

Contextual predictors of child fatality and near fatality cases due to abuse and neglect

Antonio R. Garcia^{1,2}  | Nneka Ibekwe-Okafor³ | Sarah Wasch⁴  | Minseop Kim⁵

¹University of Kentucky College of Social Work, Lexington, Kentucky, USA

²Center on Trauma and Children, University of Kentucky College of Medicine, Lexington, Kentucky, USA

³Center on the Ecology of Early Development, Wheelock College of Education & Human Development, Boston University, Boston, Massachusetts, USA

⁴The Field Center for Children's Policy, Practice & Research, University of Pennsylvania, Philadelphia, Pennsylvania, USA

⁵Department of Social Work, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Correspondence

Antonio R. Garcia, University of Kentucky College of Social Work, 655 Patterson Office Tower, Lexington, KY 40506, USA.

Email: antonio.garcia@uky.edu

Abstract

Little is known about what factors predict fatality and near fatality (NF) involving child maltreatment and if predictors differ between them. Analyses of cases in 2017 and 2018 in one Mid-Atlantic state revealed that prior child welfare history and prevalence of risk factors, such as substance abuse, mental illness, interpersonal violence, chronic abuse, incarceration, sibling injuries, and unstable housing did not differ between fatality and NF cases. Logistic regression revealed fatalities decreased by 78% if victims received Emergency Room treatment. Findings underscore the need to train providers about risk factors and to develop interventions that increase utilisation of medical services.

KEYWORDS

child abuse, child protection, social services

INTRODUCTION

One of the most unfortunate outcomes child welfare agencies contend with is child fatalities. Despite recent initiatives to promote child safety and prevent fatalities, such as home visiting programmes, nurse-family partnerships, mandated reporter training, and enhanced social worker training (CDSS, 2015; Child Welfare Information Gateway, 2020; TDFPS (Texas Department of Family and Protective Services), 2019), 1770 children died from abuse or neglect in federal fiscal year (FFY) 2018. This is a slight increase from 1720 during FFY 2017 and over 10 percent more than the FFY 2014 number of 1590. This translates to a rate of 2.39 children per 100 000 children

in the general population and an average of nearly 5 children whose lives end prematurely from abuse or neglect each day (UDHHS, 2020). The rising number of fatalities in recent years justifies the need to identify and address contextual barriers and organisational incapacity to reduce occurrences of child fatalities. To that end, a Mid-Atlantic state child welfare system collaborated with a university affiliated research centre (referred to herein as 'The Centre') to review records of near fatality and fatality cases. The state's policy stipulates child welfare agencies must investigate all child deaths or near deaths when child abuse is suspected by mandated reporters, such as medical professionals, teachers, and daycare staff.

As part of a collaborative agreement with the state, researchers from The Centre reviewed these case reports dated 2017 and 2018 to expose systemic and structural manifestations that thwart child welfare agency workers' ability to detect and/or mitigate risk factors for child fatalities. As in this case, the inclusion of a near fatality group offers us an unparalleled opportunity to illuminate factors that are specific to occurrences of fatalities and near fatalities. Are there red flags observed in near fatality cases that if detected and addressed may prevent fatalities? Are there malleable strength-based conditions in near fatality case profiles to capitalise on during the case planning process? Findings across and between both groups are likely to inform recommendations for not only identifying and reducing risk factors to promote child safety but also how best to support agency workers and leaders to manage, prevent, and respond to fatality and near fatality cases.

Risk profiles

Over the past 20 years, scholars identified case characteristics and risk profiles that are typically observed in child fatality cases. They include a young child's age (under one year), substance abuse, domestic violence, criminal justice involvement, parental mental health concerns, bed sharing between children and parents, prior child protective service (CPS) reports, early parenthood, and residing with unrelated adults (Brewster et al., 1998; Byard, 2015; Damashek et al., 2013; Douglas, 2013; Douglas & Mohn, 2014; Jonson-Reid et al., 2007; Lucas et al., 2002; McClain et al., 1993; U.S. Department of Health & Human Services, 2020; Yampolskaya et al., 2009). However, little is known about the extent to which fatality and near fatality cases may differ. Existing studies typically merge the two groups to analyse a larger sample (Brandon et al., 2014; Pierce et al., 2017; Whitt-Woosley et al., 2014), rendering it difficult to tease out any statistically significant differences between the two groups.

Prior studies of fatalities and near fatalities

A 2017 review of 20 cases (10 fatal and 10 near fatal cases) involving children younger than 4 years old from Kentucky found the following commonalities among the cases: psychosocial risk factors (100%), traumatic brain injury (90%), bruising (80%), fractures (35%), male caregiver at the time of the fatal or near fatal event (70%) and prior unexplained bruising (50%) (Pierce et al., 2017). The small sample size, however, rendered it impossible to identify risk factors. Similarly, in a 2014 study, Brandon et al. (2014) combined cases of fatalities and near fatalities in England. Researchers examined 46 cases that had undergone a Serious Case Review for child death or serious injury related to maltreatment. Very few cases overall presented clear signs of catastrophic harm, making it hard to differentiate which cases will involve a fatality versus a

near fatality (Brandon et al., 2014). In a more robust study, Whitt-Woosley et al. (2014) compared 50 cases of fatal and near fatal child maltreatment to a random sample of 50 comparison cases of non-life threatening, but moderate to high-risk child abuse or neglect cases. They found that while the groups did not differ on the number of prior reports of abuse or neglect, the fatal group had (1) a 24% higher rate of historical violence (2) fewer children in the home than the non-fatal group. Overall, studies that compare the characteristics of cases where children died to cases where children experienced a near fatality are largely absent. We intend to address this gap, by examining all cases of fatality and near fatality cases over a two-year time period.

Grey literature

We turn to the grey literature (i.e., technical reports released by the states) to gain more insight into potential differences in risk profiles between fatality and near fatality cases. Two of the top five largest state child welfare systems in the country—California (CDSS, 2015) and Texas (TDFPS, 2019)—released a report in which they examined all deaths attributed to child maltreatment. In Texas, there were 211 fatality cases, and 83 near fatality cases in 2018 while California reported 104 fatality cases and 80 near fatality cases in 2015. Over half (56%) of the fatalities in Texas were attributed to neglect (e.g., drowning, unsafe sleep, and physical and medical neglect), followed by physical abuse (44%). Most of the physical abuse cases involved blunt force and intentional trauma. In California, blunt force trauma was the leading cause of death, followed by asphyxiation, abusive head trauma, and drowning. Non-fatality cases involved abusive head trauma, blunt force trauma, medical neglect, and ingested substances.

Young age (under 3 for Texas, under 1 and ages 1–4 for California), race/ethnicity (Black and Hispanic in Texas and Black in California), substance abuse, parental mental health concerns, domestic violence, and prior CPS contact were cited as risk factors for fatality and non-fatality occurrences in both states. While Texas reported that history of maltreatment and a child having special needs or medical concerns increased risk, housing instability (i.e., unsafe home conditions, homelessness, overcrowding, frequent moves) in California presented as a red flag. Unlike California, Texas highlighted protective factors that may mitigate the risk of occurrences, including family and friend support systems and parenting skills, and school and day care enrollment. Finally, while Texas found no key differences in profiles between fatality and non-fatality cases, California reported that housing instability was more pervasive among fatality cases. In the same report, California reportedly detected more occurrences of medical neglect and ingested substances among non-fatality cases, suggesting that timely medical intervention may have played a key role in preventing fatalities.

While Texas and California included all cases in which a child died due to maltreatment, we limited our sample to those youth who were known to CPS, meaning that either the case (1) was open at the time of the incident or (2) was open for investigation due to alleged maltreatment and subsequently closed before fatality or near fatality incident. There is a noticeable gap in the literature on child fatalities specifically addressing cases that are already known to child protective services. Moreover, there is little information available on the existing cases and services received, or not received, by families where children eventually die because of maltreatment. Douglas (2013) attempted to address this gap by surveying 135 child welfare caseworkers who experienced a child fatality on their caseload while working on an active case. The data revealed that most children who died had been seen recently by a case worker; on average, children had been seen just over one week before the child's death, and over 85% reported seeing the child

within the last month. A central focus on youth known to child welfare will provide child welfare case managers, leaders, and scholars with findings that are applicable to children and families with prior CPS history.

Local context

The Mid-Atlantic state in this study also holds one of the largest child welfare systems in the country, with over 16 000 children in out-of-home care each year since 2015 (Kids Count Data, 2020). Over the past few years, the state has seen an increasing number of child fatalities, thereby increasing leaders' urgency to understand potential causes and risk profiles of child fatalities. In 2018, 45 fatalities were reported, up significantly from 34 in 2014. (U.S. Department of Health & Human Services, 2020).

Research aims

Acknowledging the upward trend in fatality cases, The Centre relied upon fatality and near fatality case summaries to address the following aims: (1) illuminate contextual patterns, risk factors, and protective factors related to fatality and near fatality cases, (2) identify what, if any, variables are consistent or inconsistent with fatality and near fatality cases, and (3) rely upon findings to propose specific policies, practices, and organisational procedures to support workers and leaders in their efforts to prevent manage, and respond to child fatalities and near fatalities.

METHODS

Data

The state child welfare system provided the researchers with access to all child fatality and near fatality case reports in 2017 and 2018. These data were collected and entered by state agency workers after conducting a review of child welfare case records, inclusive of official documents, like death certificates, hospital summaries, and police reports, and interviewing caseworkers assigned to the case.

Procedures

The lead researcher along with The Centre's research team individually reviewed ten reports to identify core themes and categories, relying upon Conventional Content Analysis (CCA). Rather than delineate preconceived hypotheses, researchers using CCA rely upon textual data to highlight a phenomenon that are under-researched or not well understood (Hsieh & Shannon; 2005; Kondracki et al., 2002; Morse & Field, 1995). Following CCA procedures, we individually read the transcripts to generate initial codes of an emerging phenomenon. Afterwards, we each identified and grouped initial codes into categories, based upon common ideas, actions or phenomena, using Microsoft Excel. This process involved classifying inter-related open codes into the same clusters. Next, we labelled each cluster as a theme, reflecting an overarching concept of these categories.

After we reached consensus on the identification and labelling of data from the first ten reports, the second and third authors coded the remaining reports, adding additional codes and categories as needed. To increase rigour, the lead researcher reviewed ten percent of the remaining cases and did not detect discrepancies, other than the choice of wording. We convened several times between January and August 2020 to reach consensus on the selection and precise labelling of final categories and themes.

Measures

The final list of categories and themes is outlined in [Table 1](#). During the coding process, we maintained a record of how many times each category emerged across all case reports. Themes and categories (in parentheses) include child characteristics (age and gender of child, disability, prescribed medications, mental illness), type of injuries (head trauma, bruising on face/body, haemorrhage), perpetrator characteristics (named and substantiated perpetrator, relationship to child), prior child welfare history, family risk factors (e.g., substance use, mental illness, interpersonal violence) system response (emergency transportation by police or parent, paediatrics or residents), last contact with the victim, hospital findings, and criminal charges related to the fatality or near fatality, and cause of death or near death. Refer to [Table 1](#) for a complete list of categories within each theme.

Analyses

Based upon category tabulations, we conducted descriptive analyses and bivariate (Chi-Square) tests to compare case characteristics between fatalities and near fatalities for all cases in 2017 and 2018 and to examine differences between 2017 and 2018. We relied upon Fisher's exact test for variables with small cells. Finally, we conducted logistic regression (Allison, 2012) to examine the association between predictors and the dichotomous dependent variable (i.e., "fatality (1)" vs. "near fatality (0)"). The regression analyses allowed us to (1) observe the unique impact of subcategories within each theme on the dependent variable and (2) determine if the significant predictors at the bivariate level are still significant, even after controlling for other factors or subcategories related to each theme that emerged during the case record reviews. Prior to the regression analyses, we examined bivariate correlations and variation inflation factors (VIFs) of the predictors and found that there was little evidence of potential multicollinearity. The University Institutional Review Board (IRB) approved this study.

RESULTS

The purpose of the study was to illuminate patterns, risk factors, and protective factors related to fatality and near fatality cases and utilise the findings from this study to make specific recommendations to inform policy and practice to prevent child fatalities. The major themes, as reported in [Table 1](#), include child characteristics, type of injuries, perpetrator characteristics, prior child welfare history, family risk factors, system response, last contact with victim, hospital findings, and criminal charges. These themes reflect the major data elements we could ascertain for each case record.

TABLE 1 Characteristics of fatalities and near fatalities ($N = 197$)

	Total n (%)	Fatality 77 (39%)	Near fatality 120 (61%)	Diff
Child characteristics				
Age				
Infant–17 months	102 (51.8)	41 (53.2)	61 (50.8)	
18 months–Older	95 (48.2)	36 (46.8)	59 (49.2)	
Gender				
Male	111 (56.3)	40 (51.9)	71 (59.2)	
Female	86 (43.7)	37 (48.1)	49 (40.8)	
Disability (yes)	23 (11.7)	4 (5.2)	19 (15.8)	*
Medications (yes)	18 (9.1)	3 (3.9)	15 (12.5)	*
Mental illness (yes)	6 (3)	3 (3.9)	3 (3.9)	
Type of Injuries				
Head trauma (yes)	64 (32.5)	19 (24.7)	45 (37.5)	
Bruising on face/body (yes)	69 (35.2)	25 (32.5)	44 (37)	
Hemorrhage (yes)	51 (26)	15 (19.5)	36 (30.3)	
Perpetrator characteristics				
Named perpetrator (yes)	180 (92.8)	71 (93.4)	109 (92.4)	
Substantiated perpetrator	141 (81)	57 (89.1)	84 (76.4)	*
Perpetrator relationship to child				
Mom and/or Dad	118 (65.2)	42 (59.2)	76 (69.1)	
Paramour involved (may include mom)	34 (18.8)	16 (22.5)	18 (16.4)	
Other perp not otherwise listed	29 (16)	13 (18.3)	16 (14.5)	
Confession (yes)	37 (19.5)	12 (16.7)	25 (21.2)	
Prior child welfare history				
Prior child welfare history				
No	1 (0.5)	1 (1.3)	0 (0)	
Yes and substantiated	136 (69)	51 (66.2)	85 (70.8)	
Yes but unfounded	60 (30.5)	25 (32.5)	35 (29.2)	
Prior CW history (state)				
In state?	173 (90.6)	68 (90.7)	105 (90.5)	
Out of state?	6 (3.1)	2 (2.7)	4 (3.4)	
Both?	12 (6.3)	5 (6.7)	7 (6)	
Prior foster care placement				
Yes	15 (7.6)	2 (2.6)	13 (10.8)	
No	175 (88.8)	73 (94.8)	102 (85)	
Siblings placed but not victim	7 (3.6)	2 (2.6)	5 (4.2)	
History with other systems (yes)	15 (7.6)	4 (5.2)	11 (9.2)	
Family risk factors				

(Continues)

TABLE 1 (Continued)

	Total <i>n</i> (%)	Fatality 77 (39%)	Near fatality 120 (61%)	Diff
Substance abuse	117 (60)	43 (55.8)	74 (62.7)	
Mental illness	48 (24.4)	15 (19.5)	33 (27.5)	
Interpersonal violence	56 (28.6)	22 (28.9)	34 (28.3)	
Pattern of chronic abuse	43 (22.1)	16 (20.8)	27 (22.9)	
Parental incarceration	43 (21.8)	19 (24.7)	24 (20)	
Sibling physical injury	39 (20.2)	15 (19.7)	24 (20.5)	
Lack of stable housing	45 (23)	16 (20.8)	29 (24.4)	
System response				
ER	152 (79.6)	52 (70.3)	100 (85.5)	*
Transport by police	106 (58.9)	50 (68.5)	56 (52.3)	*
Transport by parent	58 (32)	8 (10.8)	50 (46.7)	**
Other (pediatrics and residents)	14 (7.2)	3 (3.9)	11 (9.3)	
Last contact with victim				
Mom	130 (66.7)	49 (64.5)	81 (68.1)	
Dad	80 (41)	26 (34.2)	54 (45.4)	
Other adult	74 (37.8)	29 (38.2)	45 (37.5)	
School	0 (0)	0 (0)	0 (0)	
Daycare	0 (0)	0 (0)	0 (0)	
Hospital finding - toxic medications				
Hospital finding - toxic medications	29 (14.7)	8 (10.4)	21 (17.5)	
Criminal charges				
Mom charged	53 (27.5)	24 (32)	29 (24.6)	
Dad charged	38 (19.7)	10 (13.3)	28 (23.7)	
Other adult charged	45 (23.2)	22 (28.9)	23 (19.5)	

* $p < 0.05$; ** $p < 0.001$.

Case outcomes

There were 197 cases in 2017 and 2018, with 39% of those cases ($n = 77$) documented as fatalities. The remaining cases ($n = 120$, 61%) were near fatalities (see Table 1). In Table 2, we disaggregated the cases by year and found that of the 93 cases in 2017, nearly 38% ($n = 35$) of the cases involved a fatality, whereas 62% ($n = 58$) were near fatalities. In 2018, 40% of the 104 cases involved a fatality.

Characteristics of child victims

As reported in Table 1, of 197 child victims, 56.3% were male and 51.8% were 17 months old or less. Most of the victims did not have a physical or intellectual disability (88.3%). While one out of nine (9.1%) were on prescribed medications, only six (or less than 5%) were diagnosed with a

TABLE 2 Fatalities and near fatalities in 2017 and 2018

	2017 (N = 93)		2018 (N = 104)		Diff
	Fatalities (n = 35, 37.6%)	Near fatalities (n = 58, 62.4%)	Fatalities (n = 42, 40.38%)	Near fatalities (n = 62, 59.62%)	
Child characteristics					
Age					
Infant—17 months	17 (48.6)	28 (48.3)	24 (57.1)	33 (53.2)	
18 months—Older	18 (51.4)	30 (51.7)	18 (42.9)	29 (46.8)	
Gender					
Male	18 (51.4)	38 (65.5)	22 (52.4)	33 (53.2)	
Female	17 (48.6)	20 (34.5)	20 (47.6)	29 (46.8)	
Disability (yes)	1 (2.9)	2 (3.4)	3 (7.1)	17 (27.4)	**
Medications (yes)	2 (5.7)	11 (19)	1 (2.4)	4 (6.5)	
Mental illness (yes)	0 (0)	3 (5.2)	1 (2.4)	2 (3.2)	
Type of injuries					
Head trauma (yes)	12 (34.3)	21 (36.2)	7 (16.7)	24 (38.7)	*
Bruising on face/body (yes)	13 (37.1)	25 (43.1)	12 (28.6)	19 (31.1)	
Hemorrhage (yes)	7 (20)	14 (24.1)	8 (19)	22 (36.1)	
Perpetrator characteristics					
Named perpetrator (yes)	31 (88.6)	51 (87.9)	40 (97.6)	58 (96.7)	
Substantiated perpetrator	27 (81.8)	30 (54.5)	30 (96.8)	54 (98.2)	**
Perpetrator relationship to child					
Mom and/or Dad	21 (67.7)	37 (72.5)	21 (52.5)	39 (66.1)	
Paramour involved (may include mom)	5 (16.1)	7 (13.7)	11 (27.5)	11 (18.6)	
Other perp not otherwise listed	5 (16.1)	7 (13.7)	8 (20)	9 (15.3)	
Confession (yes)	3 (9.4)	11 (19.6)	9 (22.5)	14 (22.6)	

(Continues)

TABLE 2 (Continued)

	2017 (N = 93)		2018 (N = 104)		Diff
	Fatalities (n = 35, 37.6%)	Near fatalities (n = 58, 62.4%)	Fatalities (n = 42, 40.38%)	Near fatalities (n = 62, 59.62%)	
Prior child welfare history					
Prior child welfare history					
No	1 (2.9)	0 (0)	0 (0)	0 (0)	
Yes and substantiated	32 (91.4)	49 (84.5)	19 (45.2)	36 (58.1)	
Yes but unfounded	2 (5.7)	9 (15.5)	23 (54.8)	26 (41.9)	
Prior CW history (state)					
In state?	32 (97)	52 (96.3)	36 (85.7)	53 (85.5)	
Out of state?	1 (3)	2 (3.7)	1 (2.4)	2 (3.2)	
Both?	0 (0)	0 (0)	5 (11.9)	7 (11.3)	
Prior foster care placement					
Yes	1 (2.9)	4 (6.9)	1 (2.4)	9 (14.5)	
No	34 (97.1)	54 (93.1)	39 (92.9)	48 (77.4)	
Siblings placed but not victim	0 (0)	0 (0)	2 (4.8)	5 (8.1)	
History with other systems (yes)	0 (0)	2 (3.4)	4 (9.5)	9 (14.5)	
Family risk factors					
Substance abuse	16 (45.7)	35 (62.5)	27 (64.3)	39 (62.9)	
Mental illness	7 (20)	16 (27.6)	8 (19)	17 (27.4)	
Interpersonal violence	12 (34.3)	12 (20.7)	10 (24.4)	22 (35.5)	
Pattern of chronic abuse	14 (40)	18 (31)	2 (4.8)	9 (15)	
Parental incarceration	13 (37.1)	17 (29.3)	6 (14.3)	7 (11.3)	
Sibling physical injury	13 (37.1)	15 (25.9)	2 (4.9)	9 (15.3)	
Lack of stable housing	8 (22.9)	16 (28.1)	8 (19)	13 (21)	

TABLE 2 (Continued)

	2017 (N = 93)		2018 (N = 104)		Diff
	Fatalities (n = 35, 37.6%)	Near fatalities (n = 58, 62.4%)	Fatalities (n = 42, 40.38%)	Near fatalities (n = 62, 59.62%)	
System response					
ER	23 (71.9)	41 (73.2)	29 (69)	59 (96.7)	***
Transport by police	24 (75)	28 (50.9)	26 (63.4)	28 (53.8)	*
Transport by parent	5 (15.2)	23 (41.8)	3 (7.3)	27 (51.9)	**
Other (pediatrics and residents)	0 (0)	9 (16.1)	3 (7.1)	2 (3.2)	*
Last contact with victim					
Mom	23 (65.7)	41 (70.7)	26 (63.4)	40 (65.6)	
Dad	13 (37.1)	24 (41.4)	13 (31.7)	30 (49.2)	
Other adult	11 (31.4)	24 (41.4)	18 (43.9)	21 (33.9)	
School	0 (0)	0 (0)	0 (0)	0 (0)	
Daycare	0 (0)	0 (0)	0 (0)	0 (0)	
Hospital finding - toxic medications					
Hospital finding - toxic medications	3 (8.6)	9 (15.5)	5 (11.9)	12 (19.4)	
Criminal charges					
Mom charged	14 (42.4)	14 (24.6)	10 (23.8)	15 (24.6)	
Dad charged	7 (21.2)	13 (22.8)	3 (7.1)	15 (24.6)	*
Other adult charged	9 (26.5)	14 (24.6)	13 (31)	9 (14.8)	*

*p < .05; **p < .01; ***p < .001.

mental illness. These six individuals were between the ages of 13–21. Child victims were reported to experience head trauma (32.5%), bruising on the face or body (35.2%), and haemorrhage (26%).

Perpetrator characteristics

Most perpetrators were named (92.8%, $n = 180$) and/or substantiated (81.0%, $n = 141$) in the investigation. With respect to their relationship with child victims, more than half were parents (65.2%, $n = 118$), followed by the parents' paramours (18.8%, $n = 34$) and others (16.0%, $n = 29$). Around 20% ($n = 37$) of suspects or perpetrators confessed their illegal acts.

Prior child welfare history and family risk factors

Prior to the fatality and near fatality incident, most of the child victims had significant child welfare involvement. Although roughly 70% of the cases of prior child welfare involvement were substantiated (69%, $n = 136$), most child victims or their siblings did not have prior placement in foster care (88%, $n = 175$). At the time of the incident, most of the child victims lived with family members or household members who had substance use history (60%, $n = 117$), a quarter lived with family members having mental illness (24.4%, $n = 48$), interpersonal violence (28.6%, $n = 56$), and/or who had a history of chronic (or recurring) maltreatment (22.1%, $n = 43$). Around one-fifth lived in families where parents had experienced incarceration (21.8%, $n = 43$). Over 20% ($n = 39$) lived with siblings who were physically injured, and 23% ($n = 45$) lived in families without stable housing.

Other systemic and contextual factors

About 80% ($n = 152$) of child victims were brought to Emergency Room (ER). Just over half of all child victims were transported to ER by police (58.9%, $n = 106$), one-third were transported by their parents (32%, $n = 58$), while some of the victims received help from others, such as nearby residents or paediatricians (7.2%, $n = 14$). The last contact with child victims was mostly made by mothers alone or with others (66.7%, $n = 130$), 41% ($n = 80$) of the last contacts were made by fathers alone or with others, and 37.8% ($n = 74$) were made by other adults alone or with others. Mothers were charged in 27.5% ($n = 53$) of cases, followed by fathers (19.7%, $n = 38$) and/or other adults (23.2%, $n = 45$), albeit it should be noted that other adults committed most of the serious offences (endangering welfare of a child, aggravated assault, homicide, murder). Nearly 15% ($n = 29$) of child victims consumed toxic medications or illegal substances, according to hospital examination. The three most prominent causes of fatalities or near fatalities were (1) violence act (of the 92 violence acts, 37 resulted in a child fatality), (2) ingestion—lack of supervision (of the 38 incidents of ingestion, 8 resulted in a fatality), and (3) delay/failure to provide medical care for an illness or injury (of these 19 incidents, 3 resulted in a fatality). We did not include *cause of death*, in our final regression models for two main reasons. First, other causes of death listed in the reports, such as gunshots, asphyxiation, and medical complications, primarily apply to fatality cases. On the other hand, failure to provide medical care, malnutrition, and lack of supervision disproportionately applied to near fatality cases. Thus, including these variables in the model would

lead to a complete or quasi-complete separation, or a process by which a linear combination of the predictors yields a perfect or near perfect prediction of the dependent variable. In turn, convergence failures in logistic regression are observed in these cases (Allison, 2012). Second, our regression models are intended to distinguish what factors or circumstances are consistent or inconsistent with a fatality or near fatality *before* these incidents occur. Thus, *causes of death* is not within the scope of the aims.

Bivariate results: Differences between fatality and near fatality groups

In Table 1, we also highlight differences in characteristics and experiences between the fatality and near fatality group. Compared to the non-fatal group, children in the fatal group were less likely to have disability (5.2% vs. 15.8%) and take prescribed medications for physical or mental health issues (3.9% vs. 12.5%). Chi-squared test and Fisher's exact test confirmed that the differences were statistically significant ($p < .05$ for disability; $p < .05$ for medication). There was a significantly larger proportion of substantiated perpetrators for the incident in the fatal group (89.1%), relative to the non-fatal group (76.4%; $p < .05$). The use of Emergency Room service was significantly less frequent for the fatal group (70.3%), relative to the non-fatal group (85.5%; $p < .05$). Moreover, the proportion of children transported to the Emergency Room by police was significantly larger in the fatal group (68.5%), in comparison to the non-fatal group (52.3%; $p < .05$). Conversely, a much lower percentage of children transported to the Emergency Room by their parents were found for the fatal group (10.8%), in comparison to the non-fatal group (46.7%; $p < .001$).

Table 2 spells out differences between 2017 and 2018. There are only five significant differences to report, including (1) child disability, (2) head traumas, (3) substantiated perpetrators, (4) system response (transport by ER, police, parent or other), and (5) criminal charges (i.e., if the father or another adult were charged for the offence).

Logistic regression findings

Given the small sample size (relative to the number of predictors), a stepwise approach was taken (See Table 3). That is, we ran a series of regression models in which categories related to one major theme were examined at a time. In the first step, for example, we entered all the child characteristics (i.e., age, gender, disability, medications, and mental illness), while the second and third regression examined 'Types of Injuries' and 'Perpetrator Characteristics', respectively, as predictors. The final model included *only significant predictors* ($p < .05$) in previous regression models. Results showed that whether they used Emergency Room services was a significant predictor of a child fatality ($b = -1.50$, $p < .01$). Specifically, the odds of fatality decreased by 78% if the child victim received Emergency Room treatment. In addition, the odds of fatality decreased by nearly 86% if the injured child was transported to the Emergency Room by a parent versus those who were not transported by a parent.

DISCUSSION

The current study provides an in-depth description of the characteristics of child victims, perpetrators, and prior involvement in the child welfare system in efforts to identify patterns of risk

TABLE 3 Regression results ($N = 158$)

Year (ref: 2017)	Predictors with sig. <.05 were selected				
	<i>b</i>	SE	OR	95% CI of OR	
Child characteristics					
Age of child (ref: Infant–17 months)					
Gender (ref: male)					
Disability (ref: No)	−1.00	0.66	0.37	0.10	1.33
Medications (ref: No)					
Mental illness (ref: No)					
Type of injuries					
Head trauma (ref: No)					
Bruising on face/body (ref: No)					
Hemorrhage (ref: No)					
Perpetrator characteristics					
Named perpetrator (ref: No)					
Substantiated perpetrator (ref: No)	0.88	0.51	2.41	0.89	6.48
Perpetrator relationship to child (ref: Mom and/or Dad)					
Paramour involved (may include mom)					
Other/Multiple perp not otherwise listed					
Confession (ref: No)					
Prior child welfare history (ref: Yes but unfounded)					
Prior CW history (state) (ref: In state of Pennsylvania)					
Out of state					
Both					
Prior foster care placement (ref: No)					
Yes					
Siblings placed but not victim					
History with other systems (ref: No)					
Family risk factors					
Substance abuse (ref: No)					
Mental illness (ref: No)					
Interpersonal violence (ref: No)					
Pattern of chronic abuse (ref: No)					
Parental incarceration (ref: No)					

TABLE 3 (Continued)

Year (ref: 2017)	Predictors with sig. <.05 were selected					
	<i>b</i>		SE	OR	95% CI of OR	
Sibling physical injury (ref: No)						
Lack of stable housing (ref: No)						
System response						
ER (ref: No)	-1.50	**	0.48	0.22	0.09	0.57
Transport by police (ref: No)						
Transport by parent (ref: No)	-1.95	***	0.49	0.14	0.06	0.37
Other (ref: No)	-1.27		0.78	0.28	0.06	1.29
Last contact with victim						
Mom (ref: No)						
Dad (ref: No)						
Other adult (ref: No)						
Hospital finding - toxic medications (ref: No)						
Criminal charges						
Mom charged (ref: No)						
Dad charged (ref: No)						
Other adult charged (ref: No)						
Intercept	0.65		0.61			
AIC	183.79					
SC or BIC	202.16					

* $p < .05$; ** $p < .01$; *** $p < .001$.

OR, odds ratio; CI, confidence interval.

and protective factors related to fatality and near fatality cases. The child victim demographics described in this study are consistent with national data suggesting that victimisation rates are highest among children between the ages 0 and 2 years of age (regardless of gender) and those with prior child welfare involvement (U.S. Department of Health & Human Services, 2020). Similar to national trends, findings showed that more than half of the perpetrators (60%) were parents of the victims who had or were living with family members who had a substance use problem. Additionally, risk factors such as living in households with known cases of domestic or interpersonal violence (28.9% in the fatality group and 28.3% in the NF group) and inadequate housing (20.8% in the fatality group and 24.4% in the NF group) were identified in the fatality and NF groups. The consistency in child victim and perpetrator demographics in this study (state-level) with national data support the need to provide preventative services specifically for families with young children already known to CPS agencies for risk factors such as substance use, domestic violence, and inadequate housing. Furthermore, this study also highlights new areas of enquiry. For instance, a quarter of child victims in this study lived with family members with at least one mental illness, one-fifth lived in families where parents had experienced incarceration, and roughly 20% lived with siblings that were physically injured before. These findings add to the growing conversation of potential risk factors and early intervention opportunities.

Preventative interventions that work with families in a holistic manner beginning from birth have the potential to reduce stigma and prevent later tragedies. For instance, preventative services such as universal home visiting programmes can enhance child health and safety and reduce health inequalities and stigma often associated with receiving services. For example, the United Kingdom implemented a proactive and universal Health Visitors service that provides a minimum of five home visits from late pregnancy through to a developmental assessment at 2 years for all children born in the United Kingdom (IHV, 2019). This service provides personalised attention to every child born in the country and can generate referrals to more specialised services. Similarly, 'Hello Baby' is a new prevention programme in the Mid-Atlantic state that is unaffiliated with child protective services but offers universal services to all families with a baby born at any hospital in the county. Services are available through the child's third birthday (Hello Baby, n.d.).

A report released by the U.S. Children's Bureau in 2020 revealed that among all 1770 child fatalities attributable to child maltreatment in 2018, those under the age of three were more likely to experience a fatality than those in older age groups. While the current study found no differences by age, it is imperative to recall that we dichotomised "age" into two groups (infant-17 months vs. 18 months or older) to retain adequate sample sizes for the fatality and NF groups. Thus, findings between our study and the 2020 report could vary due to sample size. Likewise, while this study recorded no differences in fatality cases by gender, the same 2020 report cites that boys (2.87 per 100 000) are more likely than girls (2.19 per 100 000) to experience a fatality (U.S. Department of Health & Human Services, 2020).

Adding to the dearth of information about the characteristics of fatality and NF cases, the current study showed that compared to the non-fatal group, children in the fatal group were less likely to have disabilities and take prescribed medications. While these bivariate findings were not detected in our regression analyses, findings still provide some support for assessing the presence (or absence) of these indicators. Regression analyses, however, revealed victims' odds of survival increased if transported to the Emergency Room by a parent. These specific indicators provide insight into opportunities for preventative interventions. For instance, caseworkers may want to offer additional supports and services if they learn during their investigation or family assessment that the child is taking medications or grappling with a disability. Early risk indicators are especially helpful for caseworkers that are managing several different cases. It serves as a reminder and warning signal for possible factors that may increase the odds of fatal incidents for certain cases. Additionally, the finding that a parent who transports their child victim to the Emergency Room has implications for policy. Granted, in some cases, parents who inflict injuries may not initiate medical intervention. In other cases, children may not be in extremis and thus, transporting them to the ER may increase the odds of survival. Nonetheless, policymakers could develop policies and protocol for service providers across systems of care (child welfare, behavioural health, medical/health systems, schools) to encourage caregivers to rely upon ER room services rather than discourage them because of financial or legal repercussions. Relatedly, Woodman and colleagues' (2011) study revealed that children who died or were maltreated had an extensive history of medical/health care and school nurse contacts. To that end, gathering information about health care utilisation from medical systems and school contexts could help caseworkers identify patterns of injuries and remain vigilant about empowering providers and parents/caregivers to rely upon ER services to promote child safety.

Limitations

The findings from this study must be interpreted in light of its limitations. First, the small sample size introduces potential bias (increasing the margin of errors) and significantly limits the

statistical power and generalizability of the findings (Allison, 2012; Hackshaw, 2008). However, given the nature of the data (fatality and near fatality cases), the sample size used in this study is representative of all reported cases meeting criteria during a specific time frame (2017 and 2018), which is comparable to previous approaches in similar studies (Chance & Scannapieco, 2002). Additionally, the systematic approach utilised when applying logistic regression accounts for the small sample size relative to the number of predictors.

The use of administrative data also presents limitations as it relates to the reliability and accuracy of the data being reported. As noted in previous studies, the information recorded is often subjective information that reflects the individual caseworker's interpretation of the presenting risk factors (Chance & Scannapieco, 2002). Furthermore, this study is limited to those cases known to the Mid-Atlantic state and may not be reflective of all fatality and near fatality cases if the number of non-reported cases differs greatly in composition from the reported cases reviewed in this study. Finally, the results reported herein reflect a limited scope of what may have led up to the fatality or near fatality. Future research is needed to unpack the historical events and trajectories of these cases over time to further enhance our understanding of risk and protective factors. This might entail conducting interviews with families and service providers across systems of care who were formerly involved in these cases.

Future directions for practice and policy

The findings from this study suggest the need for additional training across multiple ecological systems. First, engaging parents in emergency response skills is paramount. Parents must be equipped with the capacity and skills to respond to life and death situations. By the time law enforcement or emergency medical personnel responds to an emergency, it may be too late to reverse a fatal or nearly fatal event. Basic first aid, CPR, or other topics should be regularly introduced to parents to assist with identifying and responding to emergencies. New parents must be informed about the location of services provided by the closest Emergency Room. Caseworkers and supervisors need additional training related to recognising and responding to the myriad risk factors observed in children or families. Essential topics that staff should regularly receive trainings on, while being introduced to emerging research and new evidence-based practices, include, at a minimum, domestic violence, substance use, mental health disorders, and child development.

Additionally, child welfare systems should regularly provide public education, aimed at empowering parents with information they need to keep their children safe. Case records show that five fatalities in our study resulted from unsafe sleep/co-sleeping. New York City's Administration for Children's Services launched an initiative to keep children safe by providing parents and the community with resources and information on preventing accidental child and infant injuries, safe sleep for babies, summer safety, and window guard safety (NYC Administration for Children's Services, n.d.). Additionally, ACS and the City of New York have developed a list of resources for those seeking assistance during the unprecedented COVID-19 pandemic, titled *Coping Through COVID-19* (NYC Administration for Children's Services, 2020). For example, many of the causal factors related to the fatality and near fatality cases identified in this study can be included in a public information campaign, including attention to a child's medical needs, the importance of child supervision, restricting access to drugs or medication, gun safety, and nutrition.

Finally, the challenges faced by parents experiencing myriad hardships or who are otherwise vulnerable go well beyond what can be addressed by the child welfare system alone. Ensuring

adequate basic income, employment and housing stability, safe and reliable childcare, and access to health and mental health care are the responsibilities of multiple agencies which must work in tandem to ensure that all children have the opportunities and resources required to survive and thrive in the twenty-first century. Child welfare system leaders must be strong advocates for enhanced public welfare on behalf of the children and families they serve.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study were made available from the state child welfare agency. Per confidentiality agreements, we are not allowed to release the data to the public.

ORCID

Antonio R. Garcia  <https://orcid.org/0000-0003-3458-0608>

Sarah Wasch  <https://orcid.org/0000-0003-2487-6392>

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AUTHOR BIOGRAPHIES

Antonio R. Garcia is an Associate Professor at the University of Kentucky College of Social Work, and Faculty Associate of the Center on Trauma and Children in the UK College of Medicine. His research is guided by his experiences as a former Child Protective Services Worker and Supervisor in Washington State. Having broad inter-disciplinary training in Psychology, Social Work, and Services Research, he is committed to using research evidence to effectively engage Black, Indigenous, Latino, and other People of Color (BILPOC) in culturally relevant, evidence-informed services and programs. In addition to examining their experiences of system involvement, he relies on the lived experiences of agency providers and leaders to inform the development of structural and systemic strategies that increase engagement in service provision to mitigate the effects of trauma exposures among BILPOC.

Nneka Ibekwe-Okafor is a Postdoctoral Associate in the Wheelock College of Education and Human Development at Boston University and a Teaching Fellow at Harvard University. She investigates the social and environmental determinants of children's academic development by examining how poverty, racial discrimination, structural inequalities, and educational inequities influence early learning outcomes and access to quality early care and education for racially marginalized learners (birth to kindergarten). She holds a Ph.D. in Human Development and Quantitative Methods from the University of Pennsylvania, Graduate School of Education, an Ed.M. from Harvard University in Prevention Science Research and an M.S.W. from Columbia University. In her undergraduate studies, Nneka majored in Sociology and African American Studies and was an NCAA Division I volleyball player at the University of California, Davis.

Sarah Wasch is the Field Center's Program Manager, coordinating a variety of Field Center projects and initiatives. She has held practice and advocacy roles in the child welfare and social services arena for nearly two decades. Sarah has supervised programs in numerous child and family-serving organizations, spanning residential treatment, foster care, and education.

Minseop Kim is an Assistant Professor at the Chinese University of Hong Kong, Department of Social work. His research areas include child/youth development, child maltreatment, and child care/protection system. He is also interested in the pattern of service utilization among children and youth involved in child welfare systems.

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