



Research article

Environmental and individual attributes associated with child maltreatment resulting in hospitalization or death



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ABSTRACT

Maltreatment continues to be a leading cause of death for young children. Researchers are beginning to uncover which neighborhood attributes may be associated with maltreatment outcomes. However, few studies have been able to explore these influences while controlling for individual family attributes, and none have been able to parse out the most severe outcomes—injuries resulting in hospitalization or death. This study utilizes a retrospective, case-control design on a dataset containing both individual and environmental level attributes of children who have been hospitalized or died due to maltreatment to explore the relative influence of attributes inside and outside the household walls. Binary conditional logistic regression was used to model the outcome as a function of the individual and environmental level predictors. Separate analyses also separated the outcome by manner of maltreatment: abuse or neglect. Finally, a sub-analysis included protective predictors representing access to supportive resources. Findings indicate that neighborhood attributes were similar for both cases and controls, except in the neglect only model, wherein impoverishment was associated with higher odds of serious maltreatment. Dense housing increased risk in all models except the neglect only model. In a sub-analysis, distance to Family Resource Centers was inversely related to serious maltreatment. In all models, variables representing more extreme intervention and/or removal of the victim and/or perpetrator from the home (foster care or criminal court involvement) were negatively associated with the risk of becoming a case. Medi-Cal insurance eligibility of a child was also negatively associated with becoming a case. Government interventions may be playing a critical role in child protection. More research is needed to ascertain how these interventions assert their influence.

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1. Introduction

Child maltreatment, defined as abuse or neglect of a child by a parent or caregiver (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008) continues to be a leading cause of death for children under six years of age in the United States (Center for Disease Control and Prevention, 2014). Many child maltreatment deaths occur in families that have already been investigated for suspected maltreatment. In calendar years 2012/2013, 66% of all child maltreatment fatalities, in California were from families who were previously known to child welfare (California Department of Social Services, 2015). Children reported to child welfare for suspected maltreatment have been estimated to be at two to almost six times greater risk of death than those who are not (Jonson-Reid, Chance, & Drake, 2007; Putnam-Hornstein, 2011). Nevertheless, predicting which of the average of 6.6 million children reported for suspected maltreatment every year (United States Department of Health and Human Services, 2015) may suffer physical trauma or death remains an imperfect science. Currently, many child welfare jurisdictions use actuarial tools to help determine risk. Studies of sensitivity and specificity of these child welfare tools are scarce. Those that do exist have found misclassification to be as high as one in three families (Johnson, 2004, 2011; Loman & Siegel, 2004). Furthermore, large studies have indicated that families investigated for child maltreatment have similar distributions of known risk factors, whether or not the maltreatment was substantiated (Fallon, Trocme, & MacLaurin, 2011; Kohl, Jonson-Reid, & Drake, 2009).

There remains a continuing need to identify other influential factors that could differentiate these families and identify those most likely to commit serious maltreatment—acts or omissions by caregivers that resulting hospitalization or death of a child. Socio-ecological models move beyond individual level attributes to consider the complex interplay between micro (individual/family) attributes and mezzo(neighborhood) attributes (Belsky, 1980, 1993; Bronfenbrenner & Bronfenbrenner, 2009; Cicchetti & Lynch, 1993), and their joint association with the incidence of child maltreatment.

2. Background

2.1. Individual risk factors

In 2014, children under the age of 5 years old were most at risk for substantiated maltreatment, with 47% of all maltreatment victims in the United States coming from that age group (United States Department of Health and Human Services, 2015). In 2014, substantiated maltreatment rates per 1000 children in the population were highest for infants (24.4), decreasing thereafter but remaining steady for children ages 1 through 5 at an average of 11.4 per 1000 children (United States Department of Health and Human Services, 2015). In 2014, U.S. girls had slightly higher rates of maltreatment victimization than boys overall, though for children under 6 years of age, boys had slightly higher rates (United States Department of Health and Human Services, 2015) For maltreatment deaths, boys had higher overall rates—2.86 per 100,000 boys compared to 1.82 per 100,000 girls (United States Department of Health and Human Services, 2015).

The majority of fatal maltreatment is perpetrated by parents (Welch & Bonner, 2013). Studies have shown that household composition may also influence the likelihood of maltreatment death, specifically, children living with an unrelated adult are at greater risk of maltreatment death (Schnitzer & Ewigman, 2005; Stiffman, Schnitzer, Adam, Kruse, & Ewigman, 2002). A Missouri case control study matching child maltreatment fatalities with children who died of natural causes found that children residing with an unrelated adult had almost nine times the odds of child maltreatment death than children living with two biological parents (Stiffman et al., 2002). A similar study found children residing with an unrelated adult were almost 50 times as likely to die of an inflicted injury than children living in households with two biological parents (Schnitzer & Ewigman, 2005).

Gender of a perpetrator may influence the etiology of the child's injuries from maltreatment. Klevens and Leeb (2010) reviewed 600 maltreatment deaths in the National Violent Death Reporting System and found that 63% of the deaths were due to abusive head trauma. The researchers found that fathers or their substitutes were significantly more likely than mothers to be responsible for death due to inflicted trauma while the opposite was true for neglect (Klevens & Leeb, 2010). Research combining Oklahoma Child Death Review Team and child welfare data also found that perpetrators of inflicted trauma were more likely to be male, while perpetrators of neglect were more likely to be female and biologically related to the victim (Damashek, Nelson, & Bonner, 2013).

Finally, a report of suspected maltreatment increases the odds of death for children. Jonson-Reid et al. (2007) studied 3719 children who were receiving Aid for Families with Dependent Children (AFDC) and who had been reported to child welfare for maltreatment matched to 3719 children receiving AFDC and not reported to child welfare, and linked their records to vital statistics. The researchers found that children in the maltreatment group had twice the risk of death compared to controls (Jonson-Reid et al., 2007). More recently, a population-based study linking vital birth and death records and child welfare records for over 4.3 million children born in California between 1999 and 2006 found that children reported for non-fatal maltreatment were subsequently at almost six times the risk of intentional injury deaths than children not reported (Putnam-Hornstein, 2011).

To our knowledge, the prevalence of domestic violence and parental substance abuse in child maltreatment deaths is not known. Not all states capture these elements in their child welfare databases. These factors are considered associated with child maltreatment in general, however. Domestic violence and child maltreatment share considerable overlap (Capaldi, Kim, & Pears, 2009). In the states that capture and report domestic violence in child welfare databases, 28.5% of 2012

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