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Predicting risk of entry into foster care from early childhood experiences: A survival analysis using LONGSCAN data

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Abstract

This study examined whether a multi-domain model of maltreatment informed by an ecological framework—including factors related to the child, caregiver, family, neighborhood, and dimensions of maltreatment experience—predicted entry into foster care between the ages of 4 and 18 among children with no prior foster care experience. To determine which factors predict entry into foster care, secondary data analyses were conducted utilizing a sub-sample from LONGSCAN (Longitudinal Studies of Child Abuse and Neglect) of 942 children and their primary caregivers. Results demonstrate that there are important predictors for entry into out-of-home placement *across* multiple ecological domains. Characteristics related to child, caregiver, and family characteristics, and neighborhood context, as well as dimensions of maltreatment (particularly emotional maltreatment), predicted risk of placement in out-of-home care. Implications for child welfare practice are discussed. This examination of the effects of multiple ecological domains adds to our understanding of children's risk of removal and entry into out-of-home placement.

Keywords

Foster care; Placement; LONGSCAN; Early childhood; Survival analysis

Despite a significant decrease in the number of children entering foster care over the past decade, the number of children entering into out-of-home placement has remained high. A total of 254,904 children entered care in the United States between October 1, 2012 and September 30, 2013, and 402,378 children were in foster care at the end of September 2013 (U. S. Department of Health and Human Services, 2014). Although the number of children in foster care in the U.S. has declined, a sizable proportion of children continue to experience foster care: it is estimated that 6% of U.S. children spend time in foster care between birth and age 18, with significantly higher rates for American Indian and Alaska Native (15% of children) and African American children (12%; Wildeman & Emanuel, 2014). Removal and placement of a child in out-of-home care is considered a traumatic event, over and above the impact of the experienced maltreatment that precipitated the

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removal event. There is a need to better understand the risk for removals and preventive interventions to decrease the likelihood of further trauma to the child as well as determine the appropriate course of action to ameliorate risk (Davidson-Arad, Englechin-Segal, & Wozner, 2003; Doyle, 2007).

Early research on factors related to risk of entry into foster care has focused on single-domain or two-domain models such as child characteristics; child characteristics and poverty; or child characteristics and caregiver characteristics; or family and neighborhood characteristics (for example, see Farmer, Mustillo, Burns, & Holden, 2008; Freisthler, Merritt, & LaScala, 2006; Horwitz, Hurlburt, Cohen, Zhang, & Landsverk, 2011; Lindsey, 1991; Thieman & Dail, 1997). The most frequently examined child characteristics are age and race/ethnicity; and the most frequently examined caregiver/family characteristics are marital status, education level, use of alcohol/drugs, or caregiver depression (e.g., Horwitz et al., 2011; Kimberlin, Anthony, & Austin, 2009; Rivaux et al., 2008). Examination of demographic characteristics often focuses on income level and family composition (Barth, Wildfire, & Green, 2006; Lindsey, 1994; Wulczyn, 2009). Although research on single-domain or two-domain out-of-home placement research is important and has informed our understanding of factors related to out-of-home placement, arguments have been made recently for the utilization of complex theoretical models in child welfare research to examine multiple aspects of child, family, context, and outcomes (Carnochan, Rizik-Baer, & Austin, 2013). Most notably, the ecological model of maltreatment developed by Bronfenbrenner and others over the past several decades is a comprehensive multi-level approach to aid our understanding of the complex, multi-level dynamics associated with child maltreatment (see Belsky, 1980, 1993; Bronfenbrenner, 1979; Carnochan et al., 2013; Garbarino & Eckenrode, 1997; Wulczyn, Chen, & Courtney, 2010). The ecological model could be important in improving our understanding of factors that predict the removal of a child from parental custody once maltreatment has occurred.

Recently, in part inspired by these ecological models, recommendations for multi-domain predictor models for entry into out-of-home care have emerged (Carnochan et al., 2013). Multi-domain predictor models, which examine the relation between predictors and outcomes at more than one level (e.g., not just examining child characteristics, but examining child, family, and community characteristics simultaneously as predictors), have been produced for both maltreatment recidivism and factors associated with placement. Multi-domain models of recidivism are relevant to the understanding of risk for out-of-home placement, because prior history is a risk factor for later placement of children who are not placed during initial investigation (DePanfilis & Zuravin, 2002; Drake, Jonson-Reid, & Sapokaite, 2006; English, Marshall, Brummel, & Orme, 1999; Horwitz et al., 2011). Further, while many maltreating parents are never reported (Wildeman et al., 2014), those who do come to the attention of the child welfare system may face closer scrutiny (Center for Community Partnerships in Child Welfare of the Center for the Study of Social Policy, 2006).

Multi-domain models predicting maltreatment and/or placement most often include two domains such as child and neighborhood characteristics (Wulczyn, 2009) or caregiver and neighborhood characteristics (Thieman & Dail, 1997). Recent examples of models including

several domains include: Dubowitz et al. (2011), Horwitz et al. (2011), and Thompson and Wiley (2009). Both Dubowitz et al. (2011) and Thompson and Wiley (2009) examined predictors of maltreatment from several domains, and Horwitz et al. examined multi-domain predictors for subsequent entry into placement after initial investigation. In the Dubowitz et al. study, factors in five domains—lower child cognitive development, lower maternal education (less than high school), maternal drug use, maternal depression, and larger family size—predicted greater likelihood of child maltreatment (that is, a Child Protective Services [CPS] report) among 224 children who were followed from approximately age two to age 12. In their sample of 149 children maltreated as infants, Thompson and Wiley (2009) examined child, parent, and socio-demographic factors, as well as aspects of the initial maltreatment; they found that the strongest predictors of re-referral during the 11–15 year follow-up were (1) initial type of maltreatment was physical or sexual abuse and (2) the initial maltreatment was substantiated. The Horwitz et al. study, using data from the National Survey on Child and Adolescent Well-being, examined child demographics, prior history, child functioning, violence exposure, and caregiver demographics related to age, family structure, parenting practices, and parental depression. While examining multiple factors, even this most recent study did not include factors *across* the ecology of maltreatment thought to be related to maltreatment (and consequently later placement) in the same model. Ecological theory suggests that factors related to the child, the caregiver, parent–child interaction, the family, the neighborhood context within which the family lives, and maltreatment are all domains of interest in prediction models. Taken together, these studies illustrate both the potential of applying a multi-domain ecological model in predicting placement, as well as the limitations in the work that has been done thus far.

In addition to using multi-domain models to examine predictors of entry into foster care, it would be helpful to incorporate a more sophisticated approach to understanding the dimensions of current or prior maltreatment into these prediction models. Most studies have examined maltreatment utilizing the three most commonly referred types of maltreatment, that is, physical abuse, sexual abuse, and neglect. We were unable to identify any studies that examine the impact of emotional maltreatment on entry into out-of-home placement, although research suggests that emotional maltreatment is an often-reported type of maltreatment for children involved in the child protection system (English, Thompson, White, & Wilson, 2015), and, although definitions vary, it is included in the national definition of maltreatment (Child Abuse Prevention and Treatment Act of 2010). Emotional maltreatment has been defined as a “repeated pattern of behavior that conveys to children that they are worthless, unloved, unwanted, only of value in meeting another’s needs, or seriously threatened with physical or psychological violence” (Hart, Brassard, & Karlson, 1996); or “psychological tactics aimed at undermining emotional security and sense of self that includes guilt induction, and exertion of power through psychologically coercive means” (Bornstein, 2006).

Furthermore, most studies examine maltreatment as an “incident” level variable, that is, maltreatment occurred (or did not), and then by single type—even though the data indicate that as many as one-third of children experience more than one type; in addition, most studies do not report on whether the child has experienced more than one incident of

maltreatment and/or information on the severity of maltreatment (English, Upadhyaya, et al., 2005). Data from the LONGSCAN study allow these comparisons (English, Graham, Litrownik, Everson, & Bangdiwala, 2005).

Re-examining the factors that prior research suggests are likely to predict entry into out-of-home placement using a multi-dimensional longitudinal dataset provides a unique opportunity to address the question of multiple domain models as well as additional dimensions of maltreatment as predictors of out-of-home placement for children. LONGSCAN, a 20-year longitudinal study on the long-term effects of abuse and neglect on children's growth and development, collected multilevel data on 1,354 children from five research sites across the country based on an ecological model of maltreatment (see www.iprc.unc.edu/longscan for comprehensive list of data collected; Bronfenbrenner, 1979). These data include child and family demographic characteristics; child developmental, social, emotional, and behavioral functioning; caregiver functioning; family functioning; and external family supports and neighborhood context. In addition to collecting comprehensive data on children's experiences across the ecology, LONGSCAN collected comprehensive longitudinal data on multiple dimensions of a child's maltreatment experience, which are an extension of the original Bronfenbrenner model. Examination of these data utilizing a multivariate statistical modeling approach will add to our understanding of factors that are likely to predict entry into out-of-home care; additionally, the analyses extend prior research by including multiple domains in one analysis and by including emotional maltreatment and the number and severity of maltreatment allegations as potential predictors of placement.

Method

Study Overview and Sample

Secondary data analyses were conducted using data from the LONGSCAN study. The LONGSCAN study has been described in detail elsewhere (Runyan et al., 1998), but in brief, 1,354 children and their primary caregivers were recruited into parallel longitudinal studies at five sites based in five different regions across the country (Midwest, Eastern, Southern, Southwest, and Northwest). By design, each site varied in its sampling criteria, with some sites focused on children who were already involved in child welfare and some with children at risk of child welfare involvement.

The predictors were collected at the baseline assessment of the LONGSCAN study, when children were four years old (see Runyan et al., 1998 for a full description of measures and data collection procedures). Because the analyses examined predictors of entry into foster care, children who had already entered foster care by age four were excluded from the analyses. This resulted in the exclusion of all children from the Southwest site (n = 330), where the sampling criteria required that children were already placed in foster care before the baseline assessment at age 4. This also resulted in the exclusion of 82 children from the other four sites who had been placed in foster care prior to the baseline assessment. These exclusions resulted in an analysis sample of 942 children (234 from Midwest site, 263 from Eastern site, 236 from Southern site, and 209 from Northwest site).

Among this analysis sample, data from the periodic review of Child Protective Services (CPS) records were used to construct a dichotomous indicator of entry into foster care, described below.

Measures

With the exception of the outcome variable, all data used in these analyses were collected at the baseline assessment (age 4).

Child Characteristics—As part of the assessment of demographics, caregivers were asked the child's race and gender.

In addition, caregivers were administered the *Child Behavior Checklist* (CBCL; Achenbach, 1991). The CBCL assesses ratings of child behavior problems in several domains. Two large scales were derived from these questions: externalizing (including aggressiveness and delinquency subscales) and internalizing (including somatic complaints, anxiety/depression, and social withdrawal subscales). The CBCL is widely used and extensively validated (Achenbach & Rescorla, 2001).

Caregivers were also asked whether the child had been born prematurely and what the child's birth weight had been. Caregivers also completed the *Battelle Developmental Screening Test* (BDST; Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), a standardized test of developmental skills that has been shown to reliably identify children with developmental deficits (Newborg et al., 1984).

Caregiver Characteristics—Caregiver characteristics provide information specific to the primary caregiver of the child.

Caregivers' physical health was assessed with a global question about current health status (rated as poor, fair, good, or excellent), which is one of the most reliable and widely used indicators of physical health functioning (Krause & Jay, 1994).

Caregivers' history of victimization was measured via the *Caregiver's History of Loss and Victimization* (VICA; Hunter & Everson, 1991). Eleven items from the VICA scale were used, corresponding to the following four categories: child sexual victimization, child physical victimization, adult sexual victimization, and adult physical victimization. Note that this instrument does not include caregiver history of emotional maltreatment.

Caregiver parenting attitudes were examined using the *Adult-Adolescent Parenting Inventory* (AAPI; Bavolek, 1984). The AAPI is a self-report measure of attitudes toward parenting with four subscales: appropriate expectations for child abilities, empathy toward child needs, rejection of physical punishment as a disciplinary technique, and appropriate understanding of parent and child roles. It has been validated with a variety of caregivers and correlates in predictable ways with other measures of parenting attitudes and functioning (Bavolek, 1984).

Problem alcohol use was assessed using the *CAGE Alcohol Abuse Screening Measure* (CAGE; Ewing, 1984). The CAGE includes four questions about drinking behavior,

including items assessing perceived need to cut down on drinking, guilt about drinking, criticism by others about drinking, and drinking first thing in the morning. The CAGE has been well-validated (King, 1986).

Depressed mood was assessed using the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977). The CES-D is a 20-item measure of depressive symptoms. Participants rate the severity of a variety of depressive symptoms. It has been extensively validated (e.g., Fountoulakisa et al., 2007; Knight, Williams, McGee, & Olaman, 1997).

Family Microsystem—As part of the assessment of demographics, caregivers were asked their current marital status. Responses were trichotomized into those who were currently married, those who had never been married, and those who had formerly been married (primarily divorced or separated). The assessment of demographics also included a question about annual family income.

The *Family APGAR* (FAPGAR; Smilkstein, 1978) was used to assess the caregivers' perceptions of the family relationships. The Family APGAR consists of five parameters of family functioning: adaptability, partnership, growth, affection, and resolve (Smilkstein, 1978). The FAPGAR correlates with other indices of family functioning and with the physical and emotional health outcomes of family members (Smilkstein, 1978).

Harsh parenting by the caregiver was assessed using the *Conflict Tactics Scale, Parent-Child version* (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The CTS-PC is a self-report measure of how caregivers deal with conflicts or problems with their young children. The validity of this instrument as a measure of violent and non-violent ways of dealing with conflict is well-established (Straus & Hamby, 1997). This scale consists of three subscales: psychological aggression, minor physical violence, and severe physical violence. Because of IRB concerns that participants would need to be reported to CPS if they endorsed any of the severe physical violence items, the severe physical violence subscale was not administered at all sites.

Two different constructs, residential instability and family instability, were defined using data collected with the *Child's Life Events* measure, a project-modified measure designed to assess events occurring in the last year (Hunter et al., 2003), based on Sarason's Life Experiences Survey (Sarason, Johnson, & Siegel, 1978). Family instability was defined as any of the following changes in family arrangements: caregivers' marriage, separation, divorce, moving out of the home, the addition of a significant other into the home, or death of a caregiver. Residential instability was defined as instances where the child moved with the family to a new place, moved away from the family, spent time homeless or in a homeless shelter, the family was evicted, or the child stayed with friends or family because s/he had no place else to stay. These indicators of instability correlate strongly with indicators of household dysfunction and child psychosocial outcomes (English, Thompson, Graham, & Briggs, 2005).

Macrosystem—The *Neighborhood Short Form* (Hunter et al., 2003) was used to assess the primary caregiver's perceptions of neighborhood quality. The measure includes nine

items such as: “People in my community help each other out” (Hunter et al., 2003). The form is a shortened version of a neighborhood scale developed by Martinez (2000). The three subscales used to create a satisfaction score are safety, support, and pride/morale (Hunter et al., 2003).

Caregivers’ social support was assessed with a LONGSCAN-modified version of the *Duke-University of North Carolina Functional Social Support Questionnaire* (Broadhead, Gehlbach, Degruy, & Kaplan, 1988; Hunter et al., 2003). This version included seven items from the original measure, retained because of their reliability and validity (Broadhead et al., 1988), and three items added by LONGSCAN researchers to address help with transportation, cooking and housework, and childcare. This measure has good construct and concurrent validity (Broadhead et al., 1988).

Caregivers’ use of mental health treatment was trichotomized, using the method previously used on LONGSCAN data by Thompson, Tabone, and Cook (2012). Briefly, caregivers were asked whether they had sought mental health treatment, counseling, or therapy for any reason during the past year (Hunter et al., 2003). Those who had not sought such treatment were asked whether they had felt the need for such treatment. Those who had received treatment were coded as *met need*; those who had not received treatment but felt they needed it were coded *unmet need*.

Early Maltreatment History—Characteristics of early maltreatment history were collected through biannual reviews of state Child Protective Services case files conducted by LONGSCAN research staff. For these analyses, maltreatment history occurring before the baseline assessment (roughly age 4) was included in early maltreatment history.

Reports of maltreatment were coded by the reviewers based on the narrative description of maltreatment alleged in the CPS reports; these coding decisions included type of maltreatment alleged (neglect, physical abuse, sexual abuse, or emotional maltreatment), as well as severity of the alleged maltreatment. Severity was rated on a 5-point scale based on criteria established by Barnett, Manly, and Cicchetti (1993), and were related to the seriousness of the injury or risk to children. In addition, the number of separate reports of maltreatment before the baseline assessment was included in the analyses.

Outcome: Placement in Foster Care—As noted above, CPS records were reviewed biannually throughout the course of the study. Subsequent CPS reports were coded for whether the CPS investigation resulted in a placement into foster care. Given that the youth in the sample had no prior foster care experience, the outcome of interest is first entry into foster care between the ages of 4 and 18.

Analyses

Survival analyses were conducted using Cox proportional hazards regression models. Because the primary outcome of interest was whether children were placed in foster care, the outcome was defined as the first event of placement into foster care. Because our data were “censored” (i.e., case records were only followed through age 18 and in some cases, families withdrew from the study or were lost to follow-up), it was necessary to take this

censoring into account analytically. The Cox model is used to estimate the probability that an outcome (in this case, placement in foster care) will occur at a given time, taking censoring into account. In addition, Cox regression models allow the testing of multiple predictors simultaneously, allowing the construction of multivariate models of placement risk (Allison, 1995).

First, bivariate Cox regression models were created with each of the potential predictors and survival to placement. These bivariate associations were reported, but were not the focus of the analyses. Next, multivariate Cox regression models were created within each of the domains listed (child characteristics, caregiver characteristics, family microsystem, macrosystem, and early maltreatment), including all of the potential predictors within each domain. Finally, an omnibus multivariate Cox regression model was created, which included all of the potential predictors that emerged as significant ($p < .05$) in the domain-level multivariate analyses.

Results

Sample Demographic Characteristics

The sample's descriptive information is presented in Table 1. Over half of the sample (58.7%) was African American and one in four (25.6%) were White. The sample was evenly split between males (49.6%) and females (50.4%).

Prevalence of Placement in Foster Care

Roughly one in ten children (105 total) were placed into foster care during the follow-up period. The mean age of placement was slightly more than eight years old. Of those children who were placed, 29.5% ($n = 31$) were first placed at age 4 or 5, 27.6% ($n = 29$) at age 6 or 7, 22.9% ($n = 24$) at ages 8–11, 15.2% ($n = 16$) at ages 12–15, and 4.8% ($n = 5$) at age 16 or 17.

Bivariate Within-Domain Multivariate Predictors of Foster Care Entry

The bivariate and within-domain predictors of entry into foster care are presented in the first two columns of Table 2. Among the child characteristics, there were no significant bivariate effects of demographic characteristics, behavioral problems, or low birth weight/prematurity. Only Battelle Developmental Screening Test scores predicted foster care entry, with lower scores predicting higher risk of foster entry. Within-domain multivariate analyses produced similar findings (only lower Battelle scores predicted foster care entry). Although African American children were significantly less likely than white children to enter foster care, there was no significant overall effect of race/ethnicity.

Among caregiver characteristics, there were no significant bivariate or multivariate effects of physical health, adult history of victimization, or parenting attitudes. There were significant bivariate effects of both childhood physical victimization and childhood sexual victimization, although these were no longer significant in within-domain multivariate analyses. Significant bivariate effects of both alcohol use and depression symptoms

persisted in within-domain multivariate analyses; caregivers with more alcohol use and with more depressive symptoms were more likely to have their children enter foster care.

Among the family microsystem variables examined, none predicted entry into foster care in the bivariate analyses. The same was true of the multivariate analyses within the family microsystem class of variables. This could be due in part to the relatively small sample size.

Among the macrosystem variables examined, there was no significant effect of neighborhood satisfaction. However, both low social support and caregiver's receipt of mental health services predicted foster care entry. Both of these variables remained significant in the multivariate analysis within macrosystem.

Finally, children's early maltreatment experiences were examined. In bivariate analyses, children who had past reports of neglect, physical abuse, and emotional maltreatment were at elevated risk for entry into foster care. In addition, more severe experiences of maltreatment were associated with risk for entry into foster care, as were number of reports. There was no significant effect of early reports of sexual abuse. In the multivariate analysis within early maltreatment, only emotional maltreatment and number of early CPS reports significantly predicted entry into foster care.

Omnibus Multivariate Predictors of Entry into Foster Care

All of the variables that were significant in the domain multivariate analyses were entered into an omnibus Cox survival regression: child Battelle Developmental Screening Test, caregiver alcohol use, caregiver depressive symptoms, caregiver mental health care, early emotional maltreatment, and number of early reports of maltreatment. This analysis is presented in the third column of Table 2. In this analysis, three variables remained significant: caregiver depressive symptoms, emotional maltreatment, and number of early CPS reports.

Discussion

The purpose of this study was to examine whether a multi-domain analysis of factors related to the child, caregiver, family, neighborhood, and dimensions of maltreatment experience would increase our understanding of risk factors related to the placement of children and youth into foster care. The first finding is that there are variables *across* multiple domains which support the call for multi-domain research and research on effective interventions to better inform child welfare practices related to entry into out-of-home care. This study found that characteristics related to child and family demographics, the child, the caregiver, the family, and the context within which families live predicted out-of-home placement as did the characteristics of the maltreatment experience itself. When tested in an omnibus model, three factors predicted placement–caregiver depression, emotional maltreatment and number of prior reports; however, in individual domain models, specific factors such as lack of social support were significant predictors. Many of these factors have been studied individually, or in two-model studies, but few studies have examined the "ecology" of maltreatment across domains. These findings suggest the importance of multi-level interventions to reduce the risk associated with these predictor variables. Interventions may

be needed to address the trauma experienced by the child, provide treatment for depressed mothers, and increase social supports. Recent work by the Child and Family Training Center in Great Britain provides a step-by-step modular-systemic approach to interventions based on an ecological approach (see Bentovim & Elliott, 2014).

In this study, race/ethnicity was not a predictor of placement, a finding that is not supported by other research (see Rivaux et al., 2008). When examined in the context of multi-level factors, race does not emerge as an independent predictor. However, impaired child development was found to be an important and robust predictor of entry into out-of-home care. More information is needed about how these child factors manifest in the referral and assessment processes, and how they influence child welfare response in the investigation. This finding has important implications for child welfare practice, as child development status is not frequently screened for in the child welfare intake decision-making process, but has significant implications for the type of service planning that need to be put into place for children who have delays in physical, social, and emotional development at the time of placement, and even when reunified with their families. Child developmental status should be routinely screened when a child enters out-of-home care through the Early Periodic Screening, Diagnosis, and Treatment program and, at a minimum, early intervention services to address developmental needs should be put into place. Child developmental status should also be assessed among children at risk of entry who have not entered care, as addressing their needs early may decrease the likelihood that they enter foster care.

This study confirmed two of the most common prior findings in research examining the relationship between maltreatment and placement in out-of-home care: caregiver alcohol/drug use and depression are significant factors associated with placement of children (English et al., 1999; Forrester, 2007; Hindley, Ramchandani, & Jones, 2006). If the goal is to prevent placements, accessible, affordable and effective interventions must be made available for the families who experience these problems. It is interesting to note that caregivers' parenting attitudes as measured by the AAPI did not predict placement, although risk assessment research has found that caregivers' lack of parenting skills is one of the primary risk factors utilized by social workers in making their risk and removal decisions (English, Marshall, Coghlan, Brummel, & Orme, 2002). Lack of social support is often cited in the literature as a risk factor in child welfare decision-making, but few studies have included lack of social support in the study of factors that predict placement decision-making. In this study, two contextual factors predicted the likelihood of entry into out-of-home care: caregiver perceptions of lack of social support in her environment, and whether or not the caregiver received mental health services. Providing interventions that increase social supports is an important intervention to reduce removal and placement of children.

The family-level domain had the weakest effects on risk of entry into out-of-home care in these analyses, with no significant variables in any of the models. Neither family structure nor the measured family-level patterns of interaction predicted risk of placement. This is in contrast to several recent studies indicating the importance of family structure in predicting child maltreatment and entry into foster care (e.g., Berger, 2004; Horwitz et al., 2011; Turner, Finkelhor, & Ormrod, 2007). In contrast, despite the small number of variables used,

there was a notable effect of macrosystem-level variables, in particular, use of mental health services and caregiver lack of social support.

Finally, of note is the finding regarding the dimensions of maltreatment as predictors of entry into out-of-home care. The bivariate findings highlight the importance of type of abuse/neglect as a predictor of placement, but when other dimensions of maltreatment were included in multivariate models, only emotional maltreatment and the number of reports across type remained as significant predictors. The finding related to emotional maltreatment is important for several reasons. First, when examined comprehensively and longitudinally, emotional maltreatment appears to be a type of maltreatment experienced by a substantial number of at-risk and maltreated children (see for example, English et al., 2015; Everson et al., 2008; Schneider, Ross, Graham, & Zielinski, 2005; U. S. DHHS, 2014). However, emotional maltreatment is not often included in research studies of the effects of abuse/neglect on children's growth and development or child welfare system outcomes. Emotional maltreatment is not well understood in terms of impact on children's health and welfare or on systems outcomes such as re-referral, recurrence, placement, or re-entry into placement. Furthermore, with respect to interventions, it is unclear whether child welfare referrals to parenting programs address issues related to parental behaviors that are classified as maltreatment or even if emotional maltreatment is addressed in these interventions. Baker, Brassard, Schneiderman, Donnelly, and Bahl (2011) reviewed ten evidence-based parenting programs and found that none of these programs had content that related to most emotional maltreatment behaviors. This is particularly concerning considering the work by Glaser (2011) suggesting the importance of identifying and providing services based on the underlying dynamic associated with why a parent/caregiver might emotionally abuse and/or neglect their child.

There is some research support for the importance of the number of referrals as a predictor for child placement. The longitudinal data on maltreatment from the LONGSCAN study suggests that the overwhelming majority of physical abuse and neglect referrals across time are "low" severity, and as such are less likely to be substantiated or initiate child welfare system involvement based on a specific incident of abuse/neglect (English, Bangdiwala, & Runyan, 2005). However, at some point, based on multiple referrals for "low" risk maltreatment allegations, a pattern of less than adequate parenting is established and child welfare system interventions are more likely (English et al., 2002). If that intervention is likely to be placement into out-of-home care, the data from this study suggests that a "something different" approach, such as an alternative response, may be a preventive strategy for the reduction in out-of-home removals.

Limitations

It is important to keep in mind the following caveats in interpreting these findings. First, as described earlier, the LONGSCAN sample is a relatively high-risk sample of children and families, selected for elevated risk for maltreatment. This allowed the power to detect effects on an outcome (foster placement) that is rare in the general population. However, it also means that this sample was not representative of the general population and caution should be exercised in extrapolating from these findings. Lower base rates of the various risk

factors studied, as would be the case in a sample from the general population, would result in diminished power to detect effects. Indeed, in the current sample, some risk factors, such as sexual abuse, were relatively rare and the failure to find an effect might reflect this limited power. Further, statistical power was decreased in the omnibus analysis due to the relatively large number of predictors.

A related limitation is that the predictors utilized in this study were experiences that the child had before age four and the outcome was first foster placement after age four. This study examines the influence of early risk factors, not later risk factors. Children at later, or earlier, stages of development might have different risk factors for placement into foster care. In addition, this study was not an examination of predictors of return to placement or of placement of very young children. Further, during the long time period (14 years) over which data were collected (from ages 4–18), child welfare practices may have evolved in the jurisdictions included in this research.

The primary respondent in the study was, in most cases, the mother. Future research should examine the role of fathers and of the families' broader social network. The assessment of the female caregiver provided some information on the broader social network, but was based on mothers' perceptions of their levels of social support. This is an important measure, but is not the only way to measure levels of social support (Gottlieb & Bergen, 2010). We assessed some aspects of the social network, but relied on mothers' perceptions of this network. In addition, although most domains examined were well-represented in the assessments and the analyses, more comprehensive assessments are possible, and it is likely that unmeasured variables are important predictors of risk.

Implications

The findings from this study suggest that across this sample of at-risk and/or maltreated children from four different sites across the U.S., 10% of the children experienced an out-of-home placement, with about 80% of those children entering placement before the age of twelve years. While the overall foster care population is on the decline, 254,162 children entered care in Fiscal Year 2012 (Child Welfare Information Gateway, 2013). These numbers suggest a need to continue to improve our understanding of factors that predict initial (and repeat) entry into out-of-home placement. Findings from this study suggest the need for a renewed focus on screening child development status during the assessment and early intervention phases of child welfare involvement, in order to provide necessary remedial services at the earliest stage possible and to reduce the likelihood that these factors, if left unaddressed, could be associated with re-entry.

It is not new news that caregiver alcohol/substance use and/or depression are predictors of entry into out-of-home placement. Over the past several decades, services to substance using and/or depressed caregivers have been provided frequently to caregivers involved with the child welfare system. However, from a placement prevention perspective, it would seem that locating and intervening with these families *before* placement as a protective strategy could have a significant impact on placement prevention and/or harm reduction for children. This implication is further reinforced by the finding regarding caregiver receipt of mental health services, and the role of low social support as a predictor of placement. These findings

suggest it is not sufficient to treat caregiver conditions such as substance use and/or depression in isolation of other factors; rather, it is also important to provide services that increase positive, pro-social connections. Increased social supports can serve as a protective factor to increase the likelihood of successful outcomes. Federal finance reform could provide an opportunity to utilize flexible funding to support early intervention or prevention strategies that could have a significant impact on overall rates of out-of-home placements.

Finally, the maltreatment findings have important implications. First, the emotional maltreatment findings in this and other research studies suggest that there is an important dynamic regarding "emotionally abusive and/or neglectful" parenting that is not well-understood or integrated into child welfare decision-making or interventions. Failure to improve our understanding of emotional maltreatment has potentially profound implications for children's social and emotional health as well as for interventions and supports for the adults in these children's lives (Donovan & Brassard, 2011; Hart, Binggeli, & Brassard, 1997; Sullivan, Fehon, Andres-Hyman, Lipschitz, & Grilo, 2006; Wright, Crawford, & Del Castillo, 2009). If emotional maltreatment has negative impacts, then a child who has experienced emotional maltreatment will likely need supports to address the harm from this experience. Recent research suggests that many children experience emotional maltreatment across childhood, which suggests potential trauma from multiple exposures (English et al., 2015). Furthermore, if future research confirms the role of emotional maltreatment as a risk factor for out-of-home placement or re-entry, there are implications for specific interventions to address both the caregiver behaviors related to emotional maltreatment, as well as training of alternative caregivers so they can better understand the impacts of these experiences on child behavior. At a minimum, alternative caregiver training related to the impact of emotional maltreatment on children's functioning could help stabilize children while in out-of-home care and improve child functioning.

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Table 1

Description of the analysis sample (N = 942).

Variable	M (*SD*) or % (*N*)
Child characteristics	
Placed in foster care	11.1% (105)
Age at placement	8.61 (3.62)
Race	
White	25.6% (241)
African American	58.7% (553)
Hispanic	4.2% (40)
Other	11.5% (108)
Gender	
Males	49.6% (467)
Females	50.4% (475)
Child Behavior Checklist (CBCL) Internalizing *t*-scores	49.42 (9.17)
CBCL Externalizing *t*-scores	54.96 (10.95)
Premature	22.0% (203)
Birth weight (in pounds)	6.62 (1.66)
Battelle Developmental Inventory (BDST)	82.38 (13.84)
Caregiver characteristics	
Physical Health (possible range 1–4, poor to excellent)	1.93 (0.77)
Victimization (physical child)	33.0% (311)
Victimization (sexual child)	35.7% (336)
Victimization (physical adult)	48.3% (455)
Victimization (sexual adult)	14.9% (140)
Adult-Adolescent Parenting Inventory (AAPI): Expectations (possible range 6–30)	23.53 (3.38)
AAPI: Empathy (possible range 8–40)	28.75 (5.46)
AAPI: Rejection of Punishment (possible range 10–50)	35.72 (3.16)
AAPI: Roles (possible range 8–40)	27.66 (6.35)
Alcohol Abuse (CAGE; possible range 0–4)	0.53 (1.07)
Depression (CES-D; possible range 0–60)	13.87 (10.87)
Family microsystem	
Marital status	
Married	23.7% (223)
Never married	58.9% (555)
Formerly married	17.4% (164)
Family income	$16,650 ($11,130)
Family functioning (FAPGAR)	12.23 (2.66)
Conflict Tactics Scale (CTS) harsh parenting: Physical	3.93 (3.56)
CTS harsh parenting: Verbal	6.09 (4.54)
Residential instability	1.05 (2.17)
Family instability	1.77 (2.83)

Variable	M (*SD*) or % (*N*)
Macrosystem	
Neighborhood satisfaction	24.32 (6.96)
Caregiver social support (Duke)	38.01 (8.97)
Mental health care	
No need	68.9% (649)
Unmet need	9.7% (91)
Met need	21.4% (202)
Early maltreatment (children could experience more than one type)	
Any neglect	31.7% (299)
Any physical abuse	15.4% (145)
Any sexual abuse	3.9% (37)
Any emotional maltreatment	13.4% (126)
Maximum severity	1.22 (1.75)
Number of types of maltreatment (0–4)	0.90 (1.54)

Table 2

Cox regression survival analyses predicting entry into foster care.

Variable	Bivariate HR (95% CI)	Multivariate within domain HR (95% CI)	Final omnibus model HR (95% CI)
Child characteristics			
Race (reference group: White)			
African American	0.67 (0.43–1.04)	0.53 (0.32–0.87)*	–
Hispanic	0.74 (0.26–2.10)	0.74 (0.26–2.13)	–
Other	1.28 (0.72–2.30)	1.12 (0.59–2.12)	–
Gender (reference group: females)	1.15 (0.78–1.68)	1.10 (0.86–1.42)	–
Child Behavior Checklist (CBCL) Internalizing	1.00 (0.97–1.02)	0.98 (0.95–1.01)	–
CBCL Externalizing	1.01 (0.99–1.03)	1.02 (1.00–1.05)	–
Premature	0.94 (0.59–1.41)	1.00 (0.53–1.87)	–
Low birth weight	0.99 (0.88–1.12)	0.98 (0.84–1.14)	–
Battelle Developmental Inventory (BDST)	0.98 (0.97–1.00)*	0.99 (0.97–1.00)*	0.99 (0.97–1.00)
Caregiver characteristics			
Physical health	0.83 (0.64–1.06)	0.96 (0.73–1.26)	–
Victimization (physical, as child)	1.70 (1.14–2.53)*	1.33 (0.84–2.11)	–
Victimization (sexual, as child)	1.59 (1.07–2.36)*	1.38 (0.86–2.22)	–
Victimization (physical, as adult)	1.08 (0.73–1.61)	0.68 (0.42–1.09)	–
Victimization (sexual, as adult)	1.57 (0.98–2.53)	1.23 (0.72–2.11)	–
Adult-Adolescent Parenting Inventory (AAPI): Expectations	1.01 (0.96–1.05)	1.02 (0.94–1.10)	–
AAPI: Empathy	0.98 (0.95–1.02)	0.96 (0.91–1.02)	–
AAPI: Rejection of Punishment	1.01 (0.98–1.04)	1.02 (0.98–1.07)	–
AAPI: Roles	1.00 (0.97–1.03)	1.01 (0.96–1.05)	–
Alcohol Abuse (CAGE)	1.28 (1.10–1.48)*	1.18 (1.01–1.39)*	1.05 (0.88–1.24)
Depression (CES-D)	1.03 (1.01–1.05)*	1.02 (1.00–1.04)*	1.02 (1.00–1.04)*
Family microsystem			
Marital status (reference group: married)			–
Never married	1.36 (0.75–2.45)	1.32 (0.70–2.49)	–
Formerly married	0.99 (0.91–1.09)	1.03 (0.93–1.14)	–
Family income	0.96 (0.90–1.03)	0.95 (0.88–1.02)	–
Family functioning (FAPGAR)	0.95 (0.89–1.01)	0.96 (0.87–1.05)	–
CTS harsh parenting: Physical	0.96 (0.91–1.01)	0.97 (0.90–1.04)	–
CTS harsh parenting: Verbal	1.15 (0.70–1.89)	1.25 (0.73–2.16)	–
Residential instability	1.01 (0.92–1.09)	0.99 (0.90–1.08)	–
Family instability	1.05 (0.98–1.12)	1.05 (0.98–1.13)	–
Macrosystem			
Neighborhood satisfaction	0.98 (0.96–1.01)	0.99 (0.96–1.02)	–
Caregiver social support (Duke)	0.97 (0.95–0.99)*	0.97 (0.95–0.99)*	0.99 (0.96–1.01)
Mental health care (reference group: no need)			

Variable	Bivariate HR (95% CI)	Multivariate within domain HR (95% CI)	Final omnibus model HR (95% CI)
Unmet need	1.74 (0.96–3.14)	1.71 (0.93–3.13)	1.24 (0.67–2.31)
Met need	2.08 (1.35–3.20)*	1.92 (1.21–3.03)*	1.04 (0.62–1.73)
Maltreatment			
Any neglect	3.39 (2.30–5.01)*	2.08 (0.98–4.42)	–
Any physical abuse	3.20 (2.15–4.78)*	1.23 (0.71–2.12)	–
Any sexual abuse	1.89 (0.88–4.08)	0.92 (0.41–2.07)	–
Any emotional maltreatment	4.32 (2.91–6.42)*	1.86 (1.10–3.15)*	1.91 (1.12–3.27)*
Maximum severity	1.34 (1.22–1.48)*	0.91 (0.73–1.13)	–
Number of types of maltreatment (0–4)	1.37 (1.28–1.46)*	1.21 (1.07–1.37)*	1.27 (1.15–1.40)*

Note. Reference groups are provided for categorical variables only. All other variables are continuous. For each predictor, the hazard ratio (HR) and 95% confidence interval (CI) are presented.

* $p < .05$.