellevue Index of Depression-Revised, (BID-R), Hopelessness Scale for Children (HPLS), and the Self-Esteem Inventory (SEI). In addition, mothers completed the Parent's Form of the Child Behavior Checklist, and the CDI and BID-R regarding their child's symptoms. Analysis of children's reports revealed greater depression, lower self-esteem, and more hopelessness in abused relative to nonabused samples. No differences were found between groups on parent measures. Interestingly, children with both past and current abuse histories had more severe problems than those with either past or current abuse.

Hjorth and his colleagues (Hjorth & Harway, 1981; Hjorth & Ostrov, 1982) examined the self-image of physically abused adolescents 12 to 16 years of age. Results of the Draw-A-Person Test administered by Hjorth and Harway (1981) suggested that, when compared with matched controls, maltreated adolescents were more introverted, insecure, anxious, and had a poor self-concept. In a second study, Hjorth and Ostrov (1982) assessed the same subjects with the Offer Self-Image Questionnaire. Abused adolescents reported more psychopathology, poorer impulse control, and a less positive self-image than their nonabused peers. These data underscore the pervasive impact of physical abuse on emotional development in adolescents.

A robust finding in the literature is the prevalence of externalizing behavior problems in maltreated children. Externalizing disorders encompass hyperaggressiveness, acting out, conduct problems, hyperactivity, and delinquency. Indeed, increased incidence of aggressiveness and conduct problems in abused children and adolescents has been widely reported. For example, Hoffman-Plotkin and Twentyman (1984) observed abused, neglected, and normal children in a classroom setting. Neglected children were more withdrawn than other groups. However, abused and neglected children were more aggressive than their normal peers. Observations of mother-child dyads also have revealed increased aggression in both abused and neglected children to nonmaltreated children (Bousha & Twentyman, 1984; George & Main, 1979).
Paper and pencil instruments administered to caregivers and teachers have often been used to examine externalizing behavior problems in maltreated children. Abused and neglected children have been found to display more aggressive behaviors than their nonabused peers on the Behavior Problem Checklist (Reidy, 1977), Child Behavior Form (Hoffman-Plotkin & Twentyman, 1984), and the Washington Symptom Checklist and the Developmental Profile (abused children only: Perry et al., 1983). Salzinger et al. (1984) used the Child Behavior Checklist (Parent Form) and the Conners Teacher Questionnaire to compare maltreated and control children (mean age = 11.3 and 11.0 years, respectively). When contrasted to nonabused subjects, abused children were found to have more behavior problems and to be less socially competent. Moreover, they received higher scores on measures of conduct problems, hyperactivity, and tension and anxiety. Teachers tended to report more psychopathology than parents, highlighting the need for multiple assessment sources in conducting research with this population. Likewise, using the Eyberg Child Behavior Inventory, Aragona and Eyberg (1981) found that mothers of neglected children reported more problem behaviors than mothers of normal controls. However, these scores did not differ from another control group of non-neglecting mothers with problem behavior children.

Use of interview instruments has also provided evidence of aggression in abused children and adolescents (Engfer & Schneewind, 1982; Pelcovitz, Kaplan, Samit, Krieger, & Cornelius, 1984). Using path-analytic statistical techniques, Engfer and Schneewind (1982) found that harsh parental discipline was moderately predictive of conduct disorders in children ($p = .24$). This finding suggests that increased aggression is a direct result of abuse, rather than tangentially related to maltreatment.

In addition to conduct problems, maltreated children appear to engage in greater amounts of fantasied aggression when compared to normal peers. Kinard (1982b) found more aggressive impulses in abused than in control children using the Rosenzweig Picture-Frustration Test. Specifically, aggressive tendencies were exhibited in child-child interactions rather than those involving adults. Using the same instrument, however, Straker and Jacobson (1981) failed to find differences between abused and control groups. In contrast, results from administration of the Thematic Apperception Test (TAT) found increased fantasy aggression in abused relative to neglected and normal children (Reidy, 1977). Overall, these data corroborate prior investigations demonstrating heightened aggressive tendencies in maltreated children.

As would be predicted from the above results, there appears to be a strong association between physical abuse and delinquency. Both prospective (McCord, 1983) and retrospective (Lewis & Shanok, 1977) investigations of juvenile delinquents have documented a positive relationship between physical maltreatment and delinquent behavior. For example, McCord (1983) followed 253 males who were part of a longitudinal study of the effects of child abuse. Subjects ranged in age from 5 to 9 years at initial recruitment. Ninety-eight percent were re-contacted after 40 years. Initial interview assessments classified subjects as abused, neglected, loved, or rejected. Forty-five percent of abused and neglected males were subsequently convicted for serious crimes, became alcoholics, developed "mental illnesses," or died prematurely. Interestingly, parental rejection as measured by interview data was an even greater predictor of future delinquency than abuse and neglect.

Lewis and Shanok (1977) examined medical records of delinquent and matched non-delinquent males and females. They found a higher incidence of physical abuse in the delinquent (8.6%) as compared to control (1.0%) subjects. In addition, it
was noted that the delinquent group exhibited a higher frequency of injuries, accidents, and CNS damage.

The finding of increased neurological impairment was replicated by Lewis et al. (1979) in a sample of 97 adolescent delinquent males. Further, these investigators reported that violent delinquents differed from their less violent peers in terms of the extent and severity of abuse. Seventy-five percent of the more violent youths had been abused, as compared to 33% for less violent youths. Indeed, a correlation of .37 was found between history of abuse and degree of violence in criminal acts. More violent adolescent delinquents also had witnessed more aggressive behavior (e.g., murder, family violence) than less violent delinquents. This finding was corroborated by McCord (1983), who found a positive relationship between violent models and future delinquent behavior in abused males. In another study, Zeiller (1982) followed 22 abused delinquent males into adulthood. When compared to a nonabused delinquent group, these males committed more criminal acts than a nonabused delinquent group.

Tarter et al. (1984) evaluated abused and nonabused delinquents on several psychiatric and personality measures. No group differences were evident on DSM-III diagnostic criteria or MMPI profiles. However, abused delinquents reported fewer feelings of inferiority and timidity, and were more likely to have committed crimes of assault than nonabused counterparts. Moreover, physically abused delinquents had more disruptive home environments than nonabused peers.

Rogers and Leunes (1979) administered the Bell Adjustment Inventory (BAI) and the California Psychological Inventory (CPI) to delinquent adolescents who had experienced physical abuse and nonabused delinquents. In addition, several behavioral measures were used (e.g., frequency of suicide and runaway attempts). Results indicated that abused delinquents differed significantly from a nonabused group on the Home Adjustment Scale of the BAI, indicating more dissatisfaction with home life. Three of the 18 subscales of the CPI yielded significant differences between groups. When contrasted to controls, abused delinquents were described as more suspicious, aloof, guarded, rigid, overly deferential to authority, and less socially mature. However, given the large number of subscales, and the probability of obtaining significant group differences by chance, these results must be interpreted with caution. Also, male abused delinquents exhibited more runaway attempts than abused females or control adolescents.

In addition to delinquent and future criminal behavior, child abuse and neglect have been implicated in other adolescent and adult disorders. Monane, Leichter, and Lewis (1984) examined the medical records of psychiatric admissions to a city hospital. One hundred and sixty-six children and youth aged 3 to 17 were studied. These investigators found that 42% had experienced some form of physical abuse. Prevalence did not vary as a function of sex or race. Further, no discernible diagnostic typology was found (diagnoses ranged from psychosis to Attention Deficit Disorder). It was noted, however, that abused children were significantly more violent than nonabused patients. They exhibited increased homicidal ideation, and were more likely to be aggressive toward peers. This coincides with the report by Lewis et al. (1979) showing a high correspondence between violent behavior and abuse in male delinquents. It must be pointed out, however, that the abused sample in the Monane et al. (1984) study had a higher frequency of serious facial and head injuries than nonabused patients. Psychopathology and violent behavior may have been more related to CNS damage than the experience of child abuse per se.
In another investigation, Raskin, Peeke, Dickman, and Pinsker (1982) compared medical records of adults diagnosed with Panic Disorder (PD) and Generalized Anxiety Disorder (GAD). Twelve of 17 PD patients had a history of abuse (including sexual abuse), while 5 of 16 GAD patients were abused.

**Comment**

Studies reviewed in this section provide convincing evidence of the deleterious effects of child maltreatment. A wide range of psychopathology and behavioral disorders has been noted in this population. In general, a specific syndromal pattern unique to maltreatment has not been found. Rather, psychological impairment ranges from emotional maladjustment to delinquency. A consistent finding, however, is the prevalence of aggressive behavior in maltreated children.

Only recently have investigators separately examined physically abused and neglected children. Preliminary findings point to the need for this delineation, since there appear to be differences between the two groups on several measures. When contrasted to neglected children, abused children are more self-destructive (Green, 1978b) and aggressive (Hoffman-Plotkin & Twentyman, 1984). Indeed, although both groups display similar symptomatology, abused children appear to manifest more severe forms of dysfunction.

While there is a convergence of data attesting to increased maladjustment in maltreated children, there are several areas in need of further investigative attention. First, most assessments are carried out with global assessment instruments. Although such resulting data are useful in screening and providing information about overall functioning, they do not allow for identification of specific behavioral deficits. Increased use of behavioral observation strategies is warranted. Indeed, studies employing such assessment strategies have yielded fruitful results (e.g., Bousha & Twentyman, 1984; Hoffman-Plotkin & Twentyman, 1984). Second, there is a paucity of prospective longitudinal research. Consequently, few data are available that document the long-term effects of maltreatment. In addition, such approaches would help determine which factors are antecedents or consequences of abuse and neglect. Studies of this type, while time-consuming and costly, are necessary to elucidate the complex phenomenon of maltreatment.

**SOCIAL DEVELOPMENT**

A number of investigations have revealed social competence deficits in maltreated children. Indeed, affective communication and social development deficits have been reported in abused infants. Physical abuse is most common in infancy. At this time the child is obviously most defenseless, and the deleterious effects of abuse are most striking (Gelles, 1973). Smith and Hanson (1974) found that abused and neglected infants, when compared with controls, were described by mothers as "more difficult," less wakeful at night, excitable or lively, or excessively tired during the day." Abused children exhibited increased whining, crying, and clinging behaviors relative to controls. In addition, battered children received significantly lower developmental quotients on the Griffiths Mental Development Scale.

Mother-infant attachment has been viewed as crucial to adequate social development (see Sroufe & Waters, 1977). Several studies have examined this construct in maltreated children. Gaensbauer and Sands (1979) observed mother-infant dyads in a structured play situation. Abused and nonabused samples were contrasted on
a variety of affective/social measures. When contrasted to controls, abused infants were affectively withdrawn, exhibited a lack of spontaneously initiated positive behaviors, smiled less, and were erratic and unpredictable in their emotional responses. Also, they were clingy, fussy, and displayed inadequate soothing and calming mechanisms. Gaensbauer and Sands (1979) point out that additional factors (e.g., poverty, stress) may have impacted on affective communication in their sample. Further, they posit that communication deficits in maltreated children may precede onset of abuse, and, in fact, play a role in precipitating maltreatment.

Mother-infant attachment also has been examined in maltreated and control infants using Ainsworth's Strange Situation Test (Schneider-Rosen et al., in press). The Ainsworth procedure (Ainsworth, Blehar, Waters, & Wall, 1978) involves a series of mother-infant separations and reunions which are videotaped and retrospectively rated on a variety of affective/behavioral indices. This assessment strategy has good reliability and is predictive of social functioning in preschool (see Sroufe, 1983). Infants were assessed at 12, 18, and 24 months, and classified as securely attached, avoidant (avoids contact with mother upon reunion), or resistant (actively resists contact with mother following separation). Within each assessment period, maltreated infants had more insecure attachments than controls. There was a trend in infants from 12 to 24 months for an increase in avoidant classifications and a decrease in resistant labeling. Moreover, maltreated infants' attachment categorization was less stable across time when compared to controls. Further, while control infants maintained attachment group membership, insecurely attached maltreated infants moved between avoidant and resistant classifications. Securely attached maltreated subjects tended to become insecurely attached. No clear relationships between type of maltreatment (e.g., abuse, neglect) and attachment classification was evident.

Egeland and Sroufe (1981) used the Ainsworth procedure to examine strength of attachment in low SES abused and neglected infants. Separate Ainsworth assessments were conducted at 12 and 18 months. Assessment at 12 months revealed a preponderance of abused infants labeled as avoidant, while neglected infants were most often categorized as resistant. Interestingly, attachment groupings changed at the 18-month assessment. Minimal variability was noted in the control group, which primarily remained securely attached. The abused sample, however, showed a shift to the securely attached category. In the neglected sample, a number of infants moved from the resistant to the avoidant category.

Egeland and Sroufe (1981) point out that the 12-month assessment findings are consistent with theoretical views of attachment. Physical rejection, in the form of abuse, leads to active avoidance on the part of the infant. Caretaking behavior of mothers in the neglect sample was found to be insensitive and inconsistent, which is typical of dyadic relationships in resistant infants (Ainsworth et al., 1978). The investigators suggest that changes in classification between 12 and 18 months may be partially accounted for by three factors. First, sequelae of maltreatment may involve maturational lags in the development of attachment. Second, changes in attachment in the abused sample may be related to significant improvement in life situation. And third, the transition from resistant to avoidant classifications in the neglected group may constitute the deleterious development of insecure attachment in infants who are continually frustrated in receiving sensitive care. This study highlights deficits in normal development in maltreated infants. It also delineates differences between physically abused and neglected infants in the development of
attachment. Despite the small number of subjects employed (e.g., four infants in the abused group), methodological strengths (matching, use of well-validated assessment device) greatly add to the heuristic value of this investigation.

Disruption of social development appears to continue through toddlerhood and preschool. Impaired interactions both with caregivers and peers have been noted. For example, George and Main (1979) evaluated social interactions of abused and nonabused toddlers in a day care setting. Physically mistreated children were more aggressive and avoided friendly overtures from caregivers. Other studies have found fewer social interactions and decreased prosocial behaviors in maltreated children (Bousha & Twentyman, 1984; Jacobson & Straker, 1982).

While few investigations have assessed social functioning in preschool and school-aged abused children, those that have been conducted consistently show maladjustment in maltreated groups. In a follow-up of an earlier sample (Egeland & Sroufe, 1979), Egeland, Sroufe, and Erickson (1983) examined social development in four groups of maltreated children: physically abused, verbally abused, neglected, and those whose mother was psychologically unavailable. Each group had exhibited insecure attachments in a previous evaluation, and continued to develop problems through preschool. By age 5, abused children were noncompliant, distractible, had low ego control, less creativity, and displayed more negative emotions than peers. Neglected children, on the other hand, were impulsive, avoidant, and unhappy. Egeland et al. (1983) hypothesize that many of these adjustment difficulties stem from early disruptions in attachment.

Studies of social-cognitive abilities in maltreated children have revealed deficits relative to nonabused populations. However, when the effects of IQ are controlled, the extent and severity of cognitive impairment decreases. For example, Barahal et al. (1981) found that, after adjusting for IQ, abused children displayed greater external locus of control and had decreased understanding of social roles in comparison to nonabused peers. Frodi and Smetana (1984), on the other hand, found no differences between abused, neglected, and low IQ nonmaltreated children on tests of social sensitivity. All three groups, however, evinced problems relative to high IQ nonmaltreated children. Finally, Smetana, Kelly, and Twentyman (1984) assessed abused, neglected, and control children ages 3 to 6 years who were matched on a variety of demographic variables, including IQ. Subjects were tested on social and moral conceptions regarding various transgressions. Few differences were found. However, neglected children generally felt that unfair distribution of resources was more universally wrong for themselves. In addition, more abused children believed that transgressions causing psychological distress in others were more universally wrong for others when compared to neglected children. Smetana et al. (1984) suggest that abused and neglected children are more sensitive to transgressions which are most closely related to their own predicament.

Comment

Most investigations of social development in maltreated children employ excellent design strategies and sophisticated statistical analyses. Results consistently indicate that maltreated children exhibit a variety of deficits in social functioning. Abused infants are "difficult" to care for and become insecurely attached. As toddlers and preschoolers, they display aggressive behaviors, decreased prosocial behaviors, and appear to exhibit impairments in social-cognitive functioning. IQ, however, mitt-
gates the latter effect (Frodì & Smetana, 1984). Neglected children are also insecurely attached. They are socially withdrawn and aggressive relative to nonmaltreated children. Differences in functioning between abused and neglected children underscore the need to separate these groups in future research.

Another strength of work in this area is the use of theory to guide research endeavors. For example, Cicchetti and his colleagues have adopted the organizational perspective of child development as part of the longitudinal Harvard Child Maltreatment Project (e.g., Cicchetti et al., in press; Cicchetti & Rizley, 1981). This view emphasizes the sequences of developmental tasks and challenges the child must face. Failure to adapt to an earlier stage of development may result in difficulties in future tasks. Thus, formation of an insecure mother-infant attachment will disrupt socialization processes in preschool (see Sroufe, 1981). Preliminary data from several research centers add support to the developmental approach with maltreated children (Cicchetti et al., in press; Egeland et al., 1983).

CONCLUSIONS AND FUTURE RECOMMENDATIONS

The studies outlined in this paper highlight the numerous negative effects of physical abuse and neglect in children. Indeed, these investigations document deficits in health, cognitive development, emotional adjustment, and socialization. While it is evident that maltreated children are at high risk for disorder in one or more of these categories of functioning, the nature of dysfunction is heterogeneous. Thus, many abused children can be expected to display psychological difficulties with varying manifestations. In addition, several factors appear to mediate the occurrence and severity of maladjustment. In some instances (e.g., cerebral palsy, mental retardation), it is difficult to determine whether problems are caused by maltreatment, or if they are antecedents of abuse. It is evident that victims of maltreatment are often in need of medical treatment, social support, and psychological services. Consequently, recommendations for intervention must be made on a case-by-case basis following comprehensive assessment of physical and psychological functioning.

Numerous methodological problems contribute to our limited understanding of the consequences of child maltreatment. First, physical mistreatment involves a wide range of behaviors. These include neglect, physical abuse, and sexual abuse. Many reports fail to distinguish between these categories in forming subject samples. Yet, several investigations have found significant differences between abused and neglected children (e.g., Hoffman-Plotkin & Twentyman, 1984). Similarly, many researchers contend that the effects of sexual abuse are quite distinct from physical maltreatment and neglect (Kempe & Kempe, 1984). Failure to differentiate among these subgroups may partially account for the diverse and heterogeneous effects of maltreatment which have been found.

Second, the topographical features of abuse are rarely distinguished or analyzed. For example, abuse varies in terms of: (a) severity of abuse and extent of injury inflicted, (b) medium of abuse (e.g., beating, burns), (c) frequency of abusive incidents, (d) rate of abusive incidents, (e) duration of abusive incidents, (f) time of onset of abuse, and (g) length of time abused. All of these factors may mediate the negative consequences of maltreatment. An illustration is provided by Kinard (1982a), who found that more severe incidents of abuse were correlated with lowered self-esteem. It is imperative that investigators attempt to construct more homogeneous groups based upon the above characteristics. It would seem likely that more
severe, frequent, and longer abusive episodes would lead to more deleterious outcomes. However, empirical efforts must examine this issue further.

Third, a number of design prerequisites are frequently overlooked in the investigations currently reviewed. One of these is the failure to use appropriate control groups. Also, matching on relevant variables (e.g., sex, IQ, SES, age) is often ignored. Adherence to these guidelines is particularly important in light of the multiple determinants of outcome found in this literature.

Fourth, many studies employ relatively unsophisticated statistical techniques. Multivariate approaches are highly desirable, given the complexity of and interrelationship between variables affecting outcome in this area. Such statistical strategies permit consideration of several variables at one time. It is recommended that researchers utilize such techniques with greater regularity in subsequent investigations.

Finally, there are a number of investigations that employ assessment instruments with questionable psychometric properties. Use of these devices provides little insight into the specific nature of difficulties exhibited by abused and neglected children. For example, instruments such as the Draw-A-Person Test have not proven to be highly reliable or valid. While they are useful for generating hypotheses, their utility as a research tool has yet to be ascertained. Recently, more psychometrically adequate measures, with operationally defined variables, have become increasingly common in the literature, and should be encouraged (e.g., Egeland et al., 1983).

Although research pertaining to sequelae of child abuse and neglect has burgeoned in the past decade, there are few theoretical formulations to guide investigators. There appears to be little integration of findings, and few clear directions for future research. A notable exception is the organizational perspective of development (Sroufe & Waters, 1977). This theory of child development predicts difficulties in mastering various developmental tasks in a variety of areas of functioning if earlier stages have been disrupted. According to this approach, insecure mother-infant attachment will lead to subsequent deficits in cognitive abilities, emotional, and social adjustment. Since this theory is in its nascent, empirical support on its behalf is limited. However, the organizational perspective should provide new insights and explanations for the complex relationship between maltreatment and psychological functioning.

Several recommendations for future research may be offered. First, more precise and detailed descriptive studies of the effects of child maltreatment are needed. While many of these children appear to be maladjusted, specific deficits and problems are not well documented. Use of assessment devices with behavioral referents may facilitate this goal (e.g., Hoffman-Plotkin & Twentyman, 1984). Also, use of more reliable diagnostic systems (DSM-III) or psychiatric interview techniques (KIDDDIE-SADS: Puig-Antich, Blau, Marx, Greenhill, & Chambers, 1978) would add to current knowledge about psychopathology in abused populations. Further, longitudinal studies designed to delineate long-term effects of maltreatment are warranted. Indeed, preliminary data from such studies attest to their utility in understanding the effects of child maltreatment (e.g., Cicchetti et al., in press).

REFERENCES


Consequences of Physical Abuse


