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Understanding Chronically Reported Families

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Abstract

Although a strong literature on child maltreatment re-reporting exists, much of that literature stops at the first re-report. The literature on chronic re-reporting, meaning reports beyond the second report, is scant. The authors follow Loman's lead in focusing on reports beyond the first two to determine what factors predict these "downstream" report stages. Cross-sector, longitudinal administrative data are used. The authors analyze predictors at each of the first four recurrences (first to second report, second to third report, third to fourth report, and fourth to fifth report). Findings demonstrate that some factors (e.g., tract poverty) which predict initial recurrence lose their predictive value at later stages, whereas others (e.g., aid to families with dependent children history) remain predictive across stages. In-home child welfare services and mental health treatment emerged as consistent predictors of reduced recurrence.

Keywords

child welfare services/child protection; risk assessment; services utilization (not mental health); longitudinal research

In 2008, about 2 million child maltreatment referrals were accepted and screened by Child Protection Service (CPS) workers (U.S. Department of Health and Human Services [DHHS], 2010). Although some families are reported to CPS only once, others become involved with the system over and over again. Given the numerous negative outcomes associated with chronic child maltreatment (Kaplow & Widom, 2007) and the high cost of providing services to referred families (Geen, Boots & Tumlin, 1999), understanding which families return to CPS repeatedly is of serious concern to scholars and practitioners alike, to protect children and to assess the performance of CPS agencies, suggest improvements, and influence policy (Fluke, Shusterman, Hollinshead, & Yuan, 2008).

The strength of the existing literature lies in the work done to predict initial maltreating behaviors (e.g. Mersky, Berger, Reynolds, Gromoske, 2009) and the first recurrence (the second report; e.g., Helie & Bouchard, 2009). The results of these studies have yielded some consistent risk factors, including poverty, young children in the home, lack of parent education, and younger parents, among others. The weakness of the existing literature lies in the area of chronic re-reporting (third and subsequent reports). With the exception of an extensive, but unpublished, report by the Institute of Applied Research (Loman, 2006), researchers have failed to consider this population.

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Chronic recurrence (more than two reports), however, is a significant concern. Loman (2006) points out that the relatively small proportion of cases that he categorizes as “frequently encountered,” actually use the majority of funds and resources. Although it has been known for some time that recurring maltreatment is associated with more negative outcomes (Cicchetti & Toth, 1995), some emerging evidence suggests that if maltreatment desists, the risk of negative outcomes is diminished (Thornberry, Ireland, & Smith, 2001). Unfortunately, young children are more frequently re-referred or re-reported (Drake, Jonson-Reid, Way & Chung, 2003), making it all the more important that we better understand the risk and outcomes of chronic maltreatment.

The purpose of this article is to look beyond first-time recurrence and explore predictors (including service use) of chronic, rather than initial, re-reporting. In reviewing prior work, existing knowledge on third and subsequent reports are most germane. Only a single study (Loman, 2006), however, could be located that focuses on these chronic cases. The current state of theory and data regarding chronic re-reporting do not permit formulation of a parsimonious model on either theoretical or empirical grounds. For this reason, we begin by reviewing what is known about the child, family, community characteristics, and service system contacts, which predict first re-reports because these factors could plausibly predict chronic child maltreatment re-reporting. The analyses then examine whether these factors do indeed remain important in understanding cases that move beyond a second report of maltreatment.

Child Characteristics

Children may not be simply acted upon; they may also have characteristics that alter the likelihood of maltreatment. Child characteristics found to affect first recurrence include child mental health or substance abuse (Drake et al., 2006), child disability and special education status (Drake et al., 2006; Hamilton & Browne, 1999; Marshall & English, 1999), younger than 3 years (Drake et al., 2006), younger children in the home (Drake et al., 2003; Fluke, Yuan & Edwards, 1999; Fuller, Wells, & Cotton, 2001), and being a female victim of sexual abuse (Jonson-Reid, 2003). Loman (2006) found that families receiving four or more re-referrals or re-reports were more likely to have an emotionally disturbed, mentally ill, or developmentally disabled child.

Family and Community Characteristics

Family characteristics found to predict first-time recurrence include parent education (Drake et al., 2006), participation in income maintenance prior to the initial report (Drake et al., 2006), parent mental health or substance abuse (Baird, 1988; DePanfilis & Zuravin, 1999; Drake et al., 2006; English, Wingard, Marshall, Orme & Orme, 2000; & Hamilton & Browne, 1999), household income (Drake et al., 2003, 2006; Levy, Markovik, Chaudry, Ahart, & Torres, 1995; Way, Chung, Jonson-Reid & Drake, 2001), neighborhood characteristics (Garbarino & Kostelny, 1992; McCloskey & Bailey, 2000), lack of access to social supports (DePanfilis & Zuravin, 1999; English, Marshall, & Orme, 1999), and single parentage (Fuller et al., 2001). Loman (2006) also found that families encountering CPS four or more times had lower social support, were headed by younger parents, and had higher rates of domestic violence and parental mental illness.

Poverty

It can be argued that the majority of the risk factors mentioned in maltreatment studies are somehow intertwined with poverty, although the exact pathway between poverty and chronic maltreatment has proven to be elusive. Even before children are born, parenting for the poor becomes a challenge due to poor maternal nutrition and lack of prenatal care. These

prenatal factors may affect the development of the child, which in turn, may put the child at a higher risk of maltreatment (Kaiser & Delaney, 1996). It can also be argued that poverty can create chronic stress, psychological distress, and depression, which may in turn lead to substance abuse and marital strife, also risk factors for maltreatment. Berger (2004) used data from the National Longitudinal Survey of Youth and found that income insufficiency retains some association with maltreatment (measured indirectly) even after family characteristics are controlled for.

The impact of patterns of family level poverty as compared to community level poverty is unclear. Although receipt of aid to families with dependent children (AFDC) has been found to increase the likelihood of a second report (Wolock & Magura, 1996), Drake and colleagues (2006) found that if caretakers exited AFDC and did not return, the rate of first recurrence decreased. In their review of the literature on disadvantaged neighborhoods and child maltreatment effects, Coulton, Crampton, Irwin, Spilsbury, and Korbin (2009) concluded that “the processes that account for the relationship between maltreatment reports and neighborhood characteristics are not yet well understood” (p. 1137).

CPS System Contact

Many studies of recurrence include families that already have a prior history with CPS. Prior family involvement with CPS (Baird & Wagner, 2000; Johnson, 1994; Marks & McDonald, 1989, & Marshall & English, 1999) has proven to be a robust predictor of a subsequent contact. In general, the decision to substantiate a case after a report has not had a strong association with recurrence (Drake et al., 2006; Fluke et al., 2008). Loman (2006) found that maltreatment reports, whether substantiated or unsubstantiated, functioned in an additive way. During the first 2 years, the probability of a future substantiated report triples with each unsubstantiated report. The probability of a future substantiated report quadrupled with each substantiated report. Families who had four or more reports, either substantiated or unsubstantiated, had a 75% chance of a further report.

Maltreatment Type

With regard to reports beyond the first recurrence, studies have found substantial cross-type recurrence (Jonson-Reid, Drake, Chung & Way, 2003; Way et al., 2001; Loman, 2006). Children and perpetrators with initial reports involving physical or sexual abuse had a tendency to return as neglect cases, no matter what the initial allegation type was. This may diminish the utility of maltreatment type in understanding which cases will become chronic.

Services Use

Most of the attention to services use related to maltreatment recurrence has focused on child welfare services. There is controversy over whether the provision of services by child welfare agencies increases or decreases the risk for maltreatment recurrence. It is reasonable to assume that services may have their intended effect, to reduce the risk of recurrence either directly or indirectly (Jonson-Reid, 2004). It is also reasonable to assume that services may be differentially provided to the most at-risk families and that because of this association, families receiving services may also have higher rates of recurrence. Fluke and colleagues (1999) and Sundell and Vinnerljung (2004) found that the provision of services was associated with increased likelihood that a child will suffer a subsequent report. Drake and colleagues (2006) found that foster care and intensive services (family preservation) were associated with re-reporting. In a statewide sample, however, Drake et al. (2003) found that provision of standard family-centered preventative services among substantiated cases was associated with a decrease in reporting. Others have also found that certain types of child welfare intervention reduced the likelihood of a second report (Fuller et al., 2001; Johnson,

1996). Still other research (Schuerman, Rzepnicki, & Littell, 1994; Littell, 1997) found that duration, intensity, and breadth of services had little overall impact on maltreatment recurrence. Loman's (2006) study did not investigate services effects.

Because few studies have used service data outside child welfare, it is unclear whether service use in other sectors such as mental health should be conceptualized as a risk or protective factor. For example, on one hand services for mental health disorders might ameliorate untoward outcomes related to such problems like poor parenting. If, however, only those with the most severe symptoms can access services or if service quality is poor, such variables might be better thought of as indicators of risk.

Research question

This article will help fill our gap in understanding about chronically re-reported cases by examining which cases move from a first report to having five or more reports. After Loman (2006), we use the threshold of five or more reports to define the most "frequently encountered" families. The analyses technique allows us to look at how the influence of characteristics change for children who move from first to second report, second to third report, third to fourth report, and finally, fourth to fifth report. The guiding question for this article is "What are the child, family, community and service system contacts that describe families who move into the frequently reported group?"

Because the peer-reviewed literature has been limited to first reports, our analyses are largely exploratory. We have attempted, as the data allows, to include variables found to predict a first re-report within an ecological frame of community, services, family, and child effects. It seems reasonable that several factors found to predict a first re-report might continue to affect risk over time, and we hypothesized that child disability, parent mental health, low parental education, and income would be associated with becoming frequently encountered. It was unclear, however, if patterns of family poverty (AFDC/temporary aid to needy families (TANF) use) would predict ongoing recurrence. It was also unclear whether maltreatment type or services would predict chronic re-reporting. On one hand services may be protective, on the other hand frequent use of services may indicate that the current approaches are not working and would thus not be expected to protect against recurrence. It was not known whether variables included would have stage specific effects. In other words, it was possible that a particular variable might predict who was re-reported for the first time but then no longer predict subsequent reports.

Methods

Data are drawn from a larger longitudinal study of services and outcomes for children reported for maltreatment based on a Midwestern metropolitan area. Children in that sample were born from 1982 through 1994 and were all under the age of 12 years at the time of sampling in 1993–1994. Children that were reported due to fatality or died within 7 days of the first report were excluded from the original sample frame. Children with prior reports or initial reports not including allegations of physical abuse, sexual abuse, or neglect were also excluded. If more than one child was present in the family, one child was randomly selected for inclusion.

For the current analyses, children are followed through 2006 or until age 18. Two groups from the original study are used. A low-income group reported for maltreatment (low-income determined by AFDC involvement at the onset of the study) and a non-low-income group that included children reported for maltreatment with no known current or prior AFDC history. Because the study follows child and family service patterns over time, some of the children in the original non-low-income group later have spells on AFDC (or TANF

after 1996). For the purposes of this analysis, we limited the sample to children under the age of 10 at the time of a first report to child welfare to allow everyone a minimum of 7-year follow-up, excluded subjects who died prior to age 18, and excluded children who entered foster care after the first report and never exited ($n = 6,412$). The latter decision was made because of the interest in how services might alter the role of recurrence for both the child and the original caregiver. An additional 47 cases were lost in multivariate analyses due to missing data for some elements ($n = 6,365$). There were no significant differences between the 47 cases with missing information and those without missing information. Because the number was so small, imputation was not attempted to replace missing values.

Data Sources

We include 1990 U.S. census tract information; birth record data (1982–1994), death records (for censoring only; 1982–2006), child welfare data (specific subtypes of maltreatment reported, reporter source, investigation conclusions, in-home, and foster care services; 1993–2006); department of mental health Medicaid and non-Medicaid programs (1990–2006), emergency room and hospital records (1993–2006), income maintenance data (AFDC and TANF; 1990–2006); juvenile corrections and juvenile court records (1990–2006); statewide Medicaid data including, health hospitalization and inpatient and outpatient mental health treatment (prior to 1994); and special education eligibility records (through 2005). Data were obtained with permission of all service systems and human subjects' approval granted by both the agencies contributing data and the Washington University Hilltop Institutional Review Board.

Data Preparation

Most of the data sets are statewide and share a common state-level case identifier. The other data sets were matched according to identifying information, including the first four letters of first and last name, as well as the date of birth. Match rates were hand checked and other identifying information was used in ambiguous cases (e.g., gender, middle initial). Addresses at the time of entry into the sample event were geocoded using Arcview and linked to census information. All identifiers were removed following linkage and are not present in the analysis data. Results are always reported at an aggregate level sufficient to prevent identification of individuals. It should be noted that because these are administrative records, it is only possible to assess missing data for those variables that should be present for everyone in a given agency (like gender). In cases of matching data, it is not possible to know for certain that the absence of a value is missing or truly correctly absent. This requires careful attention to comparison against known and expected rates when available, continual checking of data elements that exist in multiple data bases for inconsistencies, and examination of how variables with known associations compare.

For ease of discussion, we have called the transition from one report to another a stage. Using dates of contact, service and maltreatment report variables were programmed according to whether they occurred prior to the very first report, or within each stage (1–2 reports, 2–3 reports, 3–4 and 4–5 or more reports). Within each stage, children are excluded if they enter foster care and do not exit (as they would no longer be at risk of maltreatment by the original parent) or they turned 18 and were no longer at risk of re-report. This process resulted in 96 children excluded from Stage 2 (2–3 reports), 57 children excluded from Stage 3 (3–4 reports), and 74 children excluded from Stage 4 (4–5 or more reports) analyses. To avoid mischaracterizing a single event or situation (for example, the possibility that a subsequent report is made by a new person but for the same incident) as multiple reports, re-reports occurring 1 week or less following a prior report were deleted from the data.

Variable Description

Within each stage, the dependent variable is the occurrence of a subsequent report (not restricted to subsequent substantiated report) occurring at least 1 week after the prior report. So, for example, the dependent variable for Stage 1 is a second report, the dependent variable for Stage 2 is a third report among those who had a second report. At each stage, the dependent variable changes (second report, third, report, fourth report, fifth report, respectively) and the sampling frame changes (only those children in the first stage who have a re-report move to the second stage to examine whether there is a third report, and so on).

Independent and control (or fixed) variables included parent (age at child's birth, known education status at study start, known parental history of being a foster child himself or herself), and child demographics (race, gender, known medical condition [very low birth weight <1500 g, congenital conditions, etc.] at birth or noted in medical records shortly after that places child at risk of developmental problems), census tract median income, parent record of Medicaid reimbursed mental health service prior to first report, parent record of receipt of AFDC prior to first report or no record ever having received AFDC/TANF, or child special education prior to first report. These variables could not change or subsequent measures were not available within the data.

Other independent variables changed according to stage. Child maltreatment variables were based on the first report for each stage and included the age of the child, type of maltreatment reported, substantiation status, worker reported family receptive to services (1 = yes), and start of child welfare services (lower level case management only family-centered services [FCS]; intensive in-home services [IIS] = which are also combined with FCS but not combined with foster care, any foster = entered foster care but exited during stage). Maltreatment type was coded from specific subtypes (e.g., bruises, lack of supervision, digital penetration, etc.) and grouped as neglect, physical abuse, sexual abuse, or mixed type. Although first reports were limited to cases that included physical abuse, sexual abuse, or neglect allegations, after this all reports were followed. Thus, beginning in Stage 2, a fourth category "other" is included for emotional abuse or types categorized only as other on reports. Because it was possible that the effect of child welfare intervention might have lasting effects rather than merely within stage, controls for having had FCS, FCS and IIS, or foster care in prior stages were added for Stages 2–4. Although many children experience report recurrence, relatively few children experienced multiple service episodes. About 4%–6% of the children who received child welfare services within a stage also received services at a prior time.

Child and parent mental health, family level poverty, and child health and disability are measured according to system contact. Within each stage, these included start of AFDC/TANF spell, child's hospital care for injury or mental health, start of special education, or record of Medicaid or department of mental health supported parent or child mental health treatment. The last update of special education records occurred 1 year prior to the end of the current study period and thus may be a slight undercount. The only cases potentially missed would be children who did not become eligible until adolescence and typically disabilities are noted earlier in a child's school career.

Analyses

As aforementioned, a goal of this article was to examine how various characteristics predicted the likelihood a child would move from a single report to eventually becoming part of the chronically reported group. Because re-reports can be thought of as ordered categories that represent a progression of stages, a continuation ratio approach can be used

(Allison, 1999; 1995). Because time to subsequent reports can vary, a survival analysis approach was used rather than the more commonly used logistic regression. To conduct these analyses, subjects are grouped according to reporting stage. All children in the sample were included in Stage 1. Those who lacked a second report were then dropped, leaving only those with at least two reports in Stage 2 and so on. Data are then combined to create a data set at the child-stage level.

Using the *R* software package, Cox regression models by stage (from first to second report; second to third reports, etc.) were used, controlling for time between reports or to the end of study (similar to continuation ratio model). Random effects were estimated for each census tract to obtain unbiased estimates of standard errors to compensate for within-tract dependence. A nonparametric two-stage bootstrap was used to test for significant change in predictors for later recurrence compared to the model of first recurrence. Although variables could be conceptually grouped according to an ecological frame, it was not our intent to compare the relative import of community versus family versus child level factors. Variables were entered simultaneously. With a large number of variables, multicollinearity was an issue for select control variables of income and disability. We conducted sensitivity analysis using a program to eliminate the variables most contributing to the multicollinearity. When these control variables were removed, the multicollinearity improved substantially, but there were no substantive differences in the conclusions drawn from the model. Given this result and our greater concern about specification error if we drop variables that research suggests are important in a first re-report, we chose to retain the complete model.

Models were initially run examining only child welfare services (yes or no by type) within a given stage and nonparametric two-stage bootstrap was used to test for significant change in predictors for later recurrence compared to the model of first recurrence. Only age at first report in a stage was significant and only for children having at least 3 reports. Because of this and the possibility that the effect of child welfare services might be cumulative rather than within a discrete stage, our final multivariate models include controls for child welfare services in a prior stage for those with two or more reports. Although certain child variables, such as gender, were never significant and could have been dropped to create a more parsimonious model, demographic characteristics were retained as they were important in exploratory analyses.

The hazard ratios and their statistical significance as well as model fit statistics are reported. Conceptually a hazard ratio can be interpreted similarly to an odds ratio. A hazard ratio over 1.0 that is significant indicates an increased risk per unit of the variable measured. So for example, a hazard ratio of 1.10 with a dichotomous variable can be roughly considered a 10% increase in risk for those who have that characteristic. If the variable is ordered or continuous like age, then it would be roughly 10% per year of age. Significant hazard ratios between 0 and 1 reflect a decreased likelihood of the outcome.

Results

For the current analyses, there were a total of 6,412 children in the study sample, who were ages birth through 9 years at the time of their first report of maltreatment; 3,917 (26.3% of total) had two reports; 2,671 (17.9% of total) had three reports; and 1,896 (12.7% of total) had four or more reports by the end of the follow-up period. Table 1 displays demographic and case characteristics of the sample by stage. The proportion of females, Caucasians, and mean parent age are relatively stable across stages of recurrence. The mean age changes over time as one would expect, but the length of time between reports is evident by the gap in the mean age at each first report by stage. Generally, the proportion of the sample with various risk factors increases with the number of reports. Although about 25% of the sample

had no history of AFDC among those with one or two reports, among those with at least four reports, almost all have had a spell on AFDC or TANF.

Multivariate analyses of progression through stages were conducted with the dependent variable being a subsequent report. Clustering by census track was controlled and hazards ratios with confidence intervals for the final models are reported in Table 2. Superscript letters indicate the level of significance and absence of a letter indicates that variable was not significant. Model fit statistics are reported in the last row of Table 2.

Child Demographics

Among child characteristics, only the child's age at the time of the first report in a stage was significant for each stage. Children older at the first report were less likely to have a second (3% per year of age), but the opposite was true when predicting who moved from second to third, third to fourth, or fourth to fifth or more reports. A record of medical risk in infancy related to potential developmental delay was associated with an increased risk of recurrence for the first two stages and then became nonsignificant.

Family Characteristics at Baseline

Having a caregiver with less than a high-school education increased the risk of a re-report in each stage between 18% and 40%. Children with older parents were more likely to move to Stage 2 (at least two reports) or Stage 3 (at least three reports), but parent's age was not associated with recurrence after that. Children in families that never received AFDC/TANF were less likely to have a re-report at each stage, though, as illustrated in Table 1, few families who moved on to the last stage lacked a spell on AFDC or TANF. Among children with three reports, having caregiver with a past history in foster care was a significant risk factor for a fourth report but was not significant in the other stages. Living in a census track with a higher income was a protective factor (1% less likely per \$1,000), but only for the first re-report.

Prior Services

Services prior to a first report were predictive of a second report but were not significant predictors in later stages. Children with a caregiver who had a record of mental health or substance abuse treatment prior to the first report were more likely to have a second report. Receipt of AFDC prior to the first report was associated with a decrease in first re-report.

Maltreatment Event and Child Welfare Response

Type of maltreatment was significant at Stage 1, with both physical abuse and sexual abuse cases less likely to recur than neglect. The only other significant association with type was in the final stage, in which children with fourth reports of sexual abuse were less likely to have an additional report. A worker's perception that the family was receptive to child welfare intervention was not significant. Substantiation status was associated with an increased risk of re-report, but the magnitude declined across stages from about 41% to between 20% and 29%. Among cases that received child welfare services (particularly FCS services) in each stage, however, there was an equivalently strong decrease in risk. It should be noted that the confidence intervals for FCS and IIS combined were quite wide and nearly included 1.0 in Stage 2.

An additional interest was whether services might have a cumulative or even lagged effect on later re-report. Between 11% and 12% of children in each stage had records of FCS services in a prior stage; between 4% and 5% of children received services within a stage and also a prior stage. Among children whose families participated in lower level case management services (FCS) in a prior stage, there was a decreased likelihood of re-report in

the subsequent stage. No such effect was found for foster care and the combination of FCS and IIS was only associated with recurrence (reduction of) for cases that progressed to the final stage.

Other Service Systems

Hospital treatment for injury was a significant but weak predictor of recurrence in Stages 1 and 2. Emergency room care for mental health for the child was a strong predictor of recurrence (between 81% and 205% increase) in Stages 1, 2, and 4. It should be remembered that such care would be more indicative of crisis as compared to regular treatment. Special education status was either not associated with recurrence or was associated with a reduced likelihood. AFDC or TANF receipt during the stage was weakly associated with an increased risk in Stage 1, but this changed to a slight decrease for Stages 2 and 3 and was not significant by Stage 4. Regular (noncrisis) mental health treatment for caregivers and children was associated with a reduction of risk within each stage, but there was never more than about 8.5% of parents and 2.4% of children who received such services within each stage (refer back to Table 1).

Discussion

Overall, we found that the set of predictors significantly associated with re-report differed across stages. For example, increased child age was mildly protective relative to a second report (about a 3% decrease per year of age) but had an opposite effect of similar magnitude at all subsequent report stages. This “flipping” of valence is important, both intrinsically, and because it points out how findings based only on first recurrence events may be vulnerable when generalized to subsequent events. Similarly mixing first and subsequent events would likely result in a washing out of any significant findings. We will review predictors of chronic reporting in three stages. First, we will look at child and parental characteristics. Second, we will look at maltreatment type and substantiation. Finally, we will look at services and how they relate to chronic maltreatment.

First, although younger children may initially be more vulnerable to continued maltreatment, it is possible that other characteristics of the child become more salient risk factors as children get older. For example, maltreatment is associated with increased risk of behavior and mental health problems (Gilbert, Widom, Browne, Fergusson, Webb & Janson, 2009), which in turn may result in increased risk of recurrent maltreatment (Brown, Cohen, Johnson, & Salzinger, 1998). The initial increased risk associated with having a medical condition in infancy is also consistent with the idea that children who are more challenging to care for have greater risk of maltreatment.

The import of family characteristics also varies across stage, with the exception of lacking a high-school education which is a consistent risk factor for re-report and the lack of AFDC/TANF history which is a consistent protective factor. Controlling for other factors, parents who were older at the birth of the child appeared to have greater risk of recurrence early on, but parental age was not associated with a fourth or fifth recurrence. This is not consistent with the prior literature but few prior studies controlled for services use as well as parent and child factors. In addition, there was no ability to control for number of children in the current study. Other income factors were only significant in the first stage, with a history of AFDC use prior to the first report and higher median income in the community associated with a reduction in risk of first re-report only.

There were only two consistent predictors over time related to child welfare contact. Substantiation increased risk of re-report while receiving child welfare services decreased the risk. Although interaction terms were not tested among cases that received services but

were also substantiated, the two conditions would essentially cancel out. Both the within-stage effects and the apparent lingering effect of prior in-home services suggest more work needs to be done to understand the relationship of services to child welfare outcomes.

The strong ability of services to predict chronic maltreatment is an interesting finding. At the time of a first report, children whose caregiver already had a record of mental health treatment were at greater risk of a re-report. Conversely, start of mental health services following a report in a stage was associated with a decreased risk. The level of need for mental health services among those without service use histories is not known, but caregiver mental health problems have long been noted as risk factors for maltreatment (e.g., English, et al, 2000). It may be that those parents and children that successfully connect to mental health services following a report are following case plans initiated by child welfare (Jonson-Reid, 2004). A similar dynamic may explain why starting special education services following a report appears protective when disability has been associated with higher maltreatment risk. Such cases reflect not only appropriate referrals, but also cases in which the family is more motivated to seek help. Of course, receipt of services, like mental health intervention, is dependent on many things, including accurate screening for need, availability and accessibility of services, and ability to pay.

Type of maltreatment had effects that were inconsistent. Children first reported for physical or sexual abuse were some-what less likely to receive a second report; but once children had at least two reports, there was little relationship between the type of report and subsequent risk. Although there is a substantial literature seeking to understand the etiology for various types of maltreatment (Bae, et al., 2007), this may not be useful for understanding trajectories of chronically re-reported families. The type of maltreatment that is the subject of an initial allegation often changes over time (Jonson-Reid et al., 2003). The underlying dynamics that bring families back to the attention of child welfare multiple times are probably not captured well by a specific type of maltreating behavior.

Our data also suggest it is important to differentiate types of systems that may be responsive to similar issues. For example, hospital-based care of the child for mental health was associated with an increased risk which is not the case in regular mental health care. Perhaps hospital may be reflective of crisis care, suggesting that a need has gone unmet until behaviors reach a level that signals emergency intervention.

With regard to the persistent effects of child welfare services during prior stages on distal stages (e.g., the effect of services during Stage 1 influencing transition from Stage 3 to Stage 4), we found again that services were commonly protective, suggesting a lingering positive effect of child welfare interventions. This effect was not obtained for foster care. In one case (influence of service provided during Stage 3 on receiving a fifth report), the effect was predisposing to a report, not protective. This may be due to the small sample size fitting these criteria, as evidenced in the large confidence interval (1.12-2.09).

Strengths and Limitations

Our work benefits from and suffers from the classic strengths and limitations associated with archival data (for a full review see Jonson-Reid & Drake, 2008). Currently, the primary strength is the ability to track child welfare and other system encounters over time with great accuracy. The primary weaknesses lie in the inability to purposively collect data that would be informative to the study, for example, periodic measures of family stress or biogenetic factors. Our sampling frame is large and our analyses adequately powered, but the nature of the sampling frame (urban, midwestern, primarily African American) may limit generalizability. States and, sometimes regions within states, also vary a great deal in terms of the way eligibility for services are determined and the way services are delivered. This

makes it imperative that studies like this one are replicated in different areas. Although archival records can suffer from poor recording practices, our work benefits from a long history of working with the data from this region, cross-checking variables that exist in more than one data set to examine consistency, and relying on variables that are most frequently recorded (e.g., program start dates needed for agency reports or funding, etc.; Jonson-Reid & Drake, 2008). Other studies using data from this area have shown strong consistency with findings from survey and interview data (e.g., see findings from Drake et al., 2003 compared to Kohl et al., 2009).

Implications and Conclusion

There are two primary practical implications to be gleaned from this study. First, studies of a first re-report of maltreatment are helpful but not sufficient to understand the nature of cases that become chronic re-reports. Second, services may be associated with reduced recurrence no matter the stage of re-report. Any thought that chronic families should not receive services because “we’ve tried before and it didn’t work” should be abandoned. Indeed some programs that increase services to already chronically reported families have shown promise (Jonson-Reid, Swarnes, Wilson, Stahlschmidt & Drake, 2009). Similarly, other services (special education, parent mental health, child mental health) seem to have positive effects with regard to recurrence. It appears that understanding how the broader social service and support system is helping these families is key to understanding recurrence over time. This has important implications for how services and allocations for services occur across disciplines in collaboration with child welfare.

There are also several implications for future research. For example, an ecological theory of human development is a widely used framework in child maltreatment research (Drake et al, 2006; Zielinski & Bradshaw, 2006) and is essentially how constructs were organized in the current study. In our study, the importance of ecological variables fixed at the beginning of the study generally lost import in predicting later stages of recurrence. This does not mean that the framework holds no promise in describing chronic reporting but rather that additional means of measuring these factors should be explored. For example, future studies should attempt to measure additional factors in the neighborhood over time (including controls for mobility), as well as family’s perceptions of the community. It is also possible that other factors not measured in this study play a role in recurrence, such as the presence of partner violence or undetected mental health concerns. Additionally, it is possible that family and community characteristics influence access to services; services receipt was influential at each stage. Future studies may wish to test whether family and community effects are mediated by services. This study lacked measures of informal supports or community-based services that might be available through faith-based organizations. It is possible that such unmeasured positive factors are instrumental in cases that do not return. A study of families reported to child welfare with positive outcomes would be very informative.

The human and social costs associated with chronic maltreatment make it key that additional research focus on understanding this population. This includes broader empirical study of programs and interventions designed to work with families that become chronically reported. It is hoped that this study will serve to encourage this important work.

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Table 1

Percent or Mean Characteristics of Sample for Each Stage of Recurrence

	1–2 Reports (n = 6,412)	2–3 Reports (n = 3,917)	3–4 Reports (n = 2,671)	4+ Reports (n = 1,896)
Child/family/community demographics				
White (%)	37.3	32.5	32.0	31.9
Female (%)	48.5	48.3	48.1	47.9
Infant serious medical condition (%)	13.6	15.8	16.8	16.8
Never AFDC (%)	24.8	14.7	11.9	9.6
Less than H. S. education (%)	49.7	58.0	63.0	65.0
Known Hx in foster care (%)	4.0	4.9	5.8	6.4
Mean (SD) age at time of first report in stage	3.9 (2.9)	6.3 (4.0)	7.7 (4.1)	8.5 (4.0)
Mean (SD) parent age at birth	24.5 (6.4)	24.2 (6.5)	24.2 (6.6)	24.1 (6.6)
Mean (SD) census tract income (in \$1,000s)	27.9 (12.4)	25.9 (12.5)	25.3 (12.1)	24.9 (11.7)
Service history prior to a first report of maltreatment				
AFDC (%)	68.3	77.3	79.5	81.3
Parent MH Tx ^a (%)	6.1	7.6	8.1	8.5
Special education (%)	5.5	5.4	5.2	5.1
Type of maltreatment alleged for first report in each stage				
Neglect (%)	61.3	56.9	53.8	56.0
Physical abuse (%)	27.3	21.2	21.3	19.5
Sexual abuse (%)	7.9	4.3	4.6	4.2
Mixed type (%)	3.5	4.8	5.2	5.4
Type of maltreatment alleged for first report in each stage				
Other (%)	n/a	12.8	15.1	14.9
Child welfare response for first report in each stage				
Substantiated case ^b (%)	19.8	17.5	16.8	15.3
Worker noted family as “receptive” (%)	30.6	32.7	33.2	33.1
No services after investigation (%)	77.3	78.1	77.2	75.7
Family centered services (FCS) (%)	15.5	14.2	14.0	13.3
FCS and intensive in-home (%)	2.1	3.2	3.4	3.4
Foster care entry and exit (%)	5.1	4.5	5.4	7.6
Cross-sector services provided/begun in each stage				
AFDC/TANF (%)	63.8	62.5	58.5	56.1
Parent MH or substance abuse Tx ^a (%)	4.2	4.3	4.5	3.6
Child MH or substance abuse Tx ^a (%)	2.0	2.4	2.3	2.5
Special education onset (%)	13.3	9.1	5.4	7.4
Emergency room care for child provided in each stage				
Injury (%)	19.4	14.7	10.3	7.6
Mental health (incl. suicide ideation, %)	5.1	5.6	5.8	5.4

Note. AFDC = aid to families with dependent children; H.S. =, high school; MH =, mental health; Tx =, treatment; Hx =, history.

^aServices paid for by Medicaid or part of state department of mental health programs.

^bPercentage changes in substantiation should be viewed with caution as state moved to a two-track system with a higher standard for substantiation (probable cause) after 1997.

Table 2

Likelihood of a Subsequent Report of Maltreatment at Progressive Stages

	1st–2nd Reports (n = 6,365)	2nd–3rd Reports (n = 3,871)	3rd–4th Reports (n = 2,582)	4th–5th Reports (n = 1,804)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Child characteristics				
White	1.01 [0.93, 1.1]	0.91 [0.79, 1.04]	1.09 [0.97, 1.23]	0.91 [0.78, 1.05]
Female	0.94 [0.88, 1.0]	0.93 [0.84, 1.04]	1.06 [0.96, 1.16]	0.99 [0.88, 1.11]
Age start of stage	0.97 ^a [0.96, 0.99]	1.02 ^b [1.00, 1.04]	1.03 ^a [1.01, 1.04]	1.03 ^b [1.01, 1.05]
Medical risk (infancy)	1.19 ^a [1.10, 1.31]	1.21 ^b [1.04, 1.40]	0.95 [0.84, 1.08]	0.99 [0.85, 1.16]
Parent characteristics				
Age at child's birth	1.01 ^b [1.0, 1.01]	1.01 ^a [1.0, 1.02]	1.01 [0.99, 1.01]	0.99 [0.99, 1.01]
Less than HS education	1.29 ^c [1.20, 1.39]	1.42 ^c [1.26, 1.60]	1.20 ^a [1.08, 1.33]	1.18 ^b [1.04, 1.35]
Hx foster care	1.13 [0.97, 1.31]	1.30 [0.99, 1.71]	1.43 ^a [1.18, 1.74]	1.22 [0.96, 1.57]
Never AFDC	0.48 ^c [0.41, 0.55]	0.73 ^b [0.56, 0.94]	0.53 ^c [0.43, 0.67]	0.66 ^b [0.50, 0.88]
Tract income	0.99 ^c [0.99, 0.99]	0.99 [0.99, 1.0]	0.99 [0.99, 1.00]	1.00 [0.99, 1.01]
Service prior to ever having a report for maltreatment				
AFDC	0.87 ^b [0.76, 0.99]	0.94 [0.76, 1.16]	0.92 [0.78, 1.09]	0.92 [0.75, 1.02]
Parent MH Tx	1.43 ^c [1.26, 1.61]	1.10 [0.89, 1.35]	1.16 [0.98, 1.37]	1.00 [0.82, 1.22]
Special education	1.08 [0.94, 1.3]	0.82 [0.64, 1.06]	0.81 [0.65, 1.01]	0.88 [0.67, 1.15]
Characteristics of 1st report in each stage				
Neglect/Other				
Physical abuse	0.85 ^c [0.79, 0.92]	1.02 [0.88, 1.17]	0.95 [0.84, 1.07]	0.88 [0.75, 1.13]
Sexual abuse	0.69 ^c [0.60, 0.79]	0.76 [0.57, 1.00]	0.85 [0.68, 1.06]	0.67 ^b [0.50, 0.91]
Mixed type	1.03 [0.87, 1.21]	1.28 [0.98, 1.65]	0.92 [0.74, 1.16]	0.93 [0.81, 1.41]
Other	n/a	1.04 [0.90, 1.20]	1.04 [0.90, 1.20]	0.84 [0.69, 1.01]
Substantiated	1.41 ^c [1.29, 1.55]	1.29 ^b [1.11, 1.51]	1.21 ^b [1.06, 1.39]	1.29 ^b [1.09, 1.53]
Family receptive	1.03 [0.96, 1.10]	1.01 [0.92, 1.12]	1.01 [0.92, 1.20]	0.98 [0.87, 1.11]
Child welfare services (during current stage)				
FCS	0.50 ^c [0.45, 0.55]	0.62 ^c [0.53, 0.73]	0.42 ^c [0.36, 0.49]	0.55 ^c [0.46, 0.67]
FCS and IIS	0.74 ^a [0.60, 0.92]	0.74 ^b [0.56, 0.99]	0.55 ^a [0.42, 0.72]	0.69 ^b [0.52, 0.91]
Foster care	0.82 ^a [0.71, 0.95]	0.73 ^b [0.56, 0.95]	0.61 ^a [0.49, 0.76]	0.48 ^c [0.38, 0.61]
Prior child welfare services in Stage 1 (between 1st and 2nd reports)				
FCS	n/a	0.73 ^a [0.62, 0.87]	0.60 ^c [0.50, 0.71]	0.62 ^c [0.48, 0.78]
FCS and IIS	n/a	0.71 [0.50, 1.0]	0.88 [0.62, 1.23]	0.53 ^b [0.33, 0.86]
Foster care	n/a	1.15 [0.89, 1.47]	1.04 [0.84, 1.28]	1.21 [0.93, 1.58]
Prior child welfare services in Stage 2 (between 2nd and 3rd reports)				
FCS	n/a	n/a	0.59 ^c [0.5, 0.71]	0.70 ^b [0.56, 0.87]
FCS and IIS	n/a	n/a	0.74 [0.54, 1.00]	0.46 ^a [0.30, 0.70]

	1st–2nd Reports (n = 6,365)	2nd–3rd Reports (n = 3,871)	3rd–4th Reports (n = 2,582)	4th–5th Reports (n = 1,804)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Foster care	n/a	n/a	0.88 [0.68, 1.14]	0.80 [0.59, 1.10]
Prior child welfare services in Stage 3 (between 3rd and 4th Reports)				
FCS	n/a	n/a	n/a	0.71 ^a [0.59, 0.86]
FCS and IIS	n/a	n/a	n/a	1.56 ^b [1.12-2.09]
Foster care	n/a	n/a	n/a	0.81 [0.61-1.09]
Other service during stage				
Hospital Tx				
Injury	1.14 ^a [1.07, 1.25]	1.19 ^b [1.02, 1.39]	1.12 [0.96, 1.30]	1.06 [0.86, 1.32]
Mental health	1.81 ^c [1.60, 2.05]	1.92 ^c [1.45, 2.52]	1.21 [0.99, 1.47]	2.05 ^c [1.61, 2.62]
Special education	0.43 ^c [0.38, 0.48]	0.53 ^c [0.44, 0.64]	0.91 [0.76, 1.09]	0.40 ^c [0.34, 0.51]
AFDC	1.12 ^b [1.0, 1.25]	0.86 ^b [0.75, 0.99]	0.87 ^b [0.77, 0.97]	0.88 [0.77, 1.02]
Parent MH Tx	0.65 ^c [0.55, 0.77]	0.47 ^c [0.36, 0.62]	0.47 ^c [0.37, 0.60]	0.25 ^c [0.19, 0.38]
Child MH Tx	0.65 ^a [0.50, 0.83]	0.55 ^a [0.37, 0.82]	0.52 ^c [0.37, 0.74]	0.51 ^a [0.35, 0.77]
Wald's chi-square	1270, <i>df</i> = 45.2, <i>p</i> < .0001	243, <i>df</i> =3 0, <i>p</i> < .0001	378, <i>df</i> = 67, <i>p</i> < .0001	337, <i>df</i> = 92.5, <i>p</i> < .0001

Note. AFDC = aid to families with dependent children; HS = high school; MH = mental health; Tx = treatment; Hx = history; FCS = family-centered services; IIS = intensive in-home services.

^a.0001 < *p* < .001.

^b.001 < *p* < .05.

^c*p* < .0001.