
Examination of a Conceptual Model of Child Neglect

Howard Dubowitz

University of Maryland School of Medicine

Rae R. Newton

California State University, Fullerton

Alan J. Litrownik

San Diego State University

Terri Lewis

University of North Carolina, Chapel Hill

Ernestine C. Briggs

Center for Child and Family Health, Duke University Medical Center

Richard Thompson

Juvenile Protective Association & University of Illinois at Chicago

Diana English

Washington State Department of Social Services

Li-Ching Lee

Bloomberg School of Public Health, Johns Hopkins University

Margaret M. Feerick

National Institute of Child Health and Human Development

This study attempted to provide empirical support for conceptual definitions of child neglect. We identified 12 types of needs, conceptualizing neglect as occurring when children's basic needs are not adequately met. We examined measures administered to 377 children and caregivers at ages 4 and 6 years participating in longitudinal studies on child maltreatment to identify potential indicators of these needs. Indicators were found for latent constructs, operationalizing three of the basic needs (emotional support and/or affection, protection from family conflict and/or violence, and from community violence). These latent constructs were used in a measurement model; this supported the conceptual definitions of neglect. A structural equation model then assessed whether the latent constructs were associated with child adjustment at age 8 years. Low level of perceived support from mother was associated with internalizing and externalizing behavior problems. Exposure to family conflict was also

linked to these problems, and to social difficulties. Finally, children's sense of experiencing little early affection was associated with subsequent externalizing behavior and social problems. The approach of conceptualizing neglect in terms of unmet child needs, developing a measurement model to define latent neglect constructs, and relating these constructs to subsequent adjustment can build our understanding of neglect.

Keywords: *child neglect; definition; conceptual model*

Knowledge concerning child neglect has progressed slowly, in part impeded by the lack of a clear definition of what constitutes neglect, and by a dearth of valid and reliable measures to assess this inherently complex phenomenon. The National Research Council (1993) called for the development of clear definitions of *neglect* to advance knowledge in this area. There are two key stages in this process. First,

there is a need for a sound theoretical and conceptual definition of neglect. Second, there is a need to develop and refine operational definitions of the problem. The primary objective of the current study was to develop and test a conceptual model for defining child neglect that extends beyond child protective services (CPS) classification. This was done by (1) considering important conceptual issues related to, or indicative of, neglect, (2) using existing knowledge and theory along with the conceptual issues considered to identify different types of children's basic needs, and (3) applying covariance structure analytic methods to data from an ongoing longitudinal study in an effort to (a) develop latent constructs of these needs and (b) examine how these latent constructs are related to children's later functioning.

Most of the research on child neglect to date has been based on reports to CPS (Zuravin, 1999). CPS data have been a convenient source of information, as they are already gathered and are relatively accessible to researchers. However, problematic biases in the identification, reporting, screening, and substantiation processes of maltreatment have been demonstrated (Drake, 1996; English, 1997; Hampton & Newberger, 1985; Lane, Rubin, Monteith, & Christian, 2002). In addition, studies based on substantiated CPS cases comprise the most severe forms of neglect; less severe cases of neglect are rarely reported, investigated, or substantiated (English, 1997). To circumvent some of these limitations, several researchers have suggested applying clear, objectively defined criteria to CPS narrative data, to clarify what the neglect entailed (Barnett, Manly, & Cicchetti, 1993; Dubowitz, Pitts, Litrownik, Cox, Runyan et al., in press; Zuravin, 1999). Such an approach offers additional detail and definitional rigor regarding reported neglect. Such refinements, however, do not address the problems associated with reliance on reports of previously identified and documented neglect and thus fail to address the problem of bias in the reporting process. Consequently, there is substantial interest in examining child neglect inde-

pendent of CPS reports or records, relying instead on the application of more objective, standardized measures. To develop and apply such measures, researchers interested in furthering our understanding of neglect need to first develop some consensus on a conceptual definition of neglect. First, we discuss several conceptual issues pertaining to a definition of neglect. This is followed by offering a rationale for attempting to validate the measures in the current study via possible associations with children's later functioning.

Parent Versus Child Focus

There has been little consensus regarding whether to define neglect based on parental action (or inaction) or on a child's experience. Much of the research on neglect, based on CPS samples, has necessarily focused on parental omissions in care (Zuravin, 1999). Others have argued for a definition that relies instead on children's basic needs not being adequately met (Dubowitz, Black, Starr, & Zuravin, 1993). This latter approach offers several advantages. It fits with an overriding interest in ensuring children's health and well-being, rather than blaming parents. In most instances, we think this is conducive to working with parents; most children who are neglected remain with their parents. The approach also follows from ecological theory, recognizing that there are usually multiple and interacting factors contributing to neglect, not just parental problems (Belsky, 1980, 1993). Thus, the broader child-focused definition encourages a more comprehensive approach to assessing, understanding, and addressing neglect. We have thus defined neglect conceptually in terms of children's experiences, without a specific interest in attributing responsibility. Essentially, neglect occurs when a child's basic need is not adequately met. It should be added, however, that it is typically parents who are primarily responsible for meeting their children's basic needs, such as food, shelter, clothing, and emotional support. Consequently, despite our focus on children's needs being met, parental roles remain important. It is important to note that research definitions may not correspond to current legal ones; the goal, however, is through research to inform the legal and clinical realms.

A Priori Decisions on What Constitutes Neglect

Another conceptual issue concerns a priori decisions regarding what constitutes neglect. Some circumstances are clear, such as when a child is abandoned. Others are less clear, an example being whether a suboptimal level of emotional support or affection constitutes neglect. We have built on ecolog-

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ical and developmental theories, and the extant literature on neglect to identify types of children's needs that we thought merit concern (e.g., physical and emotional needs, living in a safe environment).

The Heterogeneity of Neglect

Most research has collapsed types of neglect into a so-called general neglect category. This may largely be related to limited access to CPS narrative data as well as the problem of small sample size. Although types of neglect may co-occur, the clarification of relationships among these types remains an empirical question (Zuravin, 1999). Another question concerns whether identifying specific types within general neglect enhances our understanding of these phenomena. It can be argued that the types are simply different manifestations of similar underlying processes and that so-called lumping them together is more meaningful than splitting them. Alternatively, there may be important differences among the types, and discerning these could build theory and enhance practice by, for example, guiding specific interventions for specific types of neglect (Dubowitz, Giardino, & Gustavson, 2000; Egeland, Sroufe, & Erickson, 1983). We believe that, given the heterogeneity of neglect, researchers should disaggregate these disparate circumstances to understand them. A few researchers have done so, and their work is cited later.

We considered important basic needs of children and were guided by theoretical support and the extant literature on neglect for considering a particular unmet need as possible neglect. We examined the empirical evidence for harm when those needs are not adequately met. The supporting evidence for the 12 types of children's needs that we initially included is summarized in Table 1. It should be noted that the inclusion of children's exposure to violence in the home fits with our child-focused perspective (e.g., children's need to feel safe and secure), and it is not intended to blame mothers (who are often themselves the victims of domestic violence) for failing to protect their children from such violence.

Neglect as a Dichotomous Versus Continuous Phenomenon

Neglect has generally been defined dichotomously: *neglect* or *no neglect*. It is often arbitrary or unclear as to where to draw the line and label a given circumstance as neglect. Instead, we see a continuum of children's needs being met, ranging from being met fully to not being met at all. We elected to examine or define the types of needs on a continuum to circumvent the arbitrariness of categorical labeling and

to enable a more sensitive appraisal of the problem. This was done by analyzing variables continuously where possible.

Actual Versus Potential Harm

Another definitional conundrum is whether to include potential as well as actual harm to children. Definitions of neglect have been based largely on assumptions of what harms or may harm children. Ultimately, circumstances of possible neglect are only of concern if they cause harm or if there is a significant risk of harm. Most state laws include potential harm in their definitions of neglect, although most states in practice require actual harm, or, these legal definitions are typically used in only the most serious circumstances, such as when a child is abandoned (Zuravin, 2001). A broad interest that includes preventing neglect suggests that potential harm should also merit concern. We adopted this expanded focus by examining the different types of children's needs, regardless of whether harm resulted.

The Use of Child Outcomes to Test the Conceptual Model of Neglect

Assuming neglect is indeed harmful to children, one would expect their cognitive and social development, and physical and mental health, to be impaired by neglect, perhaps as they grow older and demands increase (Aber, Allen, Carlson, & Cichetti, 1989; Eckenrode, Laird, & Doris, 1993; Strathern, Gray, O'Callaghan, & Wood, 2001). In other instances, the risk of harm may not materialize, perhaps buffered by protective factors. Proposed measures of neglect (e.g., children's needs not being adequately met), however, should in general be related to children's functioning or evidence of physical harm. This does not require actual harm in an individual case. It seems likely that different types of neglect may affect children in different ways (Dubowitz, Pitts, & Black, 2004; Manly, Kim, Rogosch, & Cicchetti, 2001). Thus, a comprehensive assessment of possible types of neglect should include the impact on child functioning in several areas.

Children's behavior and emotional status have been central in examining the outcomes of neglect. Hildyard and Wolfe (2002) ably summarized the research to date. Compared to children who are non-neglected, children who are neglected have been found to be more passive and withdrawn during play with their mothers (e.g., Crittenden, 1992), and teachers have described children who were neglected as withdrawn and aggressive (Erickson, Egeland, & Piata, 1989). Internalizing and externalizing behavior problems have been reported among preschoolers

TABLE 1: Empirical Basis for Considering Types of Children's Basic Needs and Neglect

	<i>Consequences</i>	<i>Source</i>
Inadequate food	Impaired mental development	Grantham-McGregor & Fernald, 2002
	Internalizing behavior problems	Weinreb et al., 2002
	Diminished birth weight	Martorell & Gonzalez-Cossio, 1987
	Failure to thrive	Krugman & Dubowitz, 2003
Exposure to household hazards	House fires	Squires & Busuttill, 1995
	Access to firearms	Farah, Simon, & Kellermann, 1999
	Fall from heights	Committee on Injury and Poison Prevention, 2001
	Toxic exposures	Liebelt & DeAngelis, 1999
Inadequate personal hygiene	Adverse health outcomes	Menahem & Halasz, 2000
	Obesity	Lissau & Sorensen, 1994
Inadequate health care	Serious injuries not treated	Overpeck & Kotch, 1995
	Several health problems not identified or treated	Dubowitz, Feigelman, et al., 1992
	Untreated dental problems	Edelstein, 2002
	Death	Asser & Swan, 1998
Inadequate mental health care	Suicide	Brent & Perper, 1995
	Delinquency	Lewis, Yeager, Lovely, Stein, & Cobham-Portorreal, 1994
	Poor school achievement	Flisher et al., 1997
	Psychiatric symptoms	Weisz, Weiss, Han, Granger, & Morton, 1995
Inadequate emotional support and/or affection	Externalizing problems	Egeland, Carlson, & Sroufe, 1993
	High-risk behavior	Scaramella, Conger, Simons, & Whitbeck, 1998
	Poor academic performance	Pettit, Bates, & Dodge, 1997
Inadequate parental structure and/or guidance	Sexual risk taking	DiLorio, Dudley, Soet, & McCarty, 2004
	Health risk behavior (e.g., sexual behavior, substance and/or drug use, drug trafficking, school truancy, and violent behaviors)	Li, Feigelman, & Stanton, 2000
Inadequate cognitive/stimulation/opportunity	Delayed motor and social development, lower language competence and achievement test scores, behavior problems	Bradley, Corwyn, Burchinal, McAadoo, & Garcia Coll, (2001)
	Externalizing problems and aggression	Dodge, Pettit, & Bates, 1994
	Delayed socioemotional and cognitive development	National Institute of Child Health & Development Early Child Care Research Network, 2002
	Aggressive coping	Hardy, Power, & Jaedicke, 1993
Unstable caregiver relationship	Insecure attachment	Capaldi & Patterson, 1991; Morton & Browne, 1998
	Externalizing behavior	Ackerman, Brown, D'Eramo, & Izard, 2002; Ackerman, Kogos, Youngstrom, Schoff, & Izard, 1999
	Internalizing behavior	Bradley, Whiteside, et al., 1994; Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993
Unstable living situation	Externalizing behavior	Ackerman, Kogos, et al., 1999
	Internalizing behavior	Sameroff, Seifer, & Bartko, 1997
	Anxiety	Stoneman, Brody, Churchill, & Winn, 1999
Exposure to family conflict and/or violence	Poor physical health	Wickrama, Lorenz, & Conger, 1997
	Lower health status	Onyskiw, 2002
	Internalizing and externalizing behavior	Jaffee, Moffitt, Caspi, Taylor, & Arseneault, 2002
	Post-traumatic stress disorder	Mertin & Mohr, 2002

continued

TABLE 1 (continued)

	<i>Consequences</i>	<i>Source</i>
Exposure to community violence and/or lack of neighborhood safety	Behavior problems	Dubowitz, Kerr, et al., 2001
	Poor school attendance and behavior problems	Bowen & Bowen, 1999
	Distress	Dulmus & Wodarski, 2000
	Behavior problems	Linares et al., 2001
	Social maladjustment	Schwartz & Proctor, 2000

who were neglected (Aber et al., 1989), particularly when neglect co-occurred with other risk conditions (Kerr, Black, & Krishnakumar, 2000). However, children who are neglected appear to be at especially high risk for internalizing problems (Erickson et al., 1989; Manly et al., 2001).

The Minnesota Mother-Child Project studied children younger than age 54 months who were abused, physically neglected (i.e., they did not receive appropriate health care, physical care, or protection), or psychologically neglected (so-called psychologically unavailable mothers were detached and unresponsive to their children's bids for care and attention) (Egeland, Sroufe, et al., 1983; Erickson & Egeland, 2002). Kindergarten teachers described the children who were neglected as having lower levels of social, emotional, and cognitive functioning compared to the children who were abused and nonmaltreated. Specifically, elementary school teachers rated the children who were physically and psychologically neglected low in terms of peer acceptance and emotional health, and high on internalizing and externalizing behavior problems, compared to children who were nonmaltreated. There were no significant differences between the children who were physically neglected and children who were psychologically neglected.

We were also interested in examining effects on other aspects of children's functioning, including their social competence, cognitive development and/or academic achievement, and physical health status. Limited emotional support may impede children's ability to adequately cope with challenging interpersonal situations. Several studies have found children who were neglected to be socially withdrawn, with limited or poor peer interactions (Erickson & Egeland, 2002; Erickson et al., 1989). Preschoolers who were neglected have been found to be less socially competent in later years, after controlling for social class (Herrenkohl, Herrenkohl, Egolf, & Wu, 1991). In another study, neglect predicted juvenile delinquency, after taking into account gender, race,

family structure, school attendance, classroom behavior, and grades (Zingraff, Leiter, Johnsen, & Myers, 1994). Other research linked neglect, as much as abuse, to later violent juvenile and adult criminal behavior (Widom, 1989).

A lack of stimulation and guidance can impair children's cognitive development and school performance. Follow-up of the children in the Minnesota Mother-Child Project found that the children who were neglected had continuing problems in cognitive development, with poor learning skills and academic achievement (Erickson & Egeland, 2002). Eckenrode et al. (1993) found that children who were neglected had the poorest academic performance compared to those who were abused or nonmaltreated. This supported findings from another study demonstrating that, even after controlling for social class, children who were neglected had more school absences and inferior academic achievement than children who were abused and children who were nonmaltreated (Wodarski, Kurtz, Gaudin, & Hoving, 1990). Inadequate health care may impair children's health, growth, and development (Dubowitz, 1999). Occasionally, it results in death (Asser & Swan, 1998). In addition to direct relationships between one type of neglect and a particular child outcome, so-called indirect effects may be evident, particularly if one type of neglect is a marker for another type (e.g., inadequate health care may also reflect a lack of parental nurturance, and it may be more readily measured than direct observation of parent-child interactions). The above evidence provides a rationale for examining the association between possible neglect with children's later functioning.

In summary, the overall objective of the current study was to develop and evaluate a conceptual approach to defining child neglect. After identifying types of children's basic needs, we examined whether different measures and/or variables available from our multisite, longitudinal study satisfactorily represented latent constructs of these basic needs. These constructs were measured as dimensional or continu-

ous variables. Then, instead of measuring neglect per se (in a categorical yes/no approach), we investigated whether the extent to which each need was met was related to children's later functioning, specifically internalizing and externalizing behavior problems and social functioning.

METHOD

Participants

Data collected from children and their primary caregivers participating in a consortium of longitudinal studies of child abuse and neglect (LONGSCAN; Runyan et al., 1998) were utilized to examine a conceptual model of neglect. LONGSCAN comprises five studies operating under common protocols, using the same measures, data collection, data entry, and data management procedures. The five sites differed systematically in terms of how the samples were recruited, that is, whether they were at high risk for maltreatment (Eastern, Southern, and Midwestern sites), reported for maltreatment (Northwestern site), or identified as maltreated and involved in remedial interventions by social service or other treatment agencies (Midwestern and Southwestern sites). Detailed information regarding the site-specific recruitment procedures is available in Runyan et al. (1998).

Inclusion criteria for participants in these analyses were (a) having completed the protocols when the children were ages 4, 6, and 8 years, with no missing data, and (b) having the same primary caregiver as respondent at each time point. These criteria resulted in a final sample of 377 participants, all of who were the biological mothers of the target child. Analyses were conducted to examine difference in demographic characteristics when the child was approximately age 4 years between the sample used in the final model ($N = 377$) and biological mothers who completed an interview at Visit 4 but did not meet the remaining study criteria ($N = 520$). Of those not included in the study sample, 188 did not complete all three interviews, 84 completed all interviews but were not the biological mothers. The remaining 248 participants were biological mothers who completed all interviews but had one or more missing data points. Analyses indicated that child's gender, maternal marital status, geographic location, socioeconomic status (SES), and maternal education were significantly different between the two groups (see Table 2).

Demographic characteristics of participating children and their biological mothers as assessed at the

time of the Age 8 interview are shown in the third column of Table 2. These demographics represent the sample of participants included in the final model ($N = 377$). The majority of the children were African American (55%), 54% were girls, and the mean age was 8.3 ($SD = .5$). Caregivers were primarily single (49%), had an average of 11.9 years of education ($SD = 1.8$), and a mean age of 32.6 years ($SD = 6.2$). Participating families had a median income of between U.S. \$10,000 and \$14,999, and 41% of families were receiving Aid to Families with Dependent Children (AFDC)—the main welfare benefit for low-income families at that time. The five sites are referred to geographically as the East, South, Southwest, Midwest, and Northwest Sites. Of participating families, 27% were from the South, 23% from the East, 20% from the Midwest, 19% from the Northwest, and 11% from the Southwest. Of the children in the sample, 47% ($n = 176$) had a history of maltreatment. Of those, 80% ($n = 141$) had one or more reports of neglect between birth and their Age 8 birthday.

Study Procedures

After local institutional review board approval, and consent of study participants, protocols were administered to caregivers and children when the children were approximately age 4, 6, and 8 years. Caregivers were asked to participate in the 2-hour face-to-face interview conducted by trained interviewers that included standardized and project-developed measures. In addition, each child was administered a protocol lasting 30 to 60 minutes at age 8 years. Participants were compensated for their time and travel expenses. Data were entered locally using a common data entry system and were processed at the LONGSCAN Coordinating Center at the University of North Carolina. A random 10% of the interviews were reentered to verify data entry procedures and coding.

Measures

Demographic characteristics. Demographic information was collected from the caregivers, including child's age, ethnicity, gender, and marital and SES (i.e., family income, receipt of AFDC, and annual household income, using 11 categories ranging from less than \$5,000 to more than \$50,000).

Independent Variables

We first examined the measures administered to the children and caregivers at the Age 4 and 6 interviews to identify potential indicators of the 12 types of

TABLE 2: Demographic Characteristics Measured at Age 4 for Those Included in and Excluded From the Final Model

Characteristic	Sample not Included in Final Model (N = 520)	Sample Used in Final Model (N = 377)	χ^2 (df)
	%	%	
Child gender			4.2 (1)*
Male	52.7	45.7	
Female	47.3	54.3	
Child ethnic status			ns
White	56.0	55.1	
Non-White	44.0	45.9	
Children with maltreatment report	44.6	42.3	ns
Children with neglect report	36.7	32.2	ns
Maternal marital status			13.8 (1)***
Married	19.2	29.9	
Not married	80.8	70.1	
Geographic location			10.4 (4)*
South (SO)	18.5	26.6	
East (EA)	23.8	23.4	
Midwest (MW)	26.2	20.0	
Northwest (NW)	20.6	19.2	
Southwest (SW)	11.0	10.9	
	M (SD)	M (SD)	t (df)
Child age (years)	4.6 (0.8)	4.6 (0.8)	ns
Maternal age (years)	28.7 (5.8)	28.9 (6.1)	ns
Maternal education (years)	11.2 (1.9)	11.7 (1.8)	3.4 (892)**
	Median	Median	χ^2 (df)
Family income ^a	U.S. \$5,000 to 9,900	\$10,000 to \$14,900	29.90 (10)***

NOTE. Percentages may not sum to 100 due to missing data.

a. Because the range for the upper category of income was truncated, the median is reported rather than the mean.

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

children's basic needs. For some of the needs (e.g., stability of caregiver relationship, adequacy of health care, adequacy of cognitive stimulation) our measurement protocol did not contain a sufficient number of potential indicators to develop a latent construct. For some, there were an insufficient number of indicators or the potential indicators did not correlate at a level suggesting that they were assessing the same construct. The measures contributing items that were utilized as indicators of the constructs include the following:

Emotional support, affection, and conflict. Aspects of family functioning were assessed using the Self-Report Family Inventory (SFI; Beavers et al., 1985). The SFI is a 36-item measure of family functioning in five areas (health and/or competence, conflict, cohesion, expressiveness, and leadership). The current study used means to delineate three constructs based on the mother's responses to selected items: support (5 items, e.g., "pay attention to each other's feelings," alpha = .71); affection (5 items, e.g., "members touch and/or hold each other," alpha = .74); and conflict (5 items, e.g., "grownups compete and fight," alpha = .72).

Neighborhood safety. The Neighborhood Risk Assessment, a project-developed measure, was designed to assess neighborhood safety, support, and connectedness. Five items were used in the current study to create a neighborhood safety composite score (e.g., not safe for children to play outside, alpha = .80).

Support from father. Father Involvement With Child (Runyan et al., 1992) was used to assess the female caregiver's perception of the extent and quality of the father or father figure's involvement in the child's life. Four items were selected for this study (e.g., "how much time does he spend with child?" and "does he show that he cares about child?" alpha = .79).

Child's perception of affection. The Preschool Symptom Self-Report (PRESS, Martini et al., 1990) is a pictorial self-report instrument, consisting of 25 items used to assess depressive symptoms in children who are preschool age. Selected items were used to create a composite score for "child perceived affection." These items include "thinks parents love them" and "thinks parent wants to play with them." This measure

TABLE 3: Descriptive Information for Derived Latent Constructs of Children's Basic Needs (Neglect)

Source Instrument	Derived Latent Construct	# of Items	Alpha	Child Age	Informant	Basic Need Domain
SFI	Social support	5	.71	4	Parent	Support
DAD	Father's support	4	.79	6	Parent	Support
Harter	Maternal support	4	.69	6	Child	Support
SFI	Family affection	5	.74	6	Parent	Support
PRESS	Affection	3	.53	4	Child	Support
PRESS	Affection	3	.47	6	Child	Support
SFI	Family conflict	5	.72	4	Parent	Family conflict, violence
NRF	Community safety	5	.80	6	Parent	Community violence and/or safety

NOTE: SFI: Self-Report Family Inventory (Beavers, Hampson, & Hulgus, 1985); DAD: Father Involvement Form (Runyan et al., 1992); NRF: Neighborhood Risk Factors (Runyan et al., 1992); Harter: Pictorial Scale of Perceived Competence (Harter & Pike, 1984); PRESS: Preschool Symptom Self-Report (Martini, Strayhorn, & Puig-Antich, 1990).

was administered at ages 4 and 6 years (Age 4 alpha = .53, Age 6 alpha = .47).

Child perceptions of support from mother. The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984) assesses children's feelings of cognitive and physical competence and social acceptance. Four items were selected from the Maternal Acceptance subscale to assess perceived support from mother (e.g., "mom talks to you," alpha = .69).

In sum, we were able to utilize eight latent constructs pertaining to children's basic needs; however, of the 12 basic needs shown in Table 1, our eight latent constructs represent only three of the 12 children's basic needs; emotional support and/or affection (six constructs), exposure to family conflict and/or violence (one construct), and exposure to community violence and/or lack of neighborhood safety (one construct). Table 3 presents the descriptive information for these eight constructs, including the source instrument and informant, number of items and alpha reliability, our identification of the latent construct name, and basic need domain name as described in Table 1.

Dependent Variables

Measures administered to children and their caregivers at the Age 8 interview were examined to identify potential indicators of externalizing, internalizing, social problem, health, and cognitive child outcomes. Our strategy was (a) to use an existing scale score to represent an outcome, or (b) to use a set of items derived from such a scale, or (c) to use both of these strategies when we believed that multiple indicators of the same construct would be productive. Indicators were deemed inadequate when there were less than three potential items, when potential items corre-

lated near zero, or when the number of missing values was such as to exclude a large number of cases. Using these criteria, adequate indicators of child health and cognitive outcomes were not available in our measurement protocol; however, indicators for the first three outcomes were identified as follows.

Mother-reported externalizing and internalizing behavior problems. The Child Behavior Checklist (CBCL; Achenbach, 1991) assesses parents' perceptions of children's externalizing and internalizing behavior problems. The measure yields three broadband and nine narrow-band problem behavior scales (see Achenbach, 1991, for scoring, reliability, and validity information). The following narrow-band subscales were used to construct externalizing (Delinquent Behavior, Aggressive Behavior, and Attention Problems) and internalizing (Withdrawn, Anxious/Depressed, and Somatic Complaints) behavior problem scales.

Social problems. The Social Problems scale of the CBCL was used to assess children's interpersonal relations. Four items compose this scale (e.g., "gets teased a lot"), and the alpha was .73.

Child-reported behavior problems. A composite score was developed based on the following measures:

- The Trauma Symptom Checklist for Children (TSC-C) is a 54-item scale developed by Briere (1996) that assesses the psychological functioning of children. Children report how often they have experienced each of the 54 symptoms. The measure yields six clinical scale scores, Anxiety, Depression, Anger, Post-Traumatic Stress, Dissociation, and Sexual Concerns. The author reported good reliability with alphas ranging from 0.77 to 0.89. The raw scores for the Anger subscale were used in the current study.

- A LONGSCAN modified version of the Behavioral Intent Scale (BIS; Slaby & Guerra, 1988) that allowed for open-ended responses rather than rankings (Slaby & Stringham, 1994) was administered to assess children's use of aggressive problem-solving skills. The child was presented with a hypothetical scenario that included peer provocation (e.g., "being threatened by a bully"), and he or she was asked "what would you do?" Responses were coded into one of seven categories that included verbal assertion and/or seeking information, physical aggression, verbal aggression, help-seeking behavior, avoidance and/or nonconfrontation, bargaining or compromise, and physical assertion. Responses indicating the use of aggression were used to indicate child reported externalizing problems.

Data Analysis

Development of the measurement model used to operationalize latent constructs of children's basic needs proceeded in a series of steps. First, we identified items likely to represent latent constructs of the children's basic needs. Second, the ability of recommended items to function as a scale was assessed using a number of criteria, including the alpha reliability coefficient, and inter-item and item-to-total correlations. When items did not work together as a scale, individual items were dropped and/or multiple latent constructs were created. The latent constructs of children's needs that were best supported by item content and psychometric criteria were retained. In some instances, we were unable to operationalize a latent construct of a child's need; these were excluded from the analyses. The eight latent constructs that were included in the measurement model, assessed using confirmatory factor analysis (CFA), are shown in Table 3. We refer to these as the latent constructs of neglect. Following the assessment of the measurement model, a structural equation model was developed that included the endogenous dependent variables and coefficients linking the latent constructs of neglect to these endogenous variables. The development and evaluation of these models is described in the following section.

RESULTS

The results are presented in two major sections. First, we describe the CFA measurement model that represents our effort to operationalize the eight latent constructs of children's needs listed in Table 3. This section presents fit statistics and related indicators of measurement model adequacy. Second, we

present the structural equation model linking the latent constructs of children's needs to the measures of children's functioning.

The Latent Construct Measurement Model - Types of Children's Basic Needs

As shown in Table 3, we were able to identify eight latent constructs that operationalize three of the children's basic needs: emotional support and/or affection, exposure to violence and/or conflict and community safety. Lack of success in operationalizing the remaining types of children's needs was due to insufficient items for a domain in the LONGSCAN protocols, the failure of available data to define the type of neglect in a psychometrically valid way, or an unacceptable level of missing data.

The final measurement model, presented in Table 4, contains the unstandardized factor loadings, robust standard errors for item indicators, as well as the fit statistics represented by the model. (Standardized factor loadings are presented in Figure 1.) We utilized maximum likelihood methods with the EQS computer program (Bentler & Wu, 1995) to conduct these and the following analyses. Note that Table 4 excludes the social support and family affection items from the SFI. Both of these indicators had initial alpha reliability coefficients above .70; however, both were also correlated above .90 with the SFI items on family conflict. The resulting multicollinearity created estimation problems that required eliminating the overlapping variability. Only the family conflict measure was retained because, unlike the social support and family affection measures, protection from family conflict assessed a type of child need that did not overlap with other domains already represented in the model.

Finally, given the skew and kurtosis of some items, the Satorra-Bentler Scaled Chi-Square Statistic ($S-B\chi^2$) and its associated fit index, the Robust Comparative Fit Index (RCFI) were used to evaluate model fit (Satorra & Bentler, 1988). This statistic uses a scaling correction for the chi-square statistic when distributional assumptions are unwarranted. Byrne, Baron, and Campbell (1994) argued that the RCFI should be the measure of choice when the Satorra-Bentler scaling correction for the χ^2 ($S-B\chi^2$) statistic is warranted as "it allows for a more cogent assessment of factorial validity than is possible with the uncorrected (i.e., biased) statistic" (Byrne et al., 1994, p. 171). We follow the recommendation of many authors and present a number of additional fit indices that, taken as a whole, assess measurement model fit (e.g., Byrne, 1994). These include the stan-

TABLE 4: Measurement Model Assessing Latent Constructs of Neglect

Latent Construct Name ^a	Item Description	Item # (Loading-Robust Standard Error)
DAD - Father's support ($\omega = .83$)	3 - Time with child?	V1 (1.00)
	4 - Cares about child?	V2 (.736 to .075)
	5 - Contribute to child's everyday care?	V3 (1.14 to .094)
	6 - Take care of child's financial needs?	V4 (1.04 to .083)
Maternal support - Age 6 (Harter) ($\omega = .80$)	8 - Takes you places	V1 (1.0)
	12 - Cooks favorite food	V2 (.875 to .127)
	16 - Reads to you	V3 (.966 to .139)
	24 - Talks to you	V4 (.835 to .118)
Affection - Age 4 (PRESS) ($\omega = .97$)	3 - Love	V1 (1.00)
	6 - Play with father	V2 (1.12 to .265)
	19 - OK if parent leaves	V3 (1.47 to .342)
Affection - Age 6 (PRESS) ($\omega = .99$)	3 - Love	V1 (1.00)
	6 - Play with father	V2 (2.73 to 1.12)
	19 - OK if parent leaves	V3 (2.52-1.12)
Family Conflict - Age 4 (SFI) ($\omega = .89$)	5 - Grownups compete and fight	V1 (1.00)
	10 - Members put each other down	V2 (1.09 to .155)
	14 - Argue and don't solve problems	V3 (1.39 to .177)
	4R - Grownups agree on decisions	V4 (1.19 to .156)
NRF - Neighborhood Safety (NRF) ($\omega = .90$)	21R - Household good at solving problems	V5 (1.26 to .197)
	ESIA17R - Feeling safe in neighborhood	V1 (1.00)
	24 - Drug abuse and dealing in neighborhood	V2 (1.82 to .215)
	27 - Homes and businesses broken into	V3 (1.06 to .147)
	22R - Safe for children to play outside	V4 (1.65 to .183)
25R - Safe to walk alone during day	V5 (1.33 to .173)	

Measure	1	2	3	4	5	6
(1) DAD	1					
(2) Harter	<i>ns</i>	1				
(3) PRESS-4	.130	<i>ns</i>	1			
(4) PRESS-6	.128	<i>ns</i>	.216	1		
(5) SFI	-.297	<i>ns</i>	<i>ns</i>	.192	1	
(6) NRF	-.221	<i>ns</i>	-.224	<i>ns</i>	.220	1

NOTE: SFI: Self-Report Family Inventory (Beavers, Hampson, & Hulgus, 1985); DAD: Father Involvement Form (Runyan et al., 1992); NRF: Neighborhood Risk Factors (Runyan et al., 1992); Harter: Pictorial Scale of Perceived Competence (Harter & Pike, 1984); PRESS: Preschool Symptom Self-Report (Martini, Strayhorn, & Puig-Antich, 1990).

Measurement model is oblique, significant correlations are shown in lower matrix with nonsignificant correlations fixed to 0. All loadings unstandardized with robust standard errors, and all are statistically significant at $p < .01$. root mean squared error of approximation (RMSEA).

$\chi^2(245) = 230, p = .017$, Robust Comparative Fit Index (RCFI) = .96, standardized root mean squared residual (SRMR) = .048, 90% confidence interval (CI) to root mean squared error of approximation (RMSEA) (.018 to .036), $N = 377$. Standardized loadings are shown in final model in Figure 1.

a. Reliability coefficient omega is shown in parentheses.

standardized root mean squared residual (SRMR), and the 90% confidence interval (CI) of the root mean squared error of approximation (RMSEA). A RCFI of .90 or higher is considered evidence of a good fit; our value of .96 indicates an excellent fit. The SRMR is defined as the square root of the mean of the squared discrepancies between the implied and observed covariance matrices. Lower values are better, and our value (.048) is indicative of a good fit. The RMSEA and its 90% confidence interval are based on an analysis of residuals. Error of approximation refers to the discrepancy between the sample covariance matrix and the covariance matrix implied by the model. This

measure has a lower bound of 0, and values below .10 indicate a good fit, values below .05 indicate a very good fit, and values below .01 indicate an outstanding fit. Our confidence interval of .018 to .036 suggests a very good fit. Taken as a whole the above statistics, representing a model with no correlated residuals or multiple loadings, suggest that the model fits very well.

We utilized McDonald's (1999, p. 89) formula for estimating omega (ω) the reliability of the latent constructs utilizing the parameters of the items in the factor model. These values, shown in Table 4, are all .8 or higher, with values for affection, derived from the

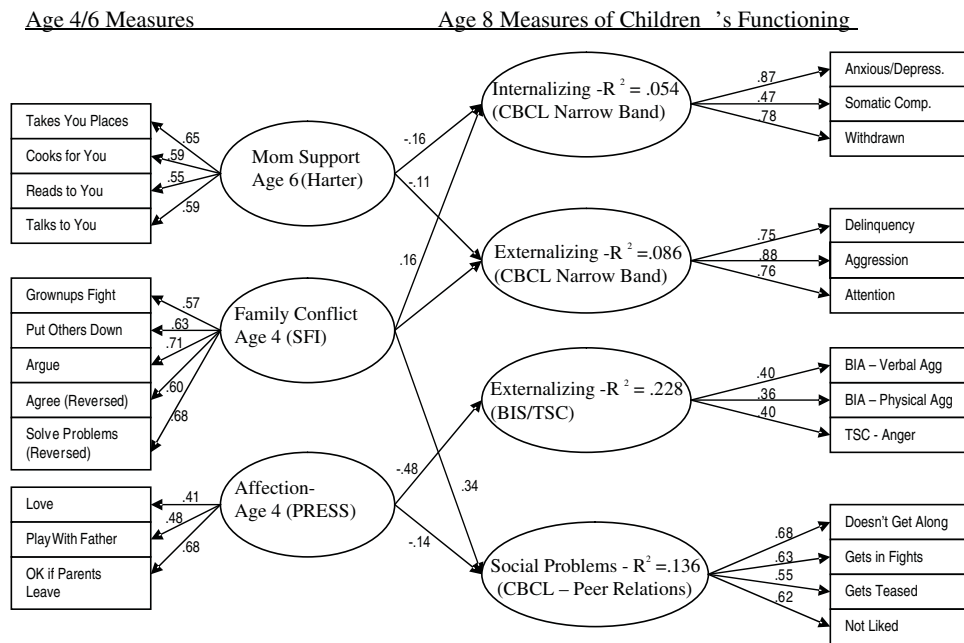


FIGURE 1: Final Structural Equation Model Relating Latent Constructs of Neglect to Children's Functioning

PRESS at age 4 and 6 years, above .95. Taken as a whole, the evidence for the reliability of the measurement model is considerable and warrants further investigation into its ability to predict children's functioning (i.e., possible outcomes of neglect), which we consider next.

The Structural Model: The Association Between Latent Constructs of Neglect and Measures of Children's Functioning

Four domains of children's functioning are included in the structural model: two that assess externalizing behavior, and one each for social problems and internalizing behavior. To represent domains of children's functioning, we developed latent constructs utilizing combinations of measures or items, currently existing as scales or subscales of known instruments, primarily the narrow-band scales of the CBCL. The decision to include two measures of externalizing was made because the second measure, a combination of the TSC-C and BIS items is the only outcome measure based on information from the child. The scales or items composing these domains are presented in Figure 1, including the factor loadings and R².

The final model is shown in Figure 1. The fit indices for the overall model suggest a good fit to the data. Maternal support, affection assessed at age 4 years, and family conflict played a statistically significant

role in predicting children's later functioning. The PRESS items, measured when the child was age 4 years, were significantly related to social problems. They also produced the only significant link to externalizing behavior measured by the BIS and TSC-C combination of items, also based on child self-report, but assessed 4 years later. Two measures of parental support, the father involvement measure, and affection PRESS items (assessed at age 6 years), as well as community safety (Neighborhood Report Form), were not significant predictors. These were excluded from the final model and are not shown in Figure 1.

Family conflict, a five-item measure derived from the SFI (Beavers et al., 1985), was the single most powerful predictor of children's functioning. Along with maternal support assessed by the child at age 6 years, family conflict significantly predicted internalizing and externalizing behavior. Family conflict was also associated with social problems. Thus, family conflict, and maternal support and paternal affection measured when the child was age 4 and 6 years, respectively, predicted children's internalizing, externalizing, and social behavior at age 8 years.

The final fit statistics, which include only components of the exogenous measurement model that significantly predict outcomes, are as follows, CFI = .93, SRMR = .051, 90% CI to RMSEA (.027 to .038). As would be expected, these statistics show some attenu-

ation in fit compared to the measurement model presented in Table 4. The attenuation in fit is due to (a) the exclusion of potential predictor variables that did not relate significantly to outcomes, but that did improve the fit of the overall measurement model and (b) the inclusion of paths from the predictors to the outcome variables that were statistically significant, but did not explain a large amount of variance in the outcome variable. Despite these model modifications, the fit indicators for the overall model are well within guidelines indicating a good fit. We also tested the difference in fit between the final measurement model and the model that includes the significant structural coefficients, using a Chi-square difference in fit test. This test is appropriate because the measurement model is nested within the complete model. This test is statistically significant, $\chi^2 = 58$, $df = 7$, $p < .001$, indicating that the structural coefficients of the model contribute significantly to the explanation of variance (i.e., overall model fit is not just due to the fact that the measurement model fits well).

DISCUSSION

The current study attempted to move beyond typical categorical definitions of neglect based on CPS reports that result in the identification of cases where neglect occurred or did not occur. Based on a review of the theoretical and empirical literature, types of children's basic needs were identified. Data collected as part of an ongoing multisite longitudinal study (LONGSCAN, Runyan et al., 1992) were utilized in an attempt to operationalize these types of needs by developing latent constructs. We then examined whether the identified latent constructs predicted subsequent child functioning. Specifically, structural equation modeling (SEM) was utilized to test simultaneously the fit of the measurement model (i.e., how well the data represent the constructs) and the structural model (i.e., are there relationships between the latent constructs and measures of children's later functioning; see Singer & Willett, 2003 for a discussion of this technique).

The results of our attempt to develop the measurement model of children's basic needs can be summarized as follows: (a) 12 types of children's needs were initially specified, (b) preliminary efforts to identify candidate measures or items that might serve as indicators of these constructs yielded 8 latent constructs (emotional support and/or affection, 6 constructs; exposure to family conflict and/or violence, 1 construct; and exposure to community violence and/or lack of community safety, 1 construct), (c) indicators for each of these 8 constructs were found only within

reports from a single informant (i.e., child or parent) on a specific measure, and (d) there was strong support for the fit of the measurement model.

The current study is one of the first to conceptualize and represent neglect along a continuum based on reports from multiple sources (per the recommendation of Sternberg et al., 2004). Although there was an excellent fit between the eight constructs that emerged and their indicators, we were somewhat disappointed not to find multisource or multi-informant indicators for any of the constructs; that is, each construct was defined or indicated by responses from either the parent or child on a specific measure. In the only other study we are aware of that utilized a similar analytic approach in defining neglect on a continuum, Knutson, DeGarmo, and Reid (in press) did find constructs such as supervisory neglect, denial of care neglect, and punitive discipline that were indicated by multiple informants and sources. The Knutson et al. (in press) study identified potential measures a priori while in the current study we utilized data already collected as part of our longitudinal study. In addition, the sample of children in the Knutson et al. (in press) study was older than our sample. Thus, our failure to find multi-informant indicators of the latent constructs may be due to limitations or characteristics of the study participants and/or the measures available. For example, children who are between ages 4 and 7 years as well as the mothers from these families of children who are at risk may be poor or unique reporters of whether children's needs are being met.

Although there are certainly benefits of utilizing archival data, the disadvantage is that the data available are often limited. In the current study, we were not able to identify potential indicators for a number of the initially identified child needs or latent neglect constructs, and when we did, the potential indicators for a given need typically included child and parent measures that were very different in terms of the items and response options. Although limited to latent constructs based on a single informant, the measurement model provided a good fit for the data that were available. Thus, there is some indication that the approach to defining latent constructs of neglect based on child needs being met may have utility.

Further evidence of the utility of this approach comes from the final SEM that resulted in a relatively good fit between the latent constructs of needs and children's functioning that they predicted. Specifically, 5.4% to 22.8% of the overall variance in children's internalizing, externalizing, and social problems was accounted for in the model. A summary of the relationships found is as follows: (a) lack of per-

ceived early affection by children (age 4 years) predicted subsequent (age 8 years) social problems reported by parents and externalizing behaviors reported by children; (b) lack of maternal support reported by children predicted later parental reports of externalizing and internalizing problems; and (c) family conflict reported by parents predicted parental reports of subsequent internalizing, externalizing, and social problems.

These significant paths were found in this multisite sample of children who are at risk living with their biological mothers during the observed period (approximately age 4 to 8 years). Almost one half of the children had been reported to CPS because of suspected maltreatment, more than one third were alleged to have experienced neglect, some had been placed in substitute care before being reunified, and all were recruited initially because they were at high risk for child maltreatment. Given the relative homogeneity in terms of SES of this sample and the established relationship between social disadvantage and negative outcomes (Hildyard & Wolfe, 2002; Knutson et al., *in press*), the amount of variance in children's functioning that can be attributed to the latent constructs of their needs is impressive. This contrasts with a recent study by Dubowitz, Pitts, and Black (2004) that utilized CPS reports of neglect in a study examining the relationship of different approaches to defining neglect and outcomes for many of the same children. Although allegations of neglect were significantly related to outcomes, these allegations (*vs.* no allegations) only accounted for 1% to 3% of the variance in child outcomes as compared to the 5.4% to 22.8% in the current study.

It should also be emphasized that these significant pathways resulted from data collected during a 4-year period with predictors assessed in the first 2 years and outcomes measured in the 4th year. Equally impressive is the finding that though the latent predictors were based on reports from a single informant, the significant pathways between predictors and outcomes included cross-informant constructs. For example, child reports of perceived parental affection at age 4 years predicted parent reports of social problems at age 8 years.

In addition, the specific pathways found between the constructs of children's needs and children's functioning in the current study are consistent with prior empirical reports; that is, psychologically unavailable parents, or those who do not provide affection and support, are more likely to have children who not only evidence internalizing and externalizing problems but also have difficulties with their social relationships (for reviews, see Chalk, Gib-

bons, & Scarupa, 2002; Erickson & Egeland, 2002; Hildyard & Wolfe, 2002). It is interesting to note that children's reports of affection at age 4 years, but not age 6 years, were related to aggression and social problems at age 8 years. This is consistent with Manly et al.'s (2001) finding that severity of emotional maltreatment during early development (birth to age 5 years) but not later development (age 6 to 11 years) was predictive of aggression.

Support from father and neighborhood safety, though included in the measurement model, did not predict outcomes. It may be the case that neighborhood safety plays a greater role as the child ages and begins to spend less time within the home and more time in the community. The failure to find the expected relationship between support from father and child outcomes may be due to any number of methodological factors and/or sample characteristics. For example, the majority of the participants were from single-parent households where mothers indicated how involved fathers were with their children. Thus, fathers were either uninvolved, or their involvement was indicated by the single mother who did not necessarily have the opportunity to observe the relationship between the father and the child. In fact, there is some indication that a child's perception of father involvement (*i.e.*, how much father plays with him or her) is an important component in measuring the latent construct of child-reported affection that was predictive of externalizing behavior problems.

Although the current study was a first step in determining the utility of a different definitional approach for understanding neglect, it should be noted that the specific constructs and causal pathways found are necessarily limited by the data that were available. These data had already been collected as part of an ongoing multisite longitudinal study. Thus, potential indicators of the proposed latent neglect constructs were not always available. In addition, it is possible that the significant pathways found are specific to the subsample included in the analytic model as well as the analytic model itself. There is some indication that this subsample was from a somewhat higher socioeconomic strata than the initial sample recruited for the prospective study. The specific findings may be limited to this select subsample; however, it can also be argued that because lower income and/or educational attainment is typically associated with neglect (Hildyard & Wolfe, 2002), the relationships between latent neglect constructs and outcomes in the current study could have been attenuated. Finally, the analytic model did not attempt to control for some factors such as family violence that might not only be related

to neglect but also to the child outcomes. The analytic model did control for other factors, such as consistency of informants, relationship between primary caregiver and child, and exposure to a single primary caregiver during the study period, through the implementation of specific inclusion criteria (i.e., biological mother informant at all three time points). Disentangling the relationship between neglect and other forms of maltreatment, as well as their relationship to child functioning, is a necessary task but not the focus of this article. In this article, we were interested in how neglect might be conceptualized and operationalized. Even with the limitations of the data and analytic model, the results of our effort to approach the definition of neglect focusing on children's basic needs and relating the latent constructs to children's later functioning have useful implications for research and policy.

First of all, the so-called burden of suffering (i.e., extent, impact, and costs) of neglect argues for its relative importance and the need to devote resources for prevention and remediation (Chalk et al., 2002; Erickson & Egeland, 2002). The relative importance of neglect (e.g., lack of necessary parental emotional support and positive social behaviors) in understanding the impact of maltreatment, in general, is further suggested by the present findings (Chalk et al., 2002).

In addition, our overall approach to conceptualizing neglect appears to have some utility; that is, approaches to defining neglect vary as a function of how the definitions are to be used (Hutchinson, 1990). Rather than relying on categorical definitions of neglect based on reports to CPS where "caseness" is key, we attempted to specify basic needs of children necessary for healthy development. Alternatives to CPS definitions of neglect appear to be important to future research. There is a need for further work examining the approach used in the current study. Potentially, this direction might influence a policy shift away from a focus on parental behavior and toward a focus on children's basic needs.

The association of these latent constructs of children's needs with children's later functioning can also offer guidance for interventions, preventive and rehabilitative; that is, rather than simply identifying a child who is neglected and in need of some intervention, this approach delineates specific targets for change. For example, increasing parental behaviors that would be interpreted as affectionate and supportive by a child, and/or providing a home environment with less conflict might be the target of an intervention depending on the form of neglect that is occur-

ring or is at risk of occurring. This also suggests the potential value of comprehensively assessing the extent to which children's basic needs are met in evaluating children reported to CPS.

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Howard Dubowitz, M.D., MS, is a professor of pediatrics and codirector of the Center for Families at the University of Maryland, Baltimore. He is on the Executive Board of the International Society for Prevention of Child Abuse and Neglect and the Maryland State Council on Child Abuse and Neglect. He served two terms on the Board of the American Professional Society on Child Abuse and Neglect and has chaired the Committee on Child Maltreatment, American Academy of Pediatrics, Maryland Chapter. He is a clinician, researcher, and educator, and is active in the policy arena at the state and national levels.

Rae R. Newton, Ph.D., is a professor of sociology at California State University-Fullerton and senior statistician for the Child and Adolescent Services Research Center, an National Institute of Mental Health-funded center in San Diego, California. He is a coinvestigator, with Alan Litrownik on the Consortium for Longitudinal Studies of Child Maltreatment, a study funded by the U.S. Department of Health and Human Services. His research concerns children at risk for abuse and/or neglect and longitudinal outcomes for foster care populations.

Alan J. Litrownik, Ph.D., is a professor of psychology at San Diego State University and a member of the faculty in the San Diego State University/University of California, San Diego, Joint Doctoral Program in Clinical Psychology. His primary research interests focus on children at risk and factors that determine adaptive and maladaptive outcomes.

Terri Lewis, Ph.D., is a child development psychologist, statistician, and research investigator with the Department of Biostatistics at the University of North Carolina at Chapel Hill and is a research

assistant professor with the Department of Social Medicine at UNC. She serves as the coordinating center statistician for LONGSCAN. She has research interests and publications covering topics of child injury, parental attitudes about child injury, stepfather disciplinary practices, and the co-occurrence of marital and parent-to-adolescent aggression and links to behavior problems.

Ernestine C. Briggs, Ph.D., is a faculty member in the Department of Psychiatry and the Behavioral Sciences at Duke University Medical Center. She is also director of the Trauma Treatment and Research Program at the Center for Child and Family Health—NC and a coinvestigator at the Coordinating Center of LONGSCAN. Her research and clinical interests include child maltreatment, domestic violence, traumatic stress, and anxiety disorders.

Richard Thompson, Ph.D., is director of research at the Juvenile Protective Association and assistant professor in the Department of Psychiatry at the University of Illinois at Chicago. He is the principal investigator for the Midwest site of LONGSCAN. He received his Ph.D. in clinical psychology from McGill University in 2000 and did postgraduate work at the University of Pennsylvania. He has authored more than 25 peer-reviewed journal articles on child maltreatment, psychopathology, access to mental health services, and the relationship between family interactions and mental health.

Diana English, Ph.D., is the Office Chief of Research, Children's Administration, Washington State Department of Social and Health Services. The Office of Research is a public child welfare research center conducting research on the identification of child abuse and neglect, decision making in child protective services, effective interventions for victims of child maltreatment, foster care services, independent living, and adoption. She completed her Ph.D. in social welfare in 1985 at the University of Washington, School of Social Welfare. During the past 10 years she has participated in

numerous national and state child welfare–related commissions and committees, and published numerous articles and reports on child welfare issues.

Li-Ching Lee, Ph.D., is an assistant scientist at the Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health. Before her faculty appointment with Johns Hopkins, she worked as data manager for the North Carolina site of LONGSCAN.

Margaret M. Feerick, Ph.D., received her bachelor's degree in English and psychology and her master's degree in developmental psychology from Columbia University. She received her Ph.D. from Cornell University in developmental psychology, with concentrations in social and personality development and developmental psychopathology. Prior to joining the National Institute of Child Health & Development, she held research positions on several federal and National Institutes of Health–funded grants. She has also been the recipient of several national fellowships and awards, including an Individual National Research Service Award from the NIH, and a Society for Research in Child Development Executive Branch Policy Fellowship. She has worked as director of development and contributions for an independent school in New York City and has taught at the elementary and junior high school levels. She currently serves as a liaison for the Division on Children, Youth, and Families of the American Psychological Association. She has also served as a member of several trans-agency federal working groups related to research on children and families and as cochair of the NIH Child Abuse and Neglect Working Group. As part of the Child Development and Behavior Branch of the NICHD, she was responsible for directing a large research and training program in cognitive, social, and affective development, and child maltreatment and violence. She currently serves as an independent consultant to the NICHD, editing scientific publications related to child maltreatment and family violence.