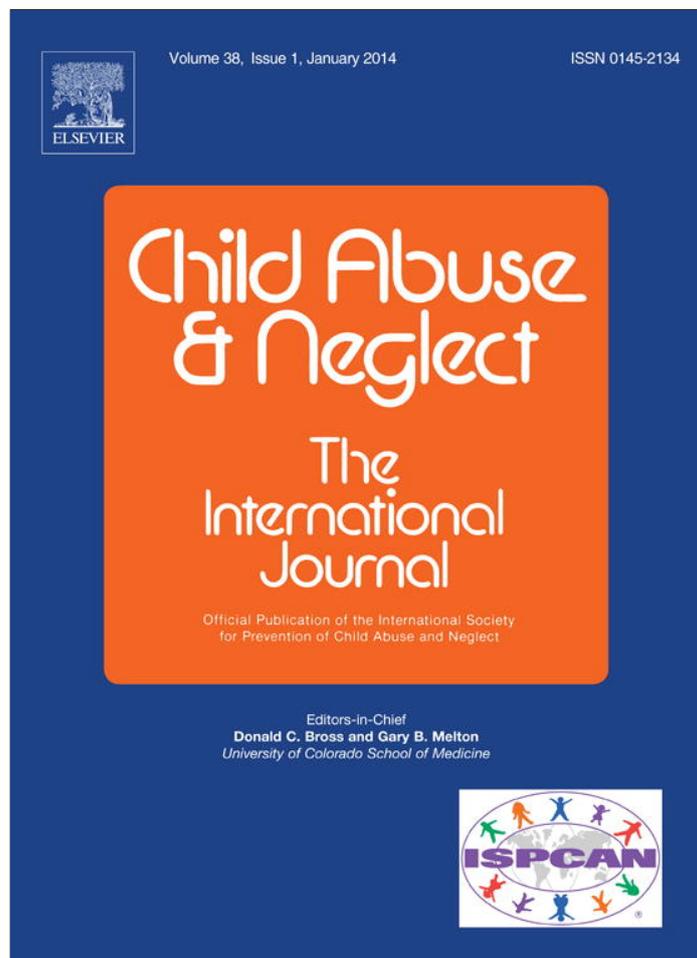


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Child Abuse & Neglect



Fatal and non-fatal child maltreatment in the US: An analysis of child, caregiver, and service utilization with the National Child Abuse and Neglect Data Set[☆]



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ABSTRACT

The purpose of this study was to compare children who are fatally and non-fatally maltreated in the United States. In this first national-comparison study, we used the Child Abuse and Neglect Data Set of children and families who encounter/receive support from child welfare services. We found that children who were fatally maltreated were younger, were more likely to live with both their parents, and that their families experienced more financial and housing instability compared to non-fatally maltreated children. Overall, families in which children die use/receive fewer social services, as compared to families in which children live. We discuss the results with regard to child welfare practice and research.

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Introduction

In 2010, 1,560 children, or 2.07 per 100,000 children, in the United States died as a result of abuse or neglect (U.S. Department of Health & Human Services, 2011). Child maltreatment fatalities (CMFs) are most often perpetrated by victims' parents or caregivers (Kunz & Bahr, 1996). Maltreatment-related fatalities have received significant attention in the last several decades (Graham, Stepura, Baumann, & Kern, 2010; Granik, 1991; Jonson-Reid, Chance, & Drake, 2007; Stiffman, Schnitzer, Adam, Kruse, & Ewigman, 2002) but there are still significant gaps in our knowledge of what places a child at-risk for fatal maltreatment. A number of studies have compared children who have died from abuse or neglect with children who died from other causes (Sabotta & Davis, 1992; Schnitzer & Ewigman, 2008; Stiffman et al., 2002). Only a handful of studies have compared the characteristics of families that perpetrated fatal and non-fatal child maltreatment (Chance & Scannapieco, 2002; Graham et al., 2010), and none have used a national sample. This article compares the child, family, and perpetrator characteristics of families substantiated for fatal and non-fatal child maltreatment using the U.S. National Child Abuse and Neglect Data Set (NCANDS).

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Child maltreatment fatalities

CMFs result from a wide variety of inflicted and uninflicted behaviors on the part of caretakers. This can include actively killing a child through beatings, a shaking injury, or suffocation, or passively killing a child by not providing necessary medical treatment, leaving a newborn unattended, or not providing necessary supervision for children (National Child Abuse and Neglect Data System, 2000). The annual *Child Maltreatment* report aggregates US state-level data from NCANDS and is published by the U.S. Department of Health & Human Services. Statistics from the 2010 report show that 1,560 children died from maltreatment, which is a rate of 2.07 per 100,000 live children (U.S. Department of Health & Human Services, 2011). Previous research, however, has shown that CMFs are undercounted and the number of victims each year is much higher than official statistics because maltreatment can be difficult to recognize in young children and because there are often no witnesses to the events leading up to the death (Ewigman, Kivlahan, & Land, 1993; Herman-Giddens et al., 1999). Despite this, the United Nations Children's Fund (UNICEF, 2003) has estimated that aside from Mexico, the United States has more CMFs than any other rich nation.

The annual *Child Maltreatment* report also provides statistics on the type of maltreatment that children suffered. In 2010, 76.7% of victims experienced neglect, and 25.1% experienced physical abuse. (These figures tally to more than 100% because children often experience multiple forms of maltreatment; U.S. Department of Health & Human Services, 2011.) UNICEF also reports that most CMF victims die of neglect (UNICEF, 2003).

Despite the important information that is included in the annual *Child Maltreatment* report, large quantities of information about victim, family, and household characteristics are not included. The NCANDS dataset provides researchers with the opportunity to examine the potential differences between fatal and non-fatal child maltreatment, something which has received sparse attention in the professional literature (Chance & Scannapieco, 2002; Graham et al., 2010). The NCANDS dataset provides an opportunity to examine child, family, and service characteristics that are related to non-fatal maltreatment and to explore their potential relationship to maltreatment fatalities. Further, to date, no published research has used the NCANDS dataset to examine CMFs in detail (M. Dineen, personal communication, June 13, 2013), which makes it an untapped resource for studying this outcome of abuse and neglect. Thus, our analyses seek to address this gap.

Sources of data

US studies examining victim and family social characteristics tend to fall into one of three categories. The first category includes studies which describe victims and perpetrators of CMFs (Kunz & Bahr, 1996; Smithey, 1997, 1998). These studies are often specific to certain US states (Anderson, Ambrosino, Valentine, & Lauderdale, 1983; Bonner, Crow, Testa, & Niec, 1997; Herman-Giddens, Smith, Mittal, Carlson, & Butts, 2003; Margolin, 1990; Welch & Bonner, 2013) or population-specific (Lucas et al., 2002). The second category includes studies which compare children who died from maltreatment with children who died from all other causes. Such studies often use data from medical examiners (Sabotta & Davis, 1992; Schnitzer & Ewigman, 2008; Stiffman et al., 2002). Studies in the third category compare fatal and non-fatal maltreatment among families receiving child welfare services. There have been two such studies, both conducted using Texas data (Chance & Scannapieco, 2002; Graham et al., 2010). To date there has been no research on CMFs using a database of child maltreatment nationwide.

Demographic characteristics of victims, perpetrators, and families

The most consistent risk factor for CMF victimization is age. Younger children, especially under 1 year, are at the greatest risk of dying from maltreatment. In the United States in 2010, 47.7% of CMF victims were under the age of 1, and 79.4% of victims were under the age of 4 (U.S. Department of Health & Human Services, 2011). These findings are consistent with the literature using international (Brandon et al., 2006; UNICEF, 2003), United States (Kunz & Bahr, 1996), and US state datasets (Anderson et al., 1983; Beveridge, 1994). Most studies have found a slightly higher rate of male than female victimization; in 2011, 60.1% of victims were male (U.S. Department of Health & Human Services, 2011). A national US study of parent-perpetrated homicide found that between 1976 and 1985, 55% of victims nationwide killed by their parents were male (Kunz & Bahr, 1996). Similar findings have been reported using data from state child welfare records (Anderson et al., 1983), child fatality review teams (Beveridge, 1994), and military records (Lucas et al., 2002). Some racial and ethnic minority victims are overrepresented as compared to their presence in the population at large (Herman-Giddens et al., 2003; Kunz & Bahr, 1996), which is consistent with non-fatal child maltreatment (Knott & Donovan, 2010). One study of data from multiple state-level child fatality review teams found that African American children were represented at 3 times their rate in the general population (Levine, Freeman, & Compaan, 1994), a finding that was confirmed by a recent US study of fatal child neglect in Oklahoma (Welch & Bonner, 2013).

Throughout the world, the majority of perpetrators of CMFs are parents or other caregivers (UNICEF, 2003). According to US national statistics, in 2010, 79.2% of CMFs were perpetrated by birthparents: 51.1% were committed by mothers or mothers and another individual, 18.7% were committed by fathers or fathers and another individual, and 21.9% were committed by mothers and fathers together (U.S. Department of Health & Human Services, 2011). Similar figures were found from the U.S. Uniform Crime Reports of parent-to-child homicides, with 52.5% of perpetrators being mothers (Kunz & Bahr, 1996); a study of fatal maltreatment in Iowa found that mothers were responsible for all deaths 41% of the time and for neglect deaths, 53% of the time (Margolin, 1990). A recent study in Oklahoma spanning three decades found that mothers were responsible

for fatal neglect 71% of the time (Welch & Bonner, 2013). When the perpetrator is not a birth parent, he is most likely to be a parent's male partner—a stepfather or mother's boyfriend (Levine et al., 1994). Research using different data sources has found that perpetrators are generally in early adulthood, under the age of 30 (Chance & Scannapieco, 2002; Herman-Giddens et al., 2003; Kunz & Bahr, 1996).

Social and behavioral characteristics

Our review thus far demonstrates that research on victim and parent/perpetrator demographics have been relatively consistent and well-researched. There has been significantly less research on social/behavioral characteristics that place a child at risk for fatality, and among the studies which have been conducted, there is significantly less consensus.

Many US children are known to child welfare services prior to their death. State-level studies have found that 30–50% of CMF cases are previously known or reported to child welfare services before death (Anderson et al., 1983; Beveridge, 1994; Damashek, Nelson, & Bonner, 2013), a finding that is slightly lower than in the United Kingdom at 63% (Brandon et al., 2006). A study of US child welfare workers who reported on recent fatalities relayed that parental mental illness was present in over half of the cases (Author Citation); other research has found parental mental illness to be a contributing factor in cases of CMFs (Fein, 1979; Korbin, 1987; Margolin, 1990). A study of parent-perpetrated child deaths in the military found this to be especially true among older victims (Lucas et al., 2002). At the same time, a small Texas-based study which compared fatal and non-fatal child maltreatment found that parental mental health, substance abuse, domestic violence, and social isolation did not distinguish between fatal and non-fatal maltreatment (Chance & Scannapieco, 2002).

This same study found that fatally maltreated children, as compared with non-fatally maltreated children, were more likely to have parents who had inappropriate age expectations of their children and who described their children as engaging in provoking behaviors. In a recent descriptive study of fatal maltreatment, child welfare workers reported that about one-third of the parents did not have a strong attachment to their children (Author Citation). This finding echoes that of an in-depth analysis of mothers incarcerated for their children's deaths; these women often felt rejected by their children or interpreted their children's age-appropriate behavior as intentional acts of provocation (Korbin, 1987). A second, but large-scale, study of fatal and non-fatal maltreatment in Texas found that children who have parents with low levels of caring and attachment are at an increased risk for fatality (Graham et al., 2010).

Children are more at-risk of suffering a CMF in homes that have recently experienced a major life event, such as moving, unemployment, or the birth of a child (Lucas et al., 2002). A descriptive study of Texas families involved with the child welfare system found that among families experiencing a CMF, 26% had an unemployed parent, 40% had moved within the last year, and there was a high degree of mobility (Anderson et al., 1983). These findings are consistent with a recent US study which gathered data from child welfare workers (Author Citation). One study of data from medical examiners in Missouri found that when compared with children who die of natural causes, children who live with non-family members are 10 times more likely to become CMF victims than children who live with two birth parents (Stiffman et al., 2002). The small comparison study of fatal maltreatment in Texas found that children who become CMF victims have more people residing in their homes and are likely to have had a recent change in household composition (Chance & Scannapieco, 2002).

Current study

There are critical barriers to preventing CMFs because our knowledge is limited. First, many CMF studies use medical examiner records to compare children who died of maltreatment with all other causes of death (Overpeck, Brenner, Trumble, Trifiletti, & Berendes, 1998; Ross, Abel, & Radisch, 2009; Schnitzer, Covington, Wirtz, Verhoek-Oftedahl, & Palusci, 2008; Stiffman et al., 2002; Tomashek, Hsia, & Iyasu, 2003). This information is useful for identifying factors associated with CMFs among all deceased children, but it does not necessarily help child welfare/service providers understand when children in their system might be fatally at-risk. Second, most research on CMFs in the United States is state-specific (Anderson et al., 1983; Ewigman et al., 1993; Graham et al., 2010; Luallen et al., 1998; Rodriguez & Smithey, 1999; Sabotta & Davis, 1992; Schnitzer et al., 2008; Schnitzer & Ewigman, 2008; Sorenson & Peterson, 1994; Stiffman et al., 2002; Welch & Bonner, 2013) and may have low generalizability. Finally, research on CMFs often have small sample sizes because CMFs often do not happen enough in one location to result in a large sample size (Chance & Scannapieco, 2002; Korbin, 1987).

When maltreatment is identified as the cause of death, information can be difficult to uncover: if the family had no history with child welfare services, family and household characteristics are unknown; if there was a history, such information may be confidential, especially if there are surviving children (Davidson, 1987). As a result, the literature is largely silent or offers inconsistent evidence on many potentially important social, economic, and environmental risk factors, including parental substance abuse, mental illness, domestic violence, and housing (Author Citation). These factors are often linked to child maltreatment in general (Dixon, Hamilton-Giachritsis, Browne, & Ostapuik, 2007; Gelles & Harrop, 1991; Hien, Cohen, Caldeira, Flom, & Wasserman, 2010; Sedlak, 1997; Stith et al., 2009; Straus & Kantor, 1994; Vogeltanz et al., 1999) but we do not know how these characteristics are potentially related to levels of risk for fatal maltreatment.

The NCANDS dataset allows us to compare children who were fatally and non-fatally maltreated on multiple variables of interest. This national-level dataset allows us to address many of the limitations in the literature, including small sample

sizes, state-specific studies with low generalizability, and that do not include information on social characteristics, and child welfare/social service information. Through our examination, we will address the following research questions:

- (a) What are the victim and family characteristics of children who die from maltreatment? How do these characteristics differ from non-fatal victims of child maltreatment?
- (b) What services did victims and families of fatal maltreatment receive prior to death? How does this differ from non-fatal victims of child maltreatment?

Methods

Data

NCANDS is the primary source of US national information on abused and neglected children known to state child protective service agencies. It is a national data collection system created in response to the requirements of the federal Child Abuse Prevention and Treatment Act. We used the NCANDS child file which consists of child-specific data of investigated reports of maltreatment to state child welfare service agencies. The 2010 child file has 1262 victims who died from maltreatment (U.S. Department of Health & Human Services, 2011). The NCANDS dataset is publicly available and is housed at the National Data Archive on Child Abuse and Neglect, at Cornell University in Ithaca, New York. The data is released upon receipt of an application stating the intended use of the data and an approved application from the researchers' institutional review board, which we obtained. The NCANDS dataset is prepared for use with SPSS and the staff at NDACAN provide technical support to those using the data. The primary author was trained at the Data Archive on how to use the NCANDS data file.

The dataset is comprised of nearly 3.5 million children/cases who had any contact with their state's/county's child protective system. We were interested in comparing children who were fatally maltreated with children who were non-fatally maltreated. Substantiation for maltreatment and maltreatment death are both variables in the dataset. Thus, we selected a subsample of the data file which included all cases that were substantiated for maltreatment and/or were victims of fatal maltreatment. (Fifty cases had been investigated for maltreatment prior to their death and not substantiated, which prevented us from selecting all cases with substantiations.) We were left with a final sample of 682,694; 0.2% ($n = 1,262$) of this sample experienced a CMF and had prior contact with their state's/county's child protective system. The NCANDS dataset is no different from other social service datasets (Bellamy, 2008) in that it has missing data. In order to examine the services received by victims and their families, we further reduced the data file. Previous research indicates that 30–50% of CMF victims had former contact with child welfare services (Anderson et al., 1983; Beveridge, 1994; Damashek et al., 2013), thus a large proportion of the cases in this data file would presumably not have had the opportunity to receive child welfare services because they would have been unknown to the child welfare system. Therefore, in order to examine receipt of services, we constrained the file to include only those cases where the child was a former victim. This further reduced the sample to 202,465.

The fatality data is limited in two additional ways. One, only deaths that had been ruled maltreatment fatalities are included in this dataset; cases that were pending or under investigation are not included. Two, in order to ensure confidentiality, several of the identifiers are masked in the fatality cases: state, county, report ID, child ID, and perpetrator ID (National Data Archive on Child Abuse and Neglect, 2011) and thus, could not be used in the analyses.

Measures

We selected variables in the dataset which would allow us to describe children who die from maltreatment. We identified four groups of variables: (a) child demographic, (b) perpetrator demographic, (c) child social/behavioral characteristics, and (d) caretaker social/behavioral characteristics. With the exception of two variables (child and parentage), all are dichotomous (*yes, no*). In instances where a third option was available (i.e., *unable to determine*), we coded the data as missing.

Child demographic characteristics. In order to assess children's demographic characteristics, we included the following pre-existing variables from the dataset: child age; child gender; child's race/ethnicity (including variables for American Indian/Alaska Native, Asian, Black/African American, Hawaiian/Pacific Islander, White, and Latino/Hispanic); and living arrangement – which we used to create dummy variables for (a) both parents, (b) parent and parent's partner/spouse, and (c) single parent.

Perpetrator demographic characteristics. To assess the primary perpetrator's demographic characteristics, we included these variables: perpetrator age, gender, and relationship of the perpetrator to the child victim. There was too much missing data to include information about race or ethnicity. In order to include the relationship of the perpetrator to the child, we created dummy variables from the relationship of the perpetrator to the child victim to create (a) biological parent, (b) step-parent, (c) parent's partner, and (d) relative (non-foster parent).

Child social/behavioral characteristics. We included variables that measured the child's social/behavioral characteristics in the analyses: prior maltreatment victimization, child alcohol abuse, child drug abuse, mental retardation, emotionally disturbed, behavior problems, other known medical problem and disability status—visual, learning, and physical.

Caretaker social/behavioral characteristics. We included the following social/behavioral characteristics of the principal caretaker(s) of the children: alcohol abuse, drug abuse, mental retardation, emotionally disturbed, visually/hearing impaired, learning disability, physical disability, other medical condition, presence of domestic violence in the home, inadequate housing, financial problems, and receiving public assistance such as Temporary Assistance for Needy Families.

Services. We included the following variables that measured receipt of services by child or family member: family support, family preservation, foster care, court-appointed representative, adoption services, case management, counseling, daycare, educational and training services, employment services, family planning, health-related and home health services, home-based services, housing services, information and referral services, legal services, mental health services, pregnancy and parenting services, respite care, special services—disabled, substance abuse services, and transportation.

Analyses

Most of the variables were dichotomous; thus, we used chi-square analysis to test if there were differences between fatal and non-fatal maltreatment. The age of the victim and the caregiver were continuous; we used independent samples *t*-test analysis on these variables.

Results

Chi-square and *t*-test analyses identified significant differences for seven variables related to child demographics; four variables related to child social, behavioral, and health characteristics; four variables related to caretaker/family characteristics; four variables related to perpetrator demographics (see Table 1); and nine variables related to services received (see Table 2).

Differences in characteristics between fatal and non-fatal maltreatment victims and their families

Child demographics. Table 1 shows that children who died from maltreatment were younger than those who did not die from maltreatment ($p < .000$). Fatality was more common among males ($p < .000$) and children identified as Black/African American ($p < .000$) and less common among children identified as White ($p = .046$) or Hispanic ($p = .004$). Victims were more likely to live with both parents ($p = .042$) and less likely to live with a single parent ($p = .003$). Conducting multiple bivariate analyses leaves one susceptible to the *multiple comparison fallacy*, which increases the risk for Type I errors. Thus, Table 1 notes that when the Šidák correction method is employed, the only child demographic characteristics with a statistically significant relationship to fatalities are: age, sex, and being African American/Black.

Child social, behavioral, and health characteristics. Children who were prior victims of maltreatment were less likely to suffer a fatality ($p < .000$), as were children who were emotionally disturbed ($p < .000$), had a learning disability ($p = .001$), or had a behavior problem ($p < .000$). Employment of the Šidák correction method does not change any of these findings.

Perpetrator demographics. Table 1 also shows that fatality victims had younger perpetrators ($p < .000$). Perpetrators were also more likely to be the birth parent ($p = .036$), the parent's unmarried partner ($p = .007$), and less likely to be a step-parent ($p = .049$). When the Šidák correction method is employed, the only variable that remains statistically significantly related to fatal maltreatment is perpetrator age.

Family/caregiver characteristics. As shown in Table 1, there were significant differences for physically disabled caretaker, domestic violence, inadequate housing, and financial problems. CMF victims were more likely to have families with housing ($p = .009$) and financial problems ($p = .001$). At the same time, fatal victims were less likely to have physically disabled caretakers ($p = .045$) or to live in a household with domestic violence ($p < .000$). When the Šidák correction method is employed, the caretaker disability status and having housing problems no longer remain statistically significantly related to fatal maltreatment.

Differences in receipt of services between fatal and non-fatal maltreatment victims and their families

Table 2 shows that families where children died from maltreatment were less likely than those of children who did not die from maltreatment to have received the following services: family support ($p = .025$), foster care ($p < .000$), court-appointed representatives ($p = .001$), case management ($p < .000$), counseling ($p = .04$), education and training ($p = .005$), information and referral ($p = .051$), mental health services ($p = .016$), and substance abuse services ($p = .016$). When the Šidák correction

Table 1

Results of chi-square/*t*-test analyses to test differences between fatal and non-fatal maltreatment, among all children substantiated for maltreatment.

Variables	Total sample (%/mean)	Non-fatal maltreatment (%/mean)	Fatal maltreatment (%/mean)	χ^2/t	<i>p</i> ^a
<i>Child demographic characteristics</i>					
Child age at report	6.85	6.84	2.30	11.095	.000
Child sex-male	48.7	48.8	60.3	66.022	.000
Child race-American Indian or Alaska Native	2.2	1.3	1.6	.909	.340
Child race-Asian	1.4	1.0	1.4	1.688	.194
Child race-Black or African American	26.5	28.6	34.9	23.179	.000
Child race-Hawaiian or Other Pacific Islander	0.4	0.4	0.2	1.657	.198 ^b
Child race-White	62.9	66.8	64.1	3.972	.046
Child Ethnicity	28.1	25.0	21.0	8.420	.004
Child-military Family Member	0.9	0.8	0.6	.162	.687
Living arrangement-both parents	43.2	45.4	50.0	4.131	.042
Living arrangement-parent and parent's partner	15.9	18.0	20.8	2.728	.099
Living arrangement-single parent	31.3	28.4	22.4	9.039	.003
<i>Child social, behavioral, health characteristics</i>					
Child-prior victim of maltreatment	31.2	33.0	17.5	127.664	.000
Child-alcohol abuse	1.2	0.5	0.6	.061	.804 ^b
Child-drug abuse	3.2	1.7	1.2	1.001	.317
Child-mental retardation	0.6	0.4	0.2	.550	.458 ^b
Child-emotionally disturbed	3.2	2.3	0.2	16.545	.000
Child-visually or hearing impaired	0.7	0.5	0.0	3.914	.048 ^b
Child-learning disability	1.7	1.3	0.0	10.933	.001
Child-physically disabled	0.9	0.7	0.2	3.132	.077
Child-behavior problem	4.3	3.6	0.6	20.539	.000
Child-other medical condition	5.7	2.9	2.8	.062	.803
<i>Perpetrator demographic characteristics</i>					
Perpetrator age at report	32.88	32.76	29.50	42.480	.000
Perpetrator sex-male	40.2	39.8	40.3	.102	.749
Relationship to child-birth parent	95.3	95.6	97.2	4.386	.036
Relationship to child-step-parent	4.0	3.8	2.5	3.866	.049
Relationship to child-unmarried parent's partner	3.9	3.1	4.5	7.221	.007
Relationship to child-other relative	5.9	6.3	6.2	.010	.919
<i>Caretaker/family characteristics</i>					
Caretaker(s)-alcohol abuse	9.5	8.3	6.5	3.054	.081
Caretaker(s)-drug abuse	16.2	15.0	13.1	2.015	.156
Caretaker(s)-mental retardation	0.7	0.7	0.8	.066	.798
Caretaker(s)-emotionally disturbed	6.7	6.7	6.4	.057	.811
Caretaker(s)-visually or hearing impaired	0.4	0.4	0.2	.684	.408
Caretaker(s)-learning disability	2.1	2.0	2.4	.584	.445
Caretaker(s)-physically disabled	1.2	1.1	0.3	4.011	.045 ^b
Caretaker(s)-other medical condition	3.1	2.9	2.5	.486	.486
Domestic violence	24.6	23.9	17.4	24.172	.000
Inadequate housing	29.4	24.9	28.7	6.860	.009
Financial problem	30.1	25.5	30.3	10.678	.001
Public assistance	29.5	26.2	27.4	.497	.481

^a If calculated using the Šidák correction method to address the multiple comparison fallacy and thus, reduce the likelihood of Type I errors, these comparisons would be judged statistically significant if $p \leq .001$ (Hamilton, 2009).

^b At least 1 cell had a count of less than 5; significance testing is not reliable.

method is employed, the variables that remain statistically significantly related to fatal maltreatment are: family support, foster care, court-appointed representative, and case management.

Discussion

We used a large scale, national data set to compare victim and family characteristics, and receipt of services among maltreatment victims who suffered a fatality with those who did not suffer a fatality. By using NCANDS data we were able to explore characteristics which have not been routinely examined (Author Citation), including service characteristics.

Findings in keeping with the literature

Many of our findings from this study were in keeping with the literature, especially in regard to demographic characteristics of victim and family. Boys were more likely to be victims of fatalities, as were younger children, and children who were identified as Black/African American. These findings are consistent with previous research which has found that boys (Kunz & Bahr, 1996; U.S. Department of Health & Human Services, 2011), very young children (Kajese et al., 2011), and some

Table 2

Results of Chi-square/*t*-test analyses to test differences in receipt of services between fatal and non-fatal maltreatment, among children who were prior victims of maltreatment.

Variables	Total sample (%/Mean)	Non-fatal maltreatment (%/mean)	Fatal maltreatment (%/mean)	χ^2/t	<i>p</i> ^a
Family support	10.2	9.4	3.7	4.994	.025
Family preservation	15.9	14.2	11.5	.833	.361
Foster Care	33.2	30.4	8.6	33.844	.000
Court-appointed representative	18.6	11.9	1.0	11.694	.001
Adoption services	3.1	1.9	0.7	1.197	.274 ^b
Case management	39.8	27.4	14.8	12.363	.000
Counseling	15.3	16.3	10.0	4.198	.040
Day care	3.9	3.2	3.7	.141	.707 ^b
Education and training	5.0	5.1	0.0	7.883	.005
Employment	0.5	0.5	0.7	.122	.726 ^b
Family planning	0.5	0.6	0.0	.718	.397 ^b
Health-related and home health	3.4	3.4	1.3	1.997	.158
Home-based services	5.1	5.2	2.0	2.975	.085
Housing services	1.8	1.5	0.0	2.333	.127 ^b
Information and referral		13.1	7.4	3.796	.051
Legal services	1.2	1.2	2.2	1.264	.261 ^b
Mental health services	9.5	9.7	3.3	7.036	.008
Pregnancy and parenting services	2.0	2.3	0.6	2.013	.156 ^b
Respite care	2.1	2.0	0.8	1.091	.296 ^b
Special services-disabled	2.6	1.2	0.9	.057	.811 ^b
Substance abuse services	7.3	7.3	2.1	5.813	.016
Transportation services	3.5	2.9	2.2	.220	.639 ^b

^a If calculated using the Šidák correction method to address the multiple comparison fallacy and thus, reduce the likelihood of Type I errors, these comparisons would be judged statistically significant if $p \leq .002$ (Hamilton, 2009).

^b At least 1 cell had a count of less than 5; significance testing is not reliable.

racial minorities (Herman-Giddens et al., 2003; Kunz & Bahr, 1996; U.S. Department of Health & Human Services, 2011) are at an elevated risk for fatal maltreatment. In instances where children died, the perpetrator was determined to be younger than in instances where the children did not die. This finding is also consistent with previous research, which has found that perpetrators of CMFs tend to be in young adulthood (Herman-Giddens et al., 2003; Kunz & Bahr, 1996). Children who live with a single parent were at a decreased risk for fatality, as compared with those in other living arrangements. This difference was small (less than 5%), but statistically significant. Two studies of child deaths from all causes in Missouri found that children living with a single parent were not at an increased risk for death (Schnitzer & Ewigman, 2008; Stiffman et al., 2002), which is consistent with the conclusions from this article.

In regard to both child and caretaker/family social, behavioral, and health characteristics, our results indicate that there is an increased risk of CMFs in caretaker/family situations where there is inadequate housing. This finding is somewhat consistent with previous literature. One comparative study of fatal and non-fatal maltreatment found that dangerous physical conditions of the home or having a recent change in household composition are linked to fatal maltreatment, which could be similar to our variable which assessed family problems with housing (Chance & Scannapieco, 2002).

Findings in disagreement with standing literature

There were several victim and family characteristics which were inconsistent with the literature. For example, we found that families which experienced a CMF were more likely to have financial problems. This is inconsistent with the standing literature, which has found that among a comparative sample of fatal and non-fatal maltreatment among child welfare clients, families with higher levels of income were less likely to experience a fatality (Chance & Scannapieco, 2002). We also found that children who were designated as prior victims were *less likely* to die from maltreatment. This finding is inconsistent with the literature, which has shown through analyses of state-level child welfare and child fatality review data that 30–50% of children who die of maltreatment were previously known to a child welfare agency (Anderson et al., 1983; Beveridge, 1994; Damashek et al., 2013; Wang & Daro, 1998). Other research has found no difference in previous victimization among children who die from maltreatment, compared with children who do die from maltreatment (Chance & Scannapieco, 2002). Clearly, this is an area ripe for future analysis and investigation, both with the NCANDS data source and with other sources of information.

We also found that children with emotional and behavioral problems were *less likely* to become a victim of fatal maltreatment. This is inconsistent with the literature which has shown that in some circumstances, among families working with child welfare services, children with behavioral problems are more likely to be fatally victimized (Chance & Scannapieco, 2002; Graham et al., 2010). It is also inconsistent with research which has documented that parents who kill their children often describe their children as being difficult to handle, disrespectful, uncooperative, and inconsolable (Korbin, 1987). It is possible that this finding is an artifact of the NCANDS dataset. Many of the children who died from maltreatment came to the

attention of child welfare services after their death; it is possible that insufficient information was collected on these victims. Child behavior and parent perception of their children is another area which deserves more attention from researchers.

We found that the presence of domestic violence decreased risk for CMF. [Graham and colleagues \(2010\)](#) found that having a caretaker who was aggressive increased risk for fatal maltreatment among families already working with child welfare services, which might be related to the presence of domestic violence in the home. Another study of child welfare clients did not find a relationship between domestic violence and fatality, however ([Chance & Scannapieco, 2002](#)). We also found that living with both birth parents slightly increases risk for CMF, which is inconsistent with research which has found that among deceased children, those who live with non-family members are 10 times more likely to become CMF victims than children who live with two biological parents ([Stiffman et al., 2002](#)). Household composition is an area which deserves concentrated attention in terms of determining risk for children.

New contributions to the literature

Previous research has shown that families that experience a CMF do not use very many services. For example, one study (Author Citation) found that among families that had children die only 14–35% were using services; further, 40% had been referred for services but were not using them very regularly. This research was purely descriptive in nature, with no comparison group. A study comparing fatal and non-fatal maltreatment found that families that experienced a fatality were less likely to utilize foster care, but were just as compliant with child welfare services as non-fatality families ([Chance & Scannapieco, 2002](#)). Otherwise, no other literature has examined the use of services among families where a child has died from maltreatment. Thus, our analyses add new information in this area.

We found that fatality families were less likely to use a multitude of services: family supports, foster care, court appointed representatives, case management, counseling, education and training, information and referral assistance, mental health services, and mental health services. Child fatality review teams often review the deaths of children to identify gaps in services that may have contributed to a child's death ([Durfee, Parra, & Alexander, 2009](#); [Webster, Schnitzer, Jenny, Ewigman, & Alario, 2003](#)). A comprehensive analysis of recommendations of child fatality review teams found that teams commonly recommended changes in risk assessment, which would likely result in different service recommendations (Author Citation). Further, it is possible that a family could be substantiated for maltreatment, but then refuse to meet with child welfare professionals or deny opportunities to receive services ([Gustavsson & MacEachron, 2002](#); [O'Hare, 1996](#); [Shemmings, Shemmings, & Cook, 2012](#)). That said, as noted, one study did find that failure to work with child protective services was not a risk factor for fatality ([Chance & Scannapieco, 2002](#)).

This article also makes a new contribution in the areas of child and parent disability status as a potential risk factor for fatal maltreatment. Research has shown that children with a disability are at an increased risk for maltreatment ([Mazzucchelli & Sanders, 2011](#); [Murphy, 2011](#)) and that there is a high proportion of children involved with child welfare services who have a disability ([Lightfoot, Hill, & LaLiberte, 2011](#)). A modest level of research has shown that under some conditions, parents with a disability are at an increased risk for maltreating their children ([McGaw, Scully, & Pritchard, 2010](#)). A recent review of the literature, however, indicates that the link between child and/or parent disability status and maltreatment is inconclusive ([Leeb, Bitsko, Merrick, & Armour, 2012](#)). Others urge researchers to include disability status in research on child maltreatment ([Kendall-Tackett, Lyon, Taliaferro, & Little, 2005](#)), as we did. We found that child learning disability and parent physical disability were less likely to be associated with a fatal outcome. There were no other differences between groups based on disability status and fatality. Future studies should explore the relationship between ability status and fatal outcomes for children among child welfare populations.

Limitations

This article has several limitations. One, the data were archival. As such, we did not have expansive measures of many of the variables and most are categorical. Two, the National Data Archive of Child Abuse and Neglect states that the NCANDS dataset is not a statistically representative sample of maltreated children in the United States but that results are similar to those found in studies using national data ([National Data Archive on Child Abuse and Neglect, n.d.](#)). Three, the child fatality data reported in the child file are those that have come to the attention of child welfare services and been processed by the end of the fiscal year; NCANDS does not have a complete census of all CMFs in the United States. Four, the dataset masks state data for reasons of confidentiality. Thus, we were not able to examine regional/state characteristics or victimization rates. Five, for the variables measuring service use, the NCANDS dataset simply notes whether or not services were provided ([National Data Archive on Child Abuse and Neglect, 2011](#)) and does not assess the extent to which families actually used the services provided/arrangement/managed by child welfare services. Six, some of the relationships that were statistically significant were small, (for example, perpetrator relationship to child varies by less than 2%). Thus, statistical significance alone does not imply the magnitude or importance of the finding. Seven, the analyses performed in this article are at the bivariate level and it is likely that many of the statistically significant relationships would become insignificant in the face of a multivariate model. We used a bivariate approach because it is the first time that many of the characteristics in this study have been considered with regard to fatalities. We hope that our set of analyses will be a stepping stone toward using more advanced statistical procedures. On a related note, in order to control for the potential multiple comparison fallacy, we provided the results with the Šidák correction method. Regardless of these limitations, the dataset contains important

information about children involved with the child welfare system, their families, and the services that they receive. It also provides an opportunity to compare fatal and non-fatal child maltreatment, something which has not been routinely examined by the literature (Author Citation). Finally, for more than 10 years, the NCANDS data has been routinely used by researchers to better understand families involved with the child welfare system (Connell, Bergeron, Katz, Saunders, & Tebes, 2007; Fluke, Yuan, & Edwards, 1999; Knott & Donovan, 2010; Palusci, Smith, & Paneth, 2005).

Conclusion and implications for child welfare research and practice

This article provides important new information for child welfare researchers and practitioners. For child welfare researchers, the set of analyses presented in this article explore many new areas that deserve to be re-examined with NCANDS data from additional years and from other sources of data. The areas of research which do not have definitive results include family's socioeconomic level, prior child victimization, and child behavioral and emotional problems. New areas of research which are ripe for replication include child and parent disability status and the use of services as a potential protective factor against CMF.

For child welfare practitioners, this article provides information about risk factors for fatal maltreatment. We confirmed some of the previous research concerning the age, gender and race/ethnicity of children as risk factors. Perhaps the most important contribution of this article is the finding that families which do not use services are more likely to have a child die. Using this data set, we cannot determine whether families were offered services and turned them down, or were never offered services at all. But, it is important to note that family use of social services in a variety of areas, including counseling, substance abuse treatment, case management, and lower-profile services including legal representation, education/training, and information referral, appears to be a protective factor against fatality. In other words, when in doubt, provide services. It may be that the services are truly useful or that they keep the child visible in the community and thus, maltreatment will be less likely to go unrecognized.

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