



PII S0145-2134(99)00046-0

PREDICTING CHILD MALTREATMENT RECURRENCES DURING TREATMENT

DIANE DEPANFILIS AND SUSAN J. ZURAVIN

University of Maryland School of Social Work, Baltimore, MD, USA

ABSTRACT

The primary purpose of the child protective services system is to protect children from the recurrence of child maltreatment. Understanding more about what predicts recurrence may help us more adequately target interventions to reduce the risk of future maltreatment.

Objective: The specific objective of this study was to identify correlates of recurrence during CPS intervention for families who were provided continuing intervention following a confirmed index report of physical abuse or neglect.

Method: This nonconcurrent prospective study selected 446 subject families who met study eligibility requirements from 1,181 families randomly selected from the 2,902 families who had experienced a substantiated report of child abuse or neglect during the sampling year. Data were collected and coded from archival sources for 5 years following the index report. Each record was coded by two research analysts to increase inter-rater reliability. Data were analyzed with survival analysis methods: (1) Kaplan Meier and (2) the Cox Proportional Regression Model.

Results: Predictors of recurrence were child vulnerability, family stress, partner abuse, social support deficits, and an interaction between family stress and social support deficits.

Conclusions: Implications of this and earlier research suggest that increasing social supports may help families cope with life events that increase stress and the risk of continued child maltreatment; that collaborations between CPS and domestic violence agencies are needed; and that screening maltreated children for mental health problems and other disabilities and assuring that children with these needs and their families get effective treatment may reduce the likelihood of continued maltreatment. © 1999 Elsevier Science Ltd

Key Words—Child abuse, Risk, Recurrence, Recidivism.

ALTHOUGH A PREVIOUS search of the literature (DePanfilis, 1995) identified at least 28 prior studies that have reported on correlates of recurrence, interpretation and integration of findings is compromised by methodological differences. Among this body of research, there were only four other studies that used survival analysis procedures to identify correlates of recurrence. Two studies had a primary purpose of extending knowledge about the epidemiology of child maltreatment recurrences (Fryer & Miyoshi, 1994; Levy, Markovic, Chaudhry, Ahart, & Torres, 1995) and two others used survival analysis procedures to identify predictors of recurrence following family preservation intervention (Coleman, 1995; Schuerman, Rzepnicki, & Littell, 1994). The major benefit of an epidemiological study, that is “the study of the distribution of a disease or condition

This study was funded in part by the National Center on Child Abuse and Neglect, Grant Number 90CA1497.

Portions of the paper were previously presented at the Fourth National Colloquium of the American Professional Society on the Abuse of Children, Chicago, June 26–28, 1996; the 11th ISPCAN International Congress, Dublin, Ireland, August 18–21, 1996; and the Council on Social Work Education 43rd Annual Program Meeting, Chicago, March 6–9, 1997.

Submitted for publication July 28, 1998, final revision received December 9, 1998, accepted December 18, 1998.

Requests for reprints should be sent to Diane DePanfilis, University of Maryland School of Social Work, 525 West Redwood Street, Baltimore, MD 21201.

in a population and of the factors that influence this distribution” (Lilienfield & Lilienfield, 1976, p. 3), is that understanding this pattern and the predictors of the condition is the first step to developing strategies to prevent it. Survival analysis, a set of statistical procedures specifically developed to study the pattern and correlates of longitudinal or duration data (Lee, 1992), is less likely to lead to the mis-estimation of a recurrence model than discriminant analysis or logistic regression, the techniques that were used by most former studies. Survival analysis, unlike the other two, does not assume that the time to recurrence is invariant and can use the data from censored observations.

The purpose of this paper is to summarize results of a study to identify correlates of recurrence during CPS intervention. Among the prior studies, three did NOT differentiate whether treatment was being provided during the follow-up (Fryer & Miyoshi, 1994; Levy et al., 1995; Schuerman et al., 1994) and the fourth study (Coleman, 1995) was specifically interested in recurrence following the termination of treatment. Recurrence during treatment is of interest because it is partially a reflection on the quality of decision-making and intervention provided or arranged through the child protective services system. The responsibility of the CPS agency is to develop safety plans or placement alternatives when children cannot be protected within the family. Learning more about the factors that lead to recurrence during CPS intervention should be helpful to CPS systems in improving risk assessment and decision making systems.

METHOD

Study Design and Overview

The design vehicle for achieving the study objective was a nonconcurrent prospective study. The subjects for this study were identified and studied during an earlier research study funded by National Center on Child Abuse and Neglect (Zuravin, DePanfilis, & Maznyk, 1993). To obtain a complete picture of the epidemiology of child maltreatment recurrences, families were followed for 5 years from their first 1988 report (index incident) confirmed by a public child protective (CPS) agency. Recurrence was defined as any confirmed report of physical abuse, sexual abuse, or neglect on any child in the family that occurred at least 1 day following the index incident report date while the family was receiving CPS intervention. Duplicate reports of the same index incident were not counted as a recurrence. Data were collected and coded from archival sources (management information systems and case records).

Sample

Sampling for this study involved two primary phases: (1) sampling from the population of substantiated CPS reports in 1988 following a set of inclusion and exclusion criteria (Zuravin et al., 1993) and (2) applying a second set of exclusionary criteria to select a group of CPS families to follow with respect to recurrences.

Phase I Sampling

Four inclusion criteria drove the selection of families for the pool of 1,181 subjects in the Zuravin and colleagues' (1993) study. First, the case had to involve a confirmed report of physical abuse or neglect of at least one biological child during the period, 1/1/88 through 12/31/88. Second, the confirmed maltreatment characteristics needed to be consistent with the study operational definition of either physical abuse or neglect. Third, the family needed to reside within the city limits of Baltimore, MD, at the time of the maltreatment incident. Fourth, the maltreated child's biological mother had to hold primary or shared caregiver responsibility when the confirmed

incident occurred. Excluded cases involved children who were maltreated while they were living in out-of-home care, in homes including only their biological father or other relatives, or in day care or school. After applying the above criteria, a pool of 1,181 families were selected from the population of 2,902 families who had experienced a substantiated report during 1988.

A second stage of the phase I sampling involved sampling a subset of the 1,181 eligible mothers for recruitment for a research interview. Prior to selecting the sample, the pool was stratified by race (African-American and Caucasian) and age at first birth (less than 20 and 20 or greater). Within the "less than 20 at age of first birth" group, researchers further stratified by "age at index report" (less than 20 and 20 or greater). From the stratified frame of 1,181 families, researchers chose an interview sample of 654 families by selecting: (1) Every Caucasian family regardless of mother's age at first birth and recidivism status; (2) Every African-American family headed by an adolescent mother; (3) Every African-American family headed by an adolescent recidivist mother; (4) A random sample of 151 from the 542 African-American families headed by a delayed adolescent mother; (5) A random sample of 139 from the 266 African-American families headed by an older mother. Researchers over-sampled Caucasian families and adolescent mothers for two reasons: (1) to assure that the sample would include sufficient numbers of each to examine interactions with race, age at first birth and other characteristics and (2) to assure sufficient power for within and between group analyses.

Phase II Sampling

At the beginning of the recurrence study, the CPS cohort (Zuravin et al., 1993) of 654 families were available for follow-up. Three exclusion criteria were applied based on whether the mother and children had resided together during the 5-year follow-up interval. If they did not reside with each other during at least a portion of the risk period because of one or more of the following reasons, the family was excluded from the Recurrence Study. First, if it was determined that all children in the family had been placed in out-of-home care within 90 days of the index incident and remained in care for the complete study period, the family was excluded from the recurrence study. However, if all children were placed at Intake and at least one other child was born and remained with the mother for at least a portion of the risk period, the family was not removed. Second, if all children were 18 or over or no longer living within 90 days of the index incident, families were excluded from the Recurrence Study since there was no opportunity for recurrence of maltreatment to occur as defined by Maryland law. Third, if the family moved out of the state of Maryland and remained out during the complete risk period, the case was excluded. After applying the above exclusion criteria, 641 families were available for model building.

Three additional exclusion criteria were applied to the model building cohort. First, all families who were closed in Intake were excluded. They were closed in Intake either because they were believed by their caseworker to be at low risk of future maltreatment or because all children were placed in foster care and then the family was closed in CPS intake. This exclusion removed 195 families from model building. Second, since model building included examining any effect that the type of maltreatment might have on the hazard of recurrence, families with multiple types of maltreatment at the index were excluded. Eighteen families were excluded for this reason. Third, cases classified as sexual abuse (only) at the time of index were excluded. These cases were included in the original study if the families also had experienced prior types of maltreatment, either neglect, or abuse. Fifteen additional families were removed for this exclusion. At the end of this stage, 446 families were available for estimating a recurrence model during treatment.

Data Collection Sources

Data for this study came from two archival sources, a state information system and case records maintained by the Baltimore City Department of Social Services (BCDSS).

Information system. Selected data elements were coded on all 446 families from the statewide Automated Master File Information System (AMF). The statewide system permitted a determination about whether the family was reported and confirmed for maltreatment in any of Maryland's 24 local CPS programs. A detailed coding schedule and manual were developed to facilitate coding and data entry on all relevant variables. Data were coded with respect to the following: child maltreatment reports; family descriptive data; child protective services; out-of-home placement services; other social services; types and opening and closing dates of other social services provided to family members; and financial services.

Case records. Case record data were also coded for the 446 study families. A detailed case record abstraction coding manual specified methods for operationalizing each case record variable and identified primary, secondary, and tertiary sources in case records for information pertinent to each variable. A computer assisted coding system was developed to eliminate the need for paper coding forms. Each case was coded by one person and then edited by a second coder. Staff were trained to 95% inter-rater reliability before they were permitted to edit another coder's cases. Discrepancies between coders were resolved by the project director.

Data elements were selected based on an ecological perspective, prior research, and information that was found to be reliably available after pretests of the automated instrument. Categories of data elements coded from case records included information about index incident characteristics; descriptive family characteristics; situational characteristics about all family members and the household; service characteristics; and placement characteristics.

Measures

The predictive model was designed to identify the characteristics of the index maltreatment and its surrounding circumstances that predict the length of time until recurrence during the time the case was open in CPS. The six constructs included in the model consider the nature and extent of index maltreatment, the vulnerability of children in the family, the level of personal problems of the mother (the primary caregiver in all of these families), the degree of family conflict, the level of family and survival stress, and the extent of social support deficits. Indicators from all of these constructs have predicted recurrence in past research.

Control variables. One control variable, absent from most other predictive models, was included: out-of-home placement status. It was expected that placement status could both increase and decrease the likelihood of maltreatment recurrence. If a recurrence occurred and then a child was placed, families with placed children would have higher hazard rates. On the other hand, if children were placed in out-of-home care for another reason, placement could decrease the likelihood of recurrence since children would be separated from the environment where they had been initially maltreated.

Placement status was a dichotomous variable set at 0 for no placements and 1 for at least one placement during the risk period. If all children in the family were placed at any time during the risk period, placement status was set at 1. Data for this variable was obtained from the state-wide automated system.

In addition to placement status, length of CPS intervention was also considered as a control variable but due to the lack of a significant relationship to the recurrence experience of families while the CPS case was active, it was not selected for model building.

Index Maltreatment Construct. Three single item maltreatment variables were included: number of prior CPS confirmed reports, type(s) of maltreatment at index, and severity of maltreatment for the most severely maltreated child.

If the family had already experienced recurrences at the time of the index incident, it was assumed that the likelihood of this pattern continuing would be increased. In fact, prior maltreatment, perhaps more than any other single factor, has predicted recurrences in multiple studies (Baird, 1988; Baird, Wagner, & Neuenfeldt, 1993; DePanfilis, 1993; Schuerman et al., 1994; Wagner, 1994; Wood, 1995). Conceptually, it was also assumed that the type of maltreatment (neglect versus abuse) could influence the length of time until recurrence due to differences in the nature of these maltreatment types. Neglect tends to be chronic and families may be less able to alter their maltreating patterns, particularly in the short term (Berkeley Planning Associates, 1983; Marks & McDonald, 1989; McDonald & Johnson, 1992; Wagner, 1994; Wood, 1995). Finally, it was assumed that if children had experienced more severe consequences at the index maltreatment, the risk of recurrence may be greater (Berkeley Planning Associates, 1983; Browne, 1986; Cohn, 1979; Marks & McDonald, 1989).

One variable, termed type of maltreatment, was constructed to represent the type of maltreatment experienced by any child in the family at the time of index. The variable was coded as dichotomous. Since sexual abuse and multiple type index maltreatment cases were excluded from this analysis all cases were coded either as 0 for abuse or 1 for neglect.

One dichotomous variable to represent the level of severity of the most severely harmed child was constructed. Transformation of this variable followed several steps: (1) the severity levels of abuse or neglect experienced by any child were recoded to represent 0 for no or mild consequences or injuries and 1 to represent moderate to severe consequences or injuries; and (2) selecting the highest severity level experienced by any child in the family.

Child Vulnerability Construct. In their review of the literature on the etiology of child maltreatment, the National Research Council (1993) suggests that child characteristics may play only a minor role in the initiation of child maltreatment but may be more important in the maintenance or persistence of abusive relationships or the escalation of at-risk relationships (p. 125). This hypothesis has only been examined in a few recurrence studies (Berkeley Planning Associates, 1983; DePanfilis, 1993; Fryer & Miyoshi, 1994; Marks & McDonald, 1989; Weedon, Torti, & Zunder, 1988) and there is some evidence that child vulnerability factors may predict the recurrence. Theoretically this relationship is partly due to the effects of child maltreatment on children. Maltreated children may exhibit behaviors or conditions as a consequence of their maltreatment status. As a result, they may be more difficult to care for which in turns increases risk for continued maltreatment.

For the purpose of this model, child vulnerability was indexed by the sum of three equally weighted items. The items were child mental health problems, child developmental problems, and the presence of a child under the age of six in the household. Each item was an indicator of any child in the family that may have this problem. Since the family was the unit of analysis, if any child had the problem, the item was coded as present. To arrive at the composite score, items were summed across responses for each family. This variable was labeled child factors.

Caregiver Personal Problems Construct. Conceptually it was assumed that mothers who had a higher degree of personal problems would have more difficulty parenting and may have been at higher risk for continued maltreatment. Since these mothers were often the single caregiver (75% of them were on AFDC during the year prior to the index), the effect of their personal problems on the children may have been greater since the burden of parenting was not shared with another caregiver. There is considerable support in prior recurrence studies that parents with personal problems, measured by single items, had a higher risk of recurrence (Baird, 1988; Baird et al., 1993; Johnson, 1994; Pianta, Egeland, & Erickson, 1989; Schuerman et al., 1994; Wagner, 1994; Wood, 1995).

Three individual items were summed to represent the caregiver personal problem construct: drug

problem, alcohol problem, and problem solving deficit. All variables were initially coded as dichotomous variables that were transformed into a 3-item index of mother's personal problems. All of the individual items were initially coded as 0 to reflect no problems and 1 to reflect problems. Thus, a high score on the index reflected more problems and a low score reflected fewer problems. This variable was termed "mother factors."

Family Conflict Construct. Families in which members have problems getting along with each other may be more likely to continue a maltreating pattern. There is evidence that some individual items representing this construct have predicted recurrence in prior studies (Baird et al., 1993; Schuerman et al., 1994), particularly marital conflict and domestic violence. The child maltreatment literature at large has also reported a higher risk of maltreatment when parents and children have communication and interaction problems (Ammerman, 1991; Wolfe, 1985).

After initially testing with a 4-item index comprised of various dimensions of family conflict (conflict in parent-child relationship, conflict in marital/partner relationship, inadequate communication skills, and partner abuse), only one single variable, partner abuse, was selected to represent this construct. This variable was coded as 0 for families in which no violence between mother and a partner were noted and 1 for families where violence between mother and a partner was noted by the caseworker.

Family stress factors. Most ecological models of child maltreatment include some dimension of family stress. A 3-item index was selected to represent this construct: (1) whether the family had 2 or fewer children (coded 0) or whether the family had 3 or more children (coded 1); (2) whether the mother was 18 or older at the time the first child was born (coded 0) or whether she was under 18 (coded 1); and (3) the span of child bearing years coded as 0 for less than 6 years and 1 for 6 or more years. The index was then summed across responses. The basis for inclusion of each of these items is well grounded in the literature. First, it is well documented that the burden of parenting is greater with larger numbers of children in the household and that these families are more likely to be abusive or neglectful than their nonmaltreating counterparts (Belsky, 1992; Holden, Willis, & Corcoran, 1992; Creighton, 1985; Polansky, Chalmers, Bittenweiser, & Williams, 1981).

With respect to mother's age, research that has compared maltreating families with nonmaltreating families has suggested that age at first birth is predictive of maltreatment status (Connelley & Straus, 1991; Kinard & Klerman, 1980; Zuravin, 1988b) but age at time of report was not predictive. However, three prior studies have found that the age of the youngest or primary caregiver at time of report did predict recurrence status (Baird, 1988; Berkeley Planning Associates, 1983; Wagner, 1994). Given the sampling characteristics of this cohort (over sampling for teen parents), it was important to examine whether age measured either at first birth or at index report were predictive of the time until recurrence. Finally, it was theorized that the span of child bearing time could increase or decrease stress which could eventually lead to an increased or decreased risk of maltreatment. The general child maltreatment literature has suggested that having multiple children closely spaced together differentiates maltreating families from nonmaltreating families (Belsky, 1992; Holden et al., 1992). This relationship had not been examined in the recurrence literature but because it was assumed to be a significant stressor, its relationship with time until recurrence was examined. Results of this exploration suggested that the longer the child bearing span, the shorter time until recurrence. Therefore, the item was coded to indicate stress by the longer the child bearing span. The variable to represent this construct was labeled family stress.

Survival Stress Construct. Theoretically, families who experience more stress may be at greater risk of recurrence. The recurrence literature has confirmed this relationship in predicting neglect (Zunder, 1990) with a stress factor score and combined types of maltreatment or neglect by

individual stress items (Baird et al., 1993; Browne, 1986; Marks & McDonald, 1989). A survival stress index was constructed with five individual items coded from case record data: lack of resources for basic needs, lack of shelter, housing in poor repair, overcrowded housing, and lack of or poor use of health care resources.

These items, initially coded as 0 for no problem reported by the caseworker and 1 to indicate a problem noted by the caseworker, were recoded into a 5-item index to represent survival stress. Higher scores represented more survival stress. The variable was labeled "survival stress."

Social Support Deficit Construct. Conceptually, having social support deficits will increase risk of recurrence. The recurrence literature provides support for this theory as individual social support deficit items have predicted recurrence for all types of maltreatment (Baird, 1988; Baird et al., 1993; DePanfilis, 1993; Johnson, 1994; Wood, 1995). A 3-item index was constructed to represent the social support deficit construct. These items were: no support system in extended family, no support system in friends and neighbors, and ineffective use of informal helping systems.

These variables, initially coded as 0 for no problems and 1 to indicate a problem were recoded into a three-item scale to represent social support deficits. Higher scores indicated more problems. The variable was labeled as "social support."

Data Analysis

The analytic plan for developing the model involved two stages. The first stage was to simultaneously examine the relationship of each variable with the survival function and test the proportionality assumption of the Cox model. The assumption of Cox's (1972) proportional hazards model is that the hazards for different strata of independent (or prognostic) variables are proportional over time. Survival functions are plotted and if the survival curves are roughly proportional, then the assumption of the model is met.

The Kaplan and Meier (1958) product-limit (PL) method (Norusis, 1994) was used to plot and compare survival curves for each of the possible predictors (previously described in the measurement section). The Kaplan-Meier method estimates the probability of being event-free (survive without a recurrence) each time an event (recurrence) is observed. Once an estimate of each relationship was determined and the relative proportionality was established, the second step was to select variables for the models. Variables with a significant relationship (or trend toward significance) (Wilcoxon test) with survival time (length of time without a recurrence) during the time the case was open and those that met the proportionality assumption were selected as described in the measurement section.

The model was estimated with the Cox Proportional Hazards Model (Norusis, 1994).

Researchers have turned to Cox's (1972) proportional hazards (PH) method because it permits the incorporation of elapsed time but does not require a specification of the baseline hazard. Explanatory variables may be time dependent, and strata may be specified to examine hazards of individual levels of a variable, for example, females versus males). (Fraser, Jenson, Kiefer, & Popuang, 1994, p. 166)

Similar to other multiple regression techniques, the Cox Proportional Hazards Model permits examining the relationship between independent variables (possible predictors of recurrence) with an dependent variable (recurrence) by controlling for all other variables in the model. However, multiple linear regression cannot be used for analysis of time-to-event data. Since recurrence of child maltreatment is time dependent, variables that may predict recurrence at 1 month could be very different than variables that predict a recurrence at 1 year. The Cox Proportional Hazards Model permits an examination of the relationship between independent variables and the "time until recurrence," thereby accounting.

Table 1. Proportional Hazards Model for Recurrence While CPS Active (without Interactions). Event and Censored Values—Total: 446; Events: 155; Censored: 291 (65.2%)

| | Testing Global Null Hypothesis: All Parameters = 0 | | | Block 1 | | |
|---------------------------------|--|-----------------|------------------|-----------|----------------|------------|
| | Without Covariates | With Covariates | Chi-Square | <i>df</i> | <i>p</i> | |
| –2 Log Likelihood Change (–2LL) | 1830.204 | 1750.410 | 83.130 79.794 | 10 10 | .0000 .0000 | |
| Variables in the Equation | | | | | | |
| Variable | Parameter Estimate | Stan Error | Wald Chi-Square | Sig | <i>R</i> | Risk Ratio |
| Placement Status | .6591 | .1764 | 13.955 | .0002 | .0808 | 1.9331 |
| # of Priors | .0170 | .0662 | .0662 | .7969 | .0000 | 1.0172 |
| Index Type | –.1234 | .1036 | 1.4201 | .2334 | .0000 | .8839 |
| Severity-Index | –8.19E-04 | .0882 | .0001 | .9926 | .0000 | .9992 |
| Child Factors | .3151 | .1313 | 5.7587 | .0164 | .0453 | 1.3703 |
| Mother Factors | .0459 | .1116 | .1693 | .6807 | .0000 | 1.0470 |
| Partner Abuse | .4147 | .1959 | 4.4795 | .0343 | .0368 | 1.5139 |
| Family Stress | .2006 | .0859 | 5.4461 | .0196 | .0434 | 1.2221 |
| Survival Stress | .0948 | .0824 | 1.3231 | .2500 | .0000 | 1.0994 |
| Social Support | .3704 | .0966 | 14.7145 | .0001 | .0833 | 1.4483 |

Results

Of the 52 items or indices that were examined (see measurement section) with Kaplan Meier procedures, 25 had statistically significant individual relationships ($p < .05$) with the time until recurrence while CPS was active. These variables were included in the model either as individual variables or as indices.

Final variables in the model were: (1) control variable—placement status; (2) maltreatment construct—number of priors (# of priors), type of maltreatment (Index Type), and severity of maltreatment (Severity-Index); (3) child vulnerability construct—3 item index (Child Factors); (4) maternal problem construct—3 item index (Mother Factors); (5) family conflict construct—1 individual variable, partner abuse; (6) family stress construct—3 item index (Family Stress); (7) survival stress construct—4 item index (Survival Stress); and (8) social support deficits—3 item index (Social Support).

Table 1 presents the results of the Cox Proportional Hazards Model. The analysis tests the global null hypothesis that all parameters = 0. The parameter estimates represent the change in the log odds of the hazard rate, and consequently the length of survival without recurrence. For a dichotomous variable, Cox's proportional hazards model can be used to estimate relative risk when adjustments are made for the other variables in the model. For example, the results for partner abuse suggest that the existence of partner abuse in the family at the time of index, increases the hazard rate 1.5 times, controlling for other variables in the model. For other variables, relative risk is compared for different values of the independent variable. The results of the social support deficit index suggest that for each increase in point on this 3-item index, the hazard rate is increased 1.4 times controlling for other variables in the model.

The test of the null hypothesis that all parameters are equal was made by the likelihood ratio test, i.e., comparing the – 2LL for a model in which all coefficients are 0 (the initial model) with – 2LL for Model 1. From 1, we see that – 2LL for the initial model is 1830.204. For Model 1, the – 2LL is 1750.410. The difference between these two numbers is 79.794. This is the entry labeled Change (– 2LL) from Previous Block. The degrees of freedom are the difference between the number of parameters in the two models (in this case 10 since the model has 10 variables). The observed *p*-value is small, .0000—so the null hypothesis that all of the coefficients are 0 can be rejected.

Table 2. Proportional Hazards Model for Recurrence While CPS Active (with Interactions). After Block 1—Model 1, Variables not in the Equation: Residual Chi Square = 4.058 with 2 df Sig = .1315

| ENTER Block 2-Model with Interaction—Family Stress and Social Support Deficits | | | | | | |
|--|--------------------|------------|-----------------|------------|--------|------------|
| | Block 1 Covariates | | With Block 2 | Chi-Square | df | p |
| -2 Log Likelihood Change (-2LL) | 1750.410 | | 1746.548 | 83.339 | 11 | .0000 |
| | | | | 3.862 | 1 | .0494 |
| Variables in the Equation | | | | | | |
| Variable | Parameter Estimate | Stan Error | Wald Chi-Square | Sig | R | Risk Ratio |
| Placement Status | .6256 | .1767 | 12.5375 | .0004 | .0776 | 1.8694 |
| # of Priors | .0319 | .0666 | .2296 | .6319 | .0000 | 1.0324 |
| Index Type | -.1038 | .1042 | .9938 | .3188 | .0000 | .9014 |
| Severity-Index | .0205 | .0891 | .0531 | .8178 | .0000 | 1.0207 |
| Child Factors | .3524 | .1320 | 7.1335 | .0076 | .0542 | 1.4225 |
| Mother Factors | .0532 | .1126 | .2233 | .6365 | .0000 | 1.0547 |
| Partner Abuse | .3835 | .1967 | 3.8033 | .0512 | .0321 | 1.4675 |
| Family Stress | .4274 | .1450 | 8.6922 | .0032 | .0618 | 1.5332 |
| Survival Stress | .0955 | .0827 | 1.3343 | .2480 | .0000 | 1.1002 |
| Social Support | .8517 | .2609 | 10.6565 | .0011 | .0703 | 2.3435 |
| Family Stress* | -.1772 | .0895 | 3.9183 | .0478 | -.0331 | .8377 |
| Social Support | | | | | | |

Another test of the null hypothesis that all parameters are 0 is based on the global chi-square of 83.130 which is very similar to the change in the likelihood statistic. This test also supports rejection of the null hypothesis.

Among the 10 individual variables, five were significant. Having a child placed increased the hazard rate by 1.9 times; every one point on the child vulnerability index increased the hazard rate 1.4 times; the presence of partner abuse increased the hazard rate 1.5 times, every point on the family stress index increased the hazard rate 1.2 times, and every point on the social support deficit index increased the hazard rate 1.4 times. The following variables were not significant: three maltreatment variables, mom personal problem index, and survival stress index.

Table 2 presents the results testing an interaction between family stress and social support deficits. It was hypothesized that the effect of family stress on the hazard rate was dependent on the level of social support deficits. The - 2LL at this step (1746.548) was compared with the - 2LL at the first step (- 1750.410). Because of the small p-value for the change in - 2LL (p = .0494), the null hypothesis that the coefficient for the interaction between these two variables is 0 when added to the model was rejected. To further analyze the direction of the stress/social support deficit interaction a Kaplan Meier survival analysis was performed looking at the relationship between family stress and time until recurrence for different strata of social support deficits. Table 3 displays these results which indicate both a main effect of family stress and an interaction effect with social support deficits. For example, with a score of 0 on the family stress index and a 0 on the social support deficit index, 92% of families survived without a recurrence. However, with a score of 3 on the family stress index and a 0 score on the social support deficit index, only 56% survived without a recurrence. Finally, with a score of 3 on both indices, only 17% survived without a recurrence while CPS was active.

CONCLUSIONS

Before interpreting and discussing findings, it is important to review design limitations and rival explanations. There were four design limitations that impeded interpretation of findings: measure-

Table 3. Survival Analysis for Family Stress by Different Levels of Social Support Deficits

| Variable | Levels | Total | Number of Events | Number Censored | Percent Censored |
|-------------------------|--------|-------|------------------|-----------------|------------------|
| Social Support Deficits | 0 | 128 | 27 | 101 | 78.91 |
| Family Stress | 0 | 36 | 3 | 33 | 91.67 |
| Family Stress | 1 | 36 | 6 | 30 | 83.33 |
| Family Stress | 2 | 29 | 6 | 23 | 79.31 |
| Family Stress | 3 | 27 | 12 | 15 | 55.56 |
| Social Support Deficits | 1 | 191 | 66 | 125 | 65.45 |
| Family Stress | 0 | 39 | 10 | 29 | 74.36 |
| Family Stress | 1 | 55 | 12 | 43 | 78.18 |
| Family Stress | 2 | 64 | 31 | 33 | 51.56 |
| Family Stress | 3 | 33 | 13 | 20 | 60.61 |
| Social Support Deficits | 2 | 96 | 42 | 54 | 56.25 |
| Family Stress | 0 | 16 | 6 | 10 | 62.50 |
| Family Stress | 1 | 30 | 11 | 19 | 63.33 |
| Family Stress | 2 | 35 | 18 | 17 | 48.57 |
| Family Stress | 3 | 15 | 7 | 8 | 53.33 |
| Social Support Deficits | 3 | 31 | 20 | 11 | 35.48 |
| Family Stress | 0 | 6 | 3 | 3 | 50.00 |
| Family Stress | 1 | 7 | 7 | 0 | .00 |
| Family Stress | 2 | 12 | 5 | 7 | 58.33 |
| Family Stress | 3 | 6 | 5 | 1 | 16.67 |

Log Rank = 13.05, $df = 3$, Sig = .0045.

ment problems, threat to construct validity, use of a single sample thereby capitalizing on chance, and threat to external validity. Each limitation is summarized and may be referenced later as specific results are discussed.

Measurement Problems

Although controls were put in place to minimize measurement error associated with coding archival data (careful attention to inter-rater reliability), the study was still limited by the quality of the case record keeping. Because case record narratives vary by both type of information recorded and degree of detail, the study was limited to what was available and abstracted reliably. Important omissions from this study were characteristics about the neighborhood and other environmental influences that may have increased stress. Further, some variables that were coded may not have been accurate representations of the family circumstances. For example, if information was not recorded about the mother's mental health status, the coder had to assume that no problems were evident. In fact the mother could have been experiencing mental health problems and either the worker failed to observe them or did observe them and failed to record information about them.

These measurement problems lead to rival explanations. One cannot be assured that findings would be the same if: (1) complete data had been available for all constructs assumed to be related to recurrence; (2) workers were more thorough and consistent in case recording. Results of model estimation are based on all variables in a model. It is possible that results would differ had other factors been available about the social context of the family and more consistently available about individual and family characteristics that may increase or decrease risk of recurrence. Consequently, both identification of predictors and prediction accuracy may have been compromised. However, since actuarial risk assessment models are based on constructing models based on case record information, it is believed that studies such as these are essential to improve methodological strategies to predict child maltreatment recurrences.

Construct Validity

The study is also limited by the use of only one measure of recurrence, future confirmed child maltreatment reports. This definition is appropriate for the study objective of refining risk assessment models for use by CPS agencies in predicting recurrence. However, it does little to measure the likelihood of “actual” child maltreatment in the future. This is a notorious problem with all child maltreatment research due to the hidden nature of the problem. Nevertheless, since the primary purpose of this research was for its applied value, the use of a single measure may not be the most serious threat to construct validity.

More concerning is that some findings could be influenced by the level of surveillance that could have been available at different points during the case process. Since this study was dependent on the decision making of caseworkers with respect to confirming future maltreatment incidents, there are rival explanations for the interpretation of findings. In fact, recurrence of maltreatment could have occurred that was either undetected or unreported by the caseworker.

Single Sample

The sample size for model development, while sufficient for developing an overall model, was not large enough to split the sample into groups. Models developed on single samples capitalize on chance. Since it was not possible to test the model with at least two samples, it was not possible to validate the model. This limitation suggests that while the results may be informative for CPS administrators, risk assessment models should not be revised until models are tested with other samples. It is not known whether these results would also be common to the population from which this sample was drawn.

External Validity

Since only one site was used for this study, external validity is limited. Generalization beyond Baltimore City should be approached with caution. Ideally, this study would have been carried out in multiple sites in Maryland to permit comparisons of model performance between sites. However, because of differences in community characteristics, it may be that specific risk models would only be pertinent to a particular jurisdiction. The use of a single site prohibits testing this assumption however.

Implications of Study Findings

There are seven important implications from these results. First, the Cox proportional regression findings suggest the importance of individual, family, and broader social context level constructs in a model of child maltreatment recurrence. Many risk assessment models are based on a multidimensional model, and these findings identified the relevance of several constructs in a recurrence model. Variables that predicted time until recurrence while CPS was active were factors related to: child vulnerability; family stress, partner abuse, social support deficits, and the interaction between stress and social support deficits. Prior research has identified similar correlates related to child vulnerability risk factors (Berkely Planning Associates, 1983; DePanfilis, 1993; Fryer & Miyoshi, 1994; Marks & McDonald, 1989; Weedon et al., 1988); family stress (Baird, 1988; Baird et al., 1993; Berkely Planning Associates, 1983; Johnson & L’Esperance, 1984; Wagner, 1994); partner abuse (Baird et al., 1993; Schuerman et al., 1994); and social support deficits (Baird, 1988; Baird et al., 1993; DePanfilis, 1993; Johnson, 1994; Wood, 1995). Future research that tests this model with other CPS populations is needed before CPS administrators should revise their risk assessment model based on these results.

Second, and most important for practitioners, social support deficits had the strongest relationship to the time until recurrence. Measured by an index of social support deficits comprised of:

support from extended family, support from friends, and ineffective use of informal supports, this variable proved the most powerful predictor. Further, since an interaction between family stress and social support deficits was also significant, these results indicate the need for CPS assessments to examine the degree of social supports in a family and to work to build or improve the quality of social supports when deficits are noted. These findings are consistent with those of child neglect researchers who have confirmed the higher risk of neglect among families lacking adequate social support resources (DePanfilis, 1996).

A third finding which also has implications for assessment and program planning relates to the relationship of partner abuse with child maltreatment recurrence. Families where partner abuse was noted as a problem by the caseworker were 1.5 times more likely to experience recurrence of child maltreatment while the CPS case was active. Nationally, there seems to be an increasing interest on the part of both CPS and family violence personnel to work together when these problems co-exist. Since these findings indicate a higher likelihood of recurrence when woman abuse was a problem, promoting collaboration with appropriate community agencies seems pertinent.

A fourth implication is related to the lack of significance of any of the three child maltreatment variables when controlling for other variables in the model. Whereas having prior confirmed reports of child maltreatment and the type of maltreatment were related to the time until recurrence on the bivariate level with the Kaplan Meier analysis, severity of maltreatment was NOT related to the time until first recurrence, even on the bivariate level. Initially, this might be explained by suggesting that the most severely maltreated children may have been placed, therefore the likelihood of recurrence reduced. However, in the Cox model, the effect of placement status was statistically controlled thereby trying to reduce this influence. These results suggest that what may be important to recurrence are the conditions that may lead to future maltreatment, not which symptoms may have already been experienced, such as the nature and severity of past maltreatment. However, these results are inconsistent with a retrospective study of CPS families in Vermont which found that severity or chronicity of neglect (Weedon et al., 1988) and a harm factor score (Zunder, 1990) predicted recurrence. Since casework decisions are influenced by maltreatment factors, research is needed to assess whether the same model would hold true with another group of CPS families.

A fifth finding with implications beyond CPS is the finding with respect to family stress. This variable was an index of family stress measured by age of mother, child bearing span (years), and number of children in family. For every additional point on the 3 point family stress index, the hazard rate of recurrence was increased 1.5 times. All are items that have differentiated maltreating families from nonmaltreating families in prior research. These results suggest that family stress is also relevant to the continuation of maltreatment problems. Since this variable interacted with family support deficits, there are two possible implications from these findings. First, family planning efforts to persuade women to wait until they are older before parenting, to limit the number of children they have, and to decrease the number of years over which they bear children, particularly when they do not have outside supports to help them with this burden may be in order. Second, if the stress is already present, increasing supports may decrease the likelihood of recurrence.

A sixth finding which bears consideration is the finding regarding child vulnerability. The hazard rate for families with children who were more vulnerable measured by having a child under the age of 6, having a child with mental health problems, and having a child with a developmental problem was 1.6 times higher for each point on this 3-point index. A major implication from these results is that children who are more vulnerable, particularly those with mental health or developmental problems, require intervention to address these needs. It is well documented that children with mental health problems may not get the attention they need in the child welfare system (Fanshel & Shin, 1978; Frank, 1980; McIntyre & Kessler, 1986; Uriquiza, Wirtz, Peterson, & Singer, 1994). Findings from this study suggest that among maltreating families, these conditions increase the

likelihood of future maltreatment even when controlling for other factors related to recurrence. Assuring that children with these needs get treatment and helping parents cope with these special needs may reduce the likelihood of continued maltreatment in these families.

Seventh, the lack of significant findings with respect to maternal problems was surprising and may have been an artifact of poor measurement. Caseworkers while likely improving in their assessment skills for drugs and alcohol, are typically not well trained to identify mental health problems among their caseload. Of the three items included in the Maternal Problem Index, only one of them (maternal drug problem) was related to recurrence at the bivariate level. Yet, one would intuitively suspect that mothers who have alcohol or mental health problems would be more likely to have recurrences sooner, particularly due to the prevalence of depression among this population (Zuravin, 1988a); and, prior recurrence research has suggested that variables in this construct are important predictors of recurrence (Baird, 1988; Baird et al., 1993; Johnson, 1994; Schuerman et al., 1994; Wagner, 1994; Wood, 1995). Caseworkers may need better training to assess potential personal problems and may need structure to make sure that they adequately record information about these assessments.

REFERENCES

- Ammerman, R. T. (1991). The role of the child in physical abuse: A reappraisal. *Violence and Victims*, *6*, 87–100.
- Baird, S. C. (1988). Development of risk assessment indices for the Alaska Department of Health and Social Services. In T. Tatara (Ed.), *Validation research in CPS risk assessment: Three recent studies* (Occasional Monograph Series No. 2, pp. 84–142). Washington, DC: American Public Welfare Association.
- Baird, C., Wagner, D., & Neuenfeldt, D. (1993). Actuarial risk assessment and case management in child protective services. In T. Tatara (Ed.), *Sixth National Roundtable on CPS Risk Assessment Summary of Highlights* (pp. 152–168). Washington, DC: American Public Welfare Association.
- Belsky, J. (1992). *The etiology of child maltreatment: An ecological-contextual analysis*. Paper commissioned by the National Academy of Science, Commission on Behavioral and Social Sciences and Education, Panel on Research on Child Abuse and Neglect.
- Berkeley Planning Associates. (1983). *Evaluation of the clinical demonstrations of the treatment of child abuse and neglect (Vol. 2). The exploration of client characteristics, services, and outcomes: Final report and summary of findings* (HEW 105–78–1108). Washington, DC: National Center on Child Abuse and Neglect, Office of Human Development Services, Department of Health and Human Services.
- Browne, D. (1986). The role of stress in the commission of subsequent acts of child abuse and neglect. *Journal of Family Violence*, *1*, 289–297.
- Cohn, A. H. (1979). Effective treatment of child abuse and neglect. *Social Work*, *24*, 513–519.
- Coleman, H. D. J. (1995). *A longitudinal study of a family preservation program*. Doctoral Dissertation. University of Utah, School of Social Work.
- Connelley, C. D., & Straus, M. A. (1992). Mothers' age and risk for physical abuse. *Child Abuse & Neglect*, *16*, 703–712.
- Cox, D. R. (1972). Regression models and life-tables. *Journal of the Royal Statistical Society*, *34*, 187–202.
- Creighton, S. J. (1985). An epidemiological study of abused children and their families in the United Kingdom between 1977 and 1982. *Child Abuse & Neglect*, *9*, 441–448.
- DePanfilis, D. (1993). *A proximate test of the construct and predictive validity of the Child At Risk Field decision-making system*. Unpublished manuscript. University of Maryland at Baltimore, School of Social Work, Baltimore, MD.
- DePanfilis, D. (1995). *Epidemiology of child maltreatment recurrences*. Doctoral dissertation. University of Maryland at Baltimore, School of Social Work, Baltimore, MD.
- DePanfilis, D. (1996). Social isolation of neglectful families: A review of social support assessment and intervention models. *Child Maltreatment*, *1*, 37–52.
- Fanshel, D., & Shin, E. (1978). *Children in foster care: A longitudinal investigation*. New York: Columbia University.
- Frank, G. (1980). Treatment needs of children in foster care. *American Journal of Orthopsychiatry*, *50*, 256–263.
- Fraser, M. W., Jenson, J. M., Kiefer, D., & Popuang, C. (1994). Statistical methods for the analysis of critical life events. *Social Work Research*, *18*, 129–192.
- Fryer, G. E., & Miyoshi, T. J. (1994). A survival analysis of the revictimization of children: The case of Colorado. *Child Maltreatment*, *18*, 1063–1071.
- Holden, E. W., Willis, D. J., & Corcoran, M. (Eds.). (1992). *Prevention of child maltreatment: Developmental and ecological perspectives*. New York: John Wiley.
- Johnson, W. (1994). Maltreatment recurrence as a criterion for validating risk assessment instruments. In T. Tatara (Ed.), *Seventh national roundtable on CPS risk assessment summary of highlights* (pp. 175–182). Washington, DC: American Public Welfare Association.
- Johnson, W., & L'Esperance, J. (1984). Predicting the recurrence of child abuse. *Social Work Research and Abstracts*, *20*, 21–26.

- Kaplan, E. L., & Meier, P. (1958). Nonparametric estimation from incomplete observations. *Journal of the American Statistical Association*, **53**, 457–481.
- Kinard, E. M., & Klerman, L. V. (1980). Teenage parenting and child abuse: Are they related? *American Journal of Orthopsychiatry*, **50**, 481–488.
- Lee, E. (1992). *Statistical methods for survival data analysis* (2nd ed.). New York: John Wiley.
- Levy, H. B., Markovic, M. A., Chaudhry, M. D., Ahart, S., & Torres, H. (1995). Reabuse rates in a sample of children followed for five years after discharge from a child abuse inpatient assessment program. *Child Abuse & Neglect*, **19**, 1363–1377.
- Lilienfeld, A. M., & Lilienfeld, D. E. (1976). *Foundations of epidemiology*. Oxford: Oxford University Press.
- Marks, J., & McDonald, T. (1989). *Risk assessment in child protective services: Predicting the recurrence of child maltreatment*. Portland, ME: University of Southern Maine, National Child Welfare Resource Center for Management and Administration.
- McDonald, T., & Johnson, W. (1992). Predicting recurrence of maltreatment for child sexual abuse cases. In T. Tatara (Ed.), *Fifth national roundtable on CPS risk assessment summary of highlights* (pp. 72–89). Washington, DC: American Public Welfare Association.
- McIntyre, A., & Kessler, T. (1986). Psychological disorders among foster children. *American Journal of Child Clinical Psychology*, **15**, 297–303.
- National Research Council. (1993). *Understanding child abuse and neglect*. Washington, DC: National Academy Press.
- Norusis, M. J. (1994). *SPSS Advanced Statistics 6.1*. Chicago, IL: SPSS.
- Pianta, R., Egeland, B., & Erickson, M. (1989). Results of the mother-child interaction research project. In D. Cicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 203–253). New York: Cambridge University Press.
- Polansky, N. A., Chalmers, M. A., Buttenweiser, E., & Williams, D. P. (1981). *Damaged parents: An anatomy of child neglect*. Chicago, IL: University of Chicago Press.
- Schurman, J. R., Rzepnicki, T. L., & Littell, J. H. (1994). *Putting families first an experiment in family preservation*. New York: Walter de Gruyter, Inc.
- Uriquiza, A., Wirtz, S., Peterson, M., & Singer, V. (1994). Screening and evaluating abused and neglected children. *Child Welfare*, **73**, 155–171.
- Wagner, D. (1994). The use of actuarial risk assessment in criminal justice What can we learn from the experience? In T. Tatara (Ed.), *Seventh national roundtable on CPS risk assessment summary of highlights* (pp. 211–223). Washington, DC: American Public Welfare Association.
- Weedon, J., Torti, T., & Zunder, P. (1988). Vermont Division of Social Services Family Risk Assessment Matrix: Research and evaluation. In T. Tatara (Ed.), *Validation research in CPS risk assessment: Three recent studies* (Occasional Monograph Series No. 2, pp. 2–43). Washington, DC: American Public Welfare Association.
- Wolfe, D. A. (1985). Child-abusive parents: An empirical review and analysis. *Psychological Bulletin*, **97**, 467–482.
- Wood, J. M. (1995). *NCCD predictors of re-abuse and re-neglect in a predominantly Hispanic population*. Paper presented at the Ninth National Roundtable on CPS Risk Assessment. San Francisco, CA, June 14–16.
- Zunder, P. (1990). Recent empirical findings of the Vermont family risk assessment instrument. *National Conference on CPS Risk Assessment from Research to Practice: Designing the Future of Child Protective Services Summaries of Highlights* (pp. 1–16). Washington, DC: Vermont Division of Social Services, American Public Welfare Association, American Association for Protecting Children.
- Zuravin, S. J. (1988a). Child abuse, child neglect, and maternal depression: Is there a connection? In National Center on Child Abuse and Neglect (Ed.), *Child neglect monograph: Proceedings from a symposium* (pp. 40–55). Washington, DC: Clearinghouse on Child Abuse and Neglect Information.
- Zuravin, S. J. (1988b). Fertility patterns: Their relationship to child physical abuse and child neglect. *Journal of Marriage and the Family*, **50**, 983–993.
- Zuravin, S. J., DePanfilis, D., & Maznyk, K. (1993). *Teenage motherhood: Its relationship to child abuse and neglect, final report*. Study funded by the National Center on Child Abuse and Neglect 1988–1993 (Grant No. 90CA1376). Baltimore, MD: University of Maryland at Baltimore, School of Social Work.

RÉSUMÉ

Le premier objectif du système de services de protection infantile est de protéger les enfants de la répétition des mauvais traitements. Une meilleure compréhension des facteurs prédictifs de répétition peut aider à cibler de façon plus adéquate les interventions possibles pour réduire le risque des mauvais traitements futurs.

Objet: L'objet spécifique de cette étude a été d'identifier les corrélats de la répétition pendant l'intervention des services de protection infantile auprès de familles ayant fait l'objet d'une intervention continue après un rapport confirmant l'existence de mauvais traitements ou de négligence.

Méthode: Cette étude prospective non concurrente a sélectionné 446 familles remplissant les conditions requises par l'étude parmi les 1181 familles sélectionnées au hasard des 2902 familles qui avaient fait l'objet d'un rapport prouvé de mauvais traitements infantiles ou de négligence pendant l'année désignée. Les données ont été recueillies et codées à partir de sources d'archives pendant les cinq années qui ont suivi le rapport. Chaque dossier a été codé par deux chercheurs analystes pour en améliorer la fiabilité inter-cotuteurs. Les données ont été analysées avec les méthodes: (1) Kaplan Meier and (2) le Cox Proportional Regression Model.

Résultats: Les facteurs prédictifs de répétition étaient: La vulnérabilité de l'enfant, le stress familial, l'abus du partenaire, les déficits de support social, et l'interaction entre le stress familial et les déficits de support social.

Conclusions: Les implications des résultats de cette étude et des recherches antérieures suggèrent que l'augmentation de supports sociaux peut aider les familles à faire face aux événements de la vie augmentant le stress et le risque de mauvais traitements continus; que la collaboration entre les services de protection infantile et les agences sur la violence domestique est nécessaire; et que l'identification des enfants maltraités pour des problèmes de santé mentale et autres handicaps, et l'assurance d'un traitement effectif pour ces enfants et leurs familles peut réduire la fréquence de mauvais traitements continus.

RESUMEN

El objetivo principal del Sistema de protección Infantil es proteger a los niños/as de la repetición del maltrato. Lograr un mayor entendimiento acerca de qué es lo que produce esta repetición puede ayudarnos a diseñar intervenciones específicas dirigidas a reducir el riesgo de un maltrato futuro.

Objetivo: El objetivo específico de este estudio fue identificar correlatos de la reocurrencia del maltrato durante la intervención de los Servicios de Protección Infantil con familias que estaban recibiendo servicios continuados de intervención tras la confirmación de que se había producido una situación de maltrato o abandono infantil.

Método: Este estudio prospectivo seleccionó 446 familias que cumplieran una serie de requisitos, entre 1181 familias seleccionadas al azar del total de 2902 familias en las que se había confirmado la existencia de incidentes de maltrato o abandono infantil durante un determinado año. Se recogieron y codificaron datos relativos a los cinco años posteriores a ese momento. Dichos datos se obtuvieron de archivos. Cada informe fue codificado por dos investigadores, con el objetivo de aumentar la fiabilidad inter-observadores. Se analizaron los datos con los métodos de análisis de (1) Kaplan Meier y (2) Regresión Proporcional de Cox.

Resultados: Los predictores de la reocurrencia fueron: vulnerabilidad del niño/a, estrés familiar, violencia doméstica, déficits de apoyo social, y la interacción entre estrés familiar y déficits de apoyo social.

Conclusiones: Las implicaciones de ésta y de anteriores investigaciones sugieren que aumentar el apoyo social puede ayudar a las familias a hacer frente a los eventos vitales que incrementan el estrés y el riesgo de maltrato infantil, que es necesaria la colaboración entre los Servicios de protección Infantil y los que abordan la violencia doméstica, y que detectar los niños/as objeto de maltrato infantil que padecen problemas de salud mental u otras deficiencias y proporcionarles tanto a ellos/as como a sus familias un tratamiento eficaz, puede reducir la probabilidad de que el maltrato continúe.