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Who's Watching the Children? Caregiver Features Associated with Physical Child Abuse vs Accidental Injury

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Abstract

Objectives—To compare caregiver features and caregiving arrangements of children with physical abuse versus accidental injuries.

Study design—Data came from a prospective, observational, multicenter study investigating bruising and psychosocial characteristics of children younger than 4 years of age. Using logistic regression, we examined how abuse vs accidental injury and severity of injury were associated with caregiver sex, relation to the child, whether caregiving arrangements were different than usual at the time of injury, and length of the main caregiver's relationship with his/her partner.

Results—Of 1,615 patients, 24% were determined to have been physically abused. Abuse was more likely when a male caregiver was present (OR = 3.31, [2.38, 4.62). When the male was the boyfriend of the mother (or another female caregiver), the odds of abuse were very high (OR = 169.2 [61.3, 614.0]). Severe or fatal injuries were also more likely when a male caregiver was present. In contrast, abuse was substantially less likely when a female caregiver was present (OR = 0.25, [0.17, 0.37]) with the exception of a female babysitter (OR = 3.87 [2.15, 7.01]). Caregiving arrangements that were different than usual and caregiver relationships <1 year were also associated with an increased risk of abuse.

Conclusions—We identified caregiver features associated with physical abuse. In clinical practice, questions regarding caregiver features may improve recognition of the abused child. This information may also inform *future* abuse prevention strategies.

Keywords

Parent; Caregiver; physical abuse; accidents; childcare

Child physical abuse accounts for approximately 18% of nearly 700,000 substantiated cases of maltreatment each year in the United States and is disproportionally responsible for 44% of the ~1750 deaths.(1, 2) Males, particularly fathers and mothers' boyfriends, have been found to be frequent perpetrators in serious or fatal physical abuse cases, though specific features that heighten a child's risk for physical abuse are poorly understood.(3–15)

A better understanding of caregiver features and the circumstances that place a child at increased risk for physical abuse is critical in improving early recognition of abuse and informing future prevention strategies. However, current knowledge is limited to descriptions of caregivers in cohorts of abused children. No studies have prospectively evaluated caregiver features among children with abuse as well as those with accidental injuries. This has prevented comparative analyses between the 2 groups and limited generalizability of the findings.

Therefore, to fill this void, our study objective was to compare how rates of physical abuse (versus accidental injury) and injury severity varied by caregiver features such as sex and relationship to the child. Additionally, we sought to determine whether the caregiving arrangement was different than usual at the time of injury and whether the child's main adult

caregiver was in a new relationship. Through a better understanding of caregiving features that are associated with an increased risk of child physical abuse, screening for child abuse can be refined, evidence-informed clinical decisions can be made, prevention efforts can be focused on populations at greatest risk, and policies can be tailored accordingly.

Methods

The data used for this study were collected as part of a prospective, observational, multicenter study to refine and validate a Bruising Clinical Decision Rule (BCDR). Eligible children were less than 4 years of age, presented to a pediatric emergency department (PED), and had bruising identified by a previously described deliberate skin examination using a structured sampling approach to minimize bias.(16) Children who were in motor vehicle crashes were excluded, as these scenarios are not typically difficult to distinguish from child abuse. Children with previously diagnosed coagulation abnormalities or severe pre-existing neurological impairments were excluded as well, as these conditions may result in atypical bruising patterns that would not be generalizable to other populations. The study was conducted at 5 children's hospitals. Institutional Review Board approval was obtained at each site: Ann & Robert H. Lurie Children's Hospital of Chicago, University of Chicago Medicine Comer Children's Hospital, Cincinnati Children's Hospital Medical Center, Rady Children's Hospital, and Norton Children's Hospital. Study investigators enrolled children by informed parental consent unless the team providing treatment in the PED obtained a child abuse consultation, in which case waivers of authorization were allowed.

Physicians, social workers, and research team members collected detailed clinical and psychosocial information for each child using a standardized data collection tool and medical record abstraction. Clinical information included a detailed history, description of all injuries identified, Glasgow Coma Scale (GCS) score, hospital disposition, and whether a fatality resulted. Socially-focused questions were asked of the parents/caregivers regarding the following: caregiver(s) present at the time of injury (when known) and his/her relationship to the child, the family's usual childcare arrangements, and whether the childcare arrangement was different at the time of injury. We also asked whether the main caregiver was in a relationship at the time of enrollment, and if so, the length of that relationship. Relationship was defined as a period of dating or romantic involvement which did not necessitate co-habitation. "Boyfriend" was defined as a male in a romantic relationship with the child's mother, father, or another of the child's caregivers. A different caregiving arrangement was defined as a caregiver who had not watched the child in the past, or who was not usually responsible for the child during the time that the injury occurred (eg, a mother's boyfriend who watched a child while the mother was at work, rather than the child's usual daycare arrangement).

Case Classification

Each child's case was reviewed and classified by a 9-member medical expert panel (MEP) as abuse, accident, or indeterminate using predefined criteria. The MEP used history of presentation and injury data for case classification but were blinded to the social information (e.g. insurance type, job status, caregiver partner relationship length) and psychosocial risk

factor presence (e.g. family history of domestic violence, substance abuse, etc). The MEP was not blinded to who the caregiver was at the time of injury when this information was part of the history of presentation.(16) Enrollment of children and case classifications occurred from December 2011 through March 2016.

Data Analysis

We summarized case features, caregiver arrangements, and injury type (abuse, accident, indeterminate) with medians and ranges for quantitative variables and counts and percentages for categorical variables. We used 3 metrics to mark injury severity: abnormal GCS score, PICU admission, and death. Abnormal GCS scores were classified as mild/moderate (9–14) and severe (3–8).(17) We calculated adjusted odds ratios with 95% confidence intervals from logistic regression models with the presence of individual caregivers as factors to assess the relationships between types of caregivers and abuse. Associations among caregiving arrangements, type of caregiver, and abuse were summarized with counts and proportions estimated with 95% confidence intervals and compared with odds ratios and confidence intervals from logistic regression models. Caregiver relationship length was compared between cases of abuse and accident with the Wilcoxon rank sum test. All analyses were conducted in the open-source R software environment (R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/).

Results

Information on the caregiver at the time of injury was available for 1615 (75%) of the 2166 children enrolled in the BCDR study. In 511 of the 551 children (93%) excluded from this study, specific caregivers at the time of injury were not identifiable because the injuries to the child were typical childhood bruises (e.g. shin) and a definitive cause was unknown. In the remaining 40 excluded children, the parents denied a history of trauma and disclosed multiple caregivers over several days, precluding caregiver identification at the time of injury.

The MEP classified 75% of the1615 included children as accidents, 24% as abuse, and 2% as indeterminate (Table 1). The majority of children were male, white, and of non-Hispanic ethnicity. Children were covered by government and private insurance in roughly equal proportion. Most children were discharged to home. Abused children were significantly younger and significantly less likely to be white, Hispanic, covered by private insurance, and discharged to home ($p < .001$).

Caregivers at the Time of Injury

One caregiver was present at the time of injury for 1105 children (68%), 2 caregivers were present in 427 (26%), and 3 or more in 83 (5%). Children in the care of multiple caregivers at the time of injury were more likely to have been abused (147 of 510, 29%) than children watched by only 1 caregiver (235 of 1105, 21%, $p = .001$).

Female caregivers—Among all 1615 children, a female caregiver was present at the time of injury most often and was the lone caregiver for the majority of children (Table 2). The child's mother was the most common female and overall caregiver by a wide margin, present in 63% of all injury cases and lone caregiver in 36%. Despite females being the most common caregivers, the odds of abuse were substantially lower when a female caregiver was present (OR = 0.25, [0.17, 0.37]), and particularly when the mother was present (OR = 0.24 [0.16, 0.34]). Abuse was the cause of injury in only 10% of children in which a female was a lone caregiver and 8% in which the mother was the lone caregiver. In the majority of cases of abuse in which the mother was the caregiver, a male caregiver was also present (100/160, 63%) and, correspondingly, the proportion of abuse was higher when mothers were present with other males than when alone (Figure 1). Among other caregivers, abuse was significantly less likely when grandmothers and other females (e.g. aunts, cousins, or workers in licensed daycare centers) were present as caregivers, but significantly *more* likely when a female babysitter was present as the caregiver (OR = 3.87 [2.15, 7.01]).

Male caregivers—Males were less commonly present than females as caregivers, particularly as lone caregivers. The father was the most common male caregiver present and second most common overall caregiver. Abuse was more likely in the presence of a male caregiver (OR = 3.31 [2.38, 4.62]), including the father (OR = 2.72 [1.88, 3.93]). Boyfriends were caregivers at the time of injury for only 7% of children; most of the boyfriends were mothers' boyfriends (96/106), with the others being boyfriends of other female caregivers (3 grandmothers, 3 aunts, 1 cousin, 3 other). Despite boyfriends being the caregiver in a small number of cases, an alarmingly high proportion of cases in which a boyfriend was the caregiver at time of injury were abuse (94%) (OR = 169.2 [61.3, 614.0]). Abuse was particularly more likely when males were lone caregivers (58% vs 33% than with others) and when fathers were lone caregivers (49% vs 24% than with others).

Caregiving Arrangement and Relationship Length—The caregiving arrangement at the time of injury was the same as usual in 60% of all injury cases and different in 35% (caregiving arrangement was undocumented in 76 cases). Among the most common caregivers, arrangements were more likely to be different for fathers and boyfriends (Table 3, $P < .001$ [available at www.jpeds.com]). Abuse was significantly more likely when the caregiving arrangement was different (31% vs 15%, $p < .001$).

In 1176 cases (73%), the main caregiver reported a relationship with a partner, in 178 cases a relationship was denied, and in 261 cases relationship information was not documented. Lengths of relationships were significantly shorter in cases of abuse than in accident cases (median [Q1, Q3]: 2 years [0.8, 4.5] vs. 8 [5, 12]; $p < .001$). Abuse was found in 58 of 85 (68%) cases where the caregiver was in a relationship of less than 1 year, versus only 82 of 1091 (8%) cases where the caregiver was in a relationship of 1 year and longer ($p < .001$). Abuse was no more likely in cases in which the caregiver was not in a relationship (17%, 30/178) than in cases where the caregiver was in a relationship (12%, 141/1176; $p = .09$). Most cases with no relationship involved the mother as caregiver (114 cases, 64%).

Severity of Injury

There were 83 children with severe injuries (abnormal GCS, PICU admission, fatality), 64 (77%) of which were classified as abuse. Nearly all cases of severe injury in which fathers and boyfriends were present involved abuse, and for fatalities, the fathers and boyfriends were most commonly present as lone caregivers. Mothers were rarely present alone when severe abusive injuries occurred. Although only a few severe accidental injuries occurred, they most commonly occurred when the mother was present as caregiver (Figure 2).

Discussion

By comparing the caregiver features for children with abusive and accidental injury across all levels of acuity, our results identified 3 key findings associated with an increased risk of physical abuse: 1) a male caregiver or female babysitter at time of injury, 2) a caregiving arrangement that was “different” than usual at the time of injury, and 3) the main caregiver in a relatively new relationship of less than 1 year. Our findings highlight the importance of asking about the caregiver present at the time of injury as part of a medical history as certain caregivers portend a greater likelihood of abuse and injury severity, and the child’s safety may be at risk if sent home to an unsafe environment.

We found that mothers were overall the most common caregivers at the time of injury and were present for the greatest number of abuse and accident events, which is unsurprising given their greater relative time in a caregiving role. (18–21) However, when evaluating the proportions of abusive injuries sustained while under the care of mothers vs. fathers, the presence of the mother was protective, with lower likelihood of abuse occurrence (Figure 1). Conversely, a higher proportion of abusive injuries occurred when the father was present, particularly when alone. When boyfriends were the caregiver at the time of injury, they posed the greatest risk, with a striking 94% of all injuries sustained while under the care of boyfriends being due to abuse. A higher proportion of abusive injuries also occurred when children were under the care of female babysitters, second only to mother’s boyfriend in odds of abuse risk. Similar results to ours were reported by a 1995 study of perpetrators of abusive head trauma, where fathers (37%), mother’s boyfriends (20.5%), and female babysitters (17.3%) accounted for three quarters of all cases.(6) A more recent 2009 study found that infant homicides from assault were perpetrated mainly by men, 83%, who were most often the infant’s father or mother’s boyfriend.(15) Our proportion-based results enhance the existing literature by providing a comparison between abuse and accident cases across all levels of injury severity. This comparison provides the necessary context for understanding risk associated with caregiving features. We were surprised to find that abused children were frequently under the care of multiple caregivers at the time of injury vs with a lone caregiver. This finding challenges the assumption that abuse occurs most often when the child is home alone with the abuser. Future studies are warranted to better understand multi-caregiver presence and physical abuse.

Our study also explored the association between abuse, and relationship status and length, which was an existing gap in the literature. Shorter caregiver relationship lengths were associated with an increased risk of child abuse. The difference of less than 1 year and more than 1 year relationship lengths and rates of abuse was striking and merits further

prospective study to better understand this finding. It is possible that shorter relationships may reflect attachment or stability issues that could place the child at increased risk for abuse. We found that parents who were not in a relationship did not have increased odds of abuse compared with parents in a relationship. This is consistent with some studies on fatal maltreatment, which found that single parent homes were not at increased risk whereas those with unrelated males were.(8, 22, 23) However, other studies on physical abuse have found increased rates of abuse during maternal transitions to being single, and in children living in single parent households.(24–27)

Although clinicians have anecdotally noted that physical abuse may be perpetrated by a caregiver who is not usually responsible for the child, we are unaware of any studies that have evaluated the association between caregiver consistency (or inconsistency) and physical abuse. We found that “different” caregiving arrangements at the time of injury were associated with abuse and that fathers and mothers’ boyfriends were more likely to be part of a different caregiving arrangement. Examples of some “different” caregiving arrangements included a new boyfriend watching a child (sometimes only briefly), or a father or boyfriend providing childcare when the mother returned to work after maternity leave. It is possible that these caregivers may have been less familiar or comfortable with caring for the child, or had assumed childcare duties out of necessity rather than by choice. Future prevention strategies should educate parents that leaving their children in the care of people unfamiliar with the challenges of caregiving and the developmental capabilities of young children, even for brief periods of time, can be dangerous.

Finally, we found caregiver features associated with children whose injuries were more severe or fatal. Children with decreased GCS, PICU admissions, or fatal injuries were more likely to have been abused and frequently had male caregivers at the time of injury, with mother’s boyfriends being especially common. Other studies also found that abuse victims of male perpetrators had more serious presentations and suffered worse outcomes.(13, 28) Our findings are also consistent with previous studies that found infants cared for by non-relative caregivers suffered worse outcomes including higher mortality rates.(10, 28, 29)

Our findings have public health implications. Prevention efforts are frequently targeted to mothers despite male caregivers posing a greater risk of abuse when present and being associated with higher rates of severe or fatal physical abuse cases.(6, 7, 15) Many states have demonstrated a commitment to prevention of physical abuse. These efforts are most evident in legislation pertaining to “shaken baby syndrome” education. Currently, ~20 states have enacted laws mandating education on this topic, and 35 states offer “shaken baby prevention programs” per the 2009 CDC child maltreatment prevention report.(30, 31) However, mothers are the most common recipients of these services, as they are most accessible during perinatal hospital education sessions and well child visits.(32–34) Fathers and other male caregivers are also less likely to participate in other prevention efforts.(35–37) In addition, abuse may occur when children are left for short periods of time with adults that may not be considered true “caregivers” (for example, a child left in the care of the mother’s boyfriend while the mother runs errands). This type of caregiver may be the least likely to be thoughtfully screened by a parent and provided with education about normal child behavior and development. Studies spanning more than 20 years have called for abuse

prevention strategies to focus on the risk of abuse associated with male caregivers (fathers and mothers' boyfriends) and female babysitters.(6, 7, 12–15) Although exploring specific prevention strategies is beyond the scope of our study, our findings support this, as it is unlikely that abuse prevention programs will be successful until they fully engage these higher risk groups of caregivers.

There are limitations to this study. Although efforts were made to standardize the information gathering in both the abuse and accident groups by utilizing a research template, information was sometimes missing, and some variables were missing more commonly in cases of abuse, which could have impacted our results. Relationship length was asked regarding the child's main caregiver (the mother in most instances), regardless of whom the child was with at the time of injury. Further study may be warranted to focus specifically on the caregiver at the time of injury. Caregivers may have also misrepresented information, though the corroborating information that was obtained through various sources, including CPS and police, decreases the likelihood that caregiver information was incorrect. Finally, although the MEP was blinded to psychosocial risk factors present in the home, they were not blinded to caregiver type at the time of injury. It is possible that a bias toward believing that male caregivers abuse children more often may have affected the categorization of abuse versus accident and skewed results. Keenan et al found that negative descriptors of male caregivers increased physicians' perceived likelihood of abuse.(38) However, in our study, the many measurable differences between the accident and abuse groups and the blinding of other psychosocial details made it unlikely that a bias against male caregivers played a significant role. Furthermore, clinical measures and outcomes such as GCS or fatality are based on objective measures rather than reviewer opinion.

By comparing caregiver features from both abuse and accident cases, we identified key features associated with a higher risk of physical abuse, which highlight the importance of asking about caregivers at the time of injury. The presence of a male caregiver at the time of injury (especially a mother's boyfriend) was particularly risky and female babysitters also posed an increased risk. Other caregiving risk factors included caregiving arrangements that were different from usual and newer partner relationships. This information has the potential to inform future abuse prevention strategies by heightening awareness of these caregiving features associated with increased risk for abuse.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviations

BCDR	Bruising Clinical Decision Rule
GCS	Glasgow Coma Scale
MEP	Medical Expert Panel

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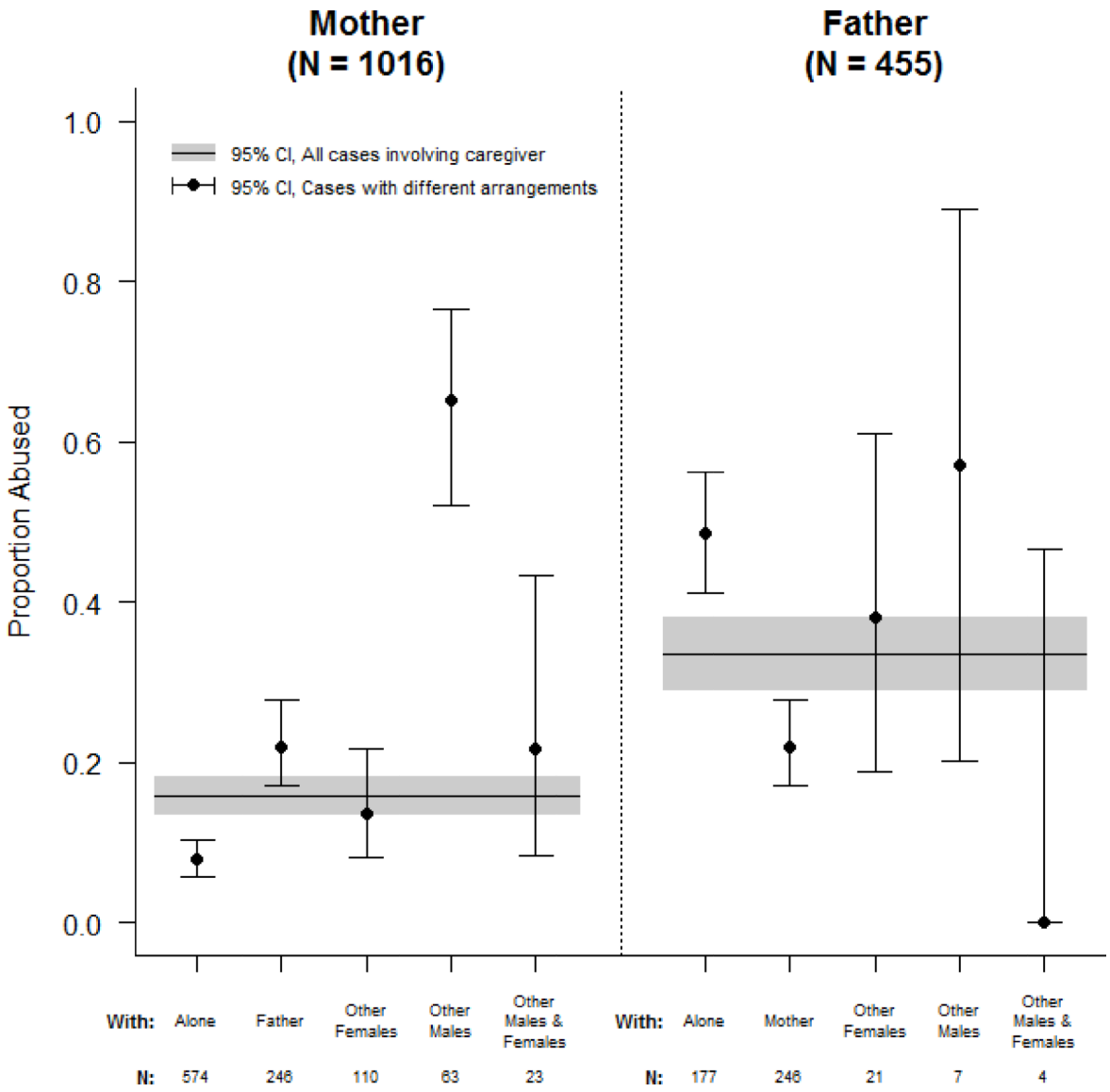

Figure 1.

Abuse proportions for caregiving arrangements involving mothers and fathers. Grey bands represent 95% confidence intervals for abuse proportions for all cases involving mothers or fathers. Plotted points and segments are point estimates, 95% confidence intervals for arrangements involving other caregivers.

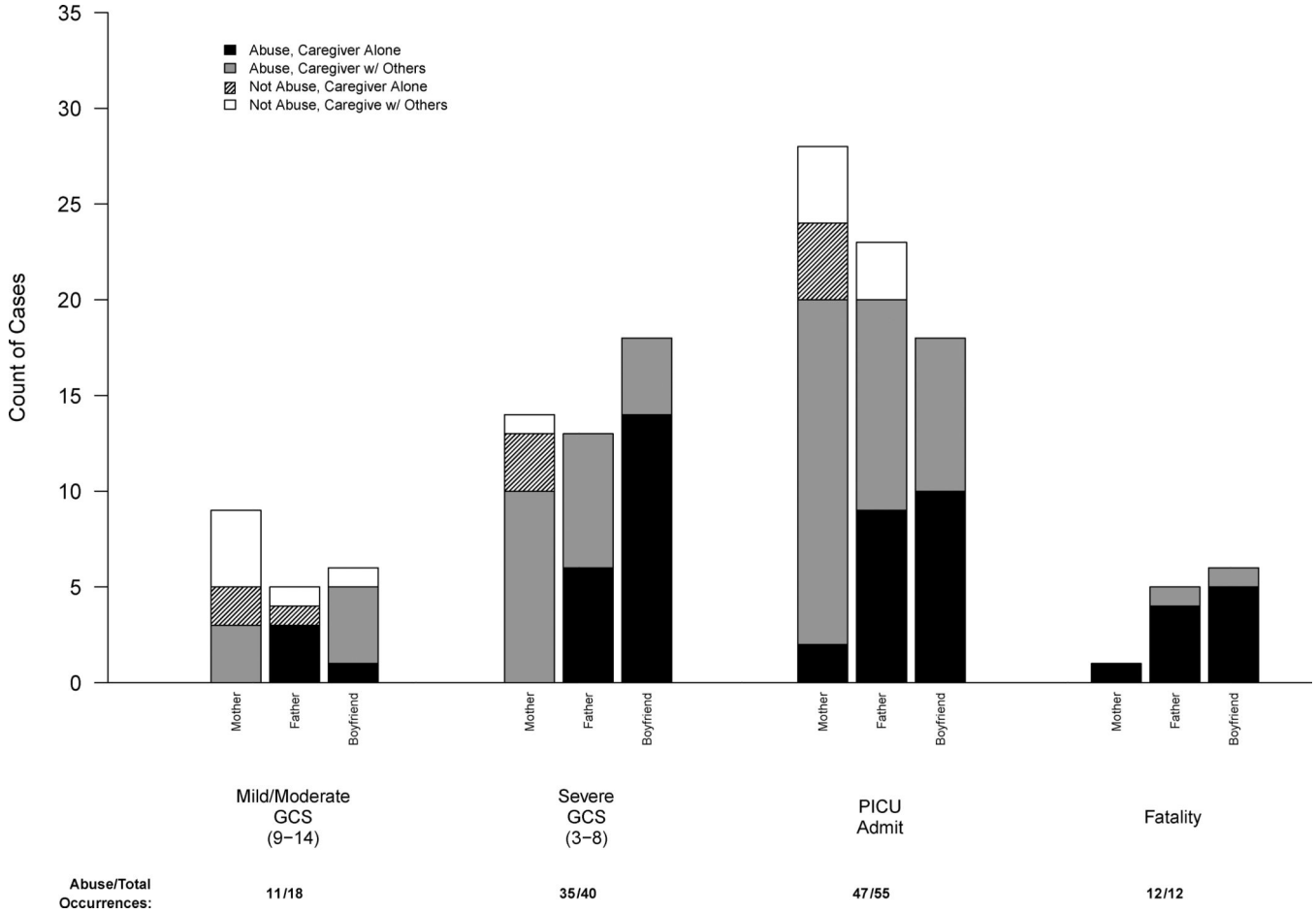

Figure 2.

Frequency statistics for mild/moderate, severe, and fatal injuries associated with mothers, fathers, and boyfriends as caregivers. Bar heights represent frequencies of particular caregivers for different classifications of severe injury. Shadings distinguish abuse and non-abuse cases and distinguishes single or multiple caregivers present at time of injury. Both the bar heights in the graph and the counts at the bottom of the figure are non-additive, as many cases involved multiple caregivers and severe injury types were often co-occurring.

Table 1:

Demographic features. Values are counts (%). 26 cases classified as “Indeterminate” with regard to abuse are not represented in either the abuse or accident columns but are included in the total count (“All” column) and accounted in the calculation of percentages.

Characteristic	All (N = 1615)	Abuse (N = 382)	Accident (N = 1207)	P-value
Age				< .001
0	320 (20%)	149 (39%)	166 (14%)	< .001
1	466 (29%)	79 (21%)	378 (31%)	
2	445 (28%)	90 (24%)	348 (29%)	
3	384 (24%)	64 (17%)	315 (26%)	
Male	973 (60%)	226 (59%)	732 (61%)	.65
White	1299 (80%)	283 (74%)	993 (82%)	< .001
Non-Hispanic/Latino	1196 (74%)	322 (84%)	854 (71%)	< .001
Insurance				< .001
Government	795 (49%)	279 (73%)	501 (42%)	
Private	756 (47%)	71 (19%)	676 (56%)	
None	50 (3%)	23 (6%)	25 (2%)	
Unknown	14 (1%)	9 (2%)	5 (0%)	
Disposition				< .001
Discharge to home	1238 (77%)	149 (39%)	1072 (89%)	
Admit to floor	210 (13%)	85 (22%)	121 (10%)	
Foster care	94 (6%)	89 (23%)	3 (0%)	
PICU	61 (4%)	47 (12%)	11 (1%)	
Death	12 (1%)	12 (3%)	0 (0%)	

Table 2.

Frequencies of caregivers by type, overall, when alone as caregiver, and when present with others as caregivers. Percentages in the columns labeled “All” are calculated out of the total sample size for this study (N = 1615) to highlight relative frequencies with which caregivers were present, alone, and with others as caregivers. Percentages in columns labeled “Abuse” and “Accident” are calculated out of the number of instances in which the caregiver was present, alone, or with others at the time of injury to highlight abuse and accident rates. The number in the column labeled “All” reflects the sum of shared caregiver type. Odds ratios for abuse derived from logistic regression model adjusting for age, race, ethnicity, and insurance status. Caregivers with insufficient sample size (< 50) were excluded from the logistic regression model. The 26 cases classified as “Indeterminate” are not represented in either the abuse or accident columns, but are included in the total count (“All” columns) and accounted in the calculation of percentages.

Caregiver	Present as Caregiver			Alone as Caregiver			Caregiver w/ Others Present			Adjusted OR for Abuse (95% CI)
	All N(%of 1615)	Abuse N (row %)	Accident N (row %)	All N(%of 1615)	Abuse N (row %)	Accident N (row %)	All N(%of 1615)	Abuse N (row %)	Accident N (row %)	
Females	1349 (84%)	226 (17%)	1105 (82%)	851 (53%)	88 (10%)	750 (88%)	498 (31%)	138 (28%)	355 (71%)	0.25 (0.17, 0.37)
Mother	1016 (63%)	160 (16%)	845 (83%)	574 (36%)	45 (8%)	521 (91%)	442 (27%)	115 (26%)	324 (73%)	0.24 (0.16, 0.34)
Other *	238 (15%)	25 (11%)	210 (88%)	148 (9%)	10 (7%)	137 (93%)	90 (6%)	15 (17%)	73 (81%)	0.33 (0.18, 0.58)
Grandmother	116 (7%)	13 (11%)	102 (88%)	38 (2%)	3 (8%)	34 (89%)	78 (5%)	10 (13%)	68 (87%)	0.34 (0.16, 0.68)
Babysitter	98 (6%)	43 (44%)	52 (53%)	68 (4%)	23 (34%)	42 (62%)	30 (2%)	20 (67%)	10 (33%)	3.87 (2.15, 7.01)
Aunt	60 (4%)	11 (18%)	48 (80%)	17 (1%)	2 (12%)	15 (88%)	43 (3%)	9 (21%)	33 (77%)	0.61 (0.26, 1.33)
Stepmother	8 (<1%)	7 (88%)	1 (12%)	3 (<1%)	3 (100%)	0 (0%)	5 (<1%)	4 (80%)	1 (20%)	-
Girlfriend	6 (<1%)	4 (67%)	2 (33%)	3 (<1%)	2 (67%)	1 (33%)	3 (<1%)	2 (67%)	1 (33%)	-
Males	645 (40%)	275 (43%)	358 (56%)	254 (16%)	147 (58%)	99 (39%)	391 (24%)	128 (33%)	259 (66%)	3.31 (2.38, 4.62)
Father	455 (28%)	152 (33%)	294 (65%)	177 (11%)	86 (49%)	85 (48%)	278 (17%)	66 (24%)	209 (75%)	2.72 (1.88, 3.93)
Boyfriend	106 (7%)	100 (94%)	4 (4%)	53 (3%)	50 (94%)	1 (2%)	53 (3%)	50 (94%)	3 (6%)	169.2 (61.3, 614.0)
Other *	50 (3%)	19 (38%)	30 (60%)	6 (<1%)	1 (17%)	5 (83%)	44 (3%)	18 (41%)	25 (57%)	2.16 (0.89, 4.99)
Grandfather	32 (2%)	3 (9%)	29 (91%)	4 (<1%)	1 (25%)	3 (75%)	28 (2%)	2 (7%)	26 (93%)	-
Uncle	25 (2%)	3 (12%)	22 (88%)	5 (<1%)	1 (20%)	4 (80%)	20 (1%)	2 (10%)	18 (90%)	-
Stepfather	11 (1%)	8 (73%)	3 (27%)	6 (<1%)	6 (100%)	0 (0%)	5 (<1%)	2 (40%)	3 (60%)	-
Babysitter	6 (<1%)	5 (83%)	1 (17%)	3 (<1%)	2 (67%)	1 (33%)	3 (<1%)	3 (100%)	0 (0%)	-

* “Other” male and female caregivers were largely cousins, siblings, family acquaintances/friends, and daycare workers.

Table 3 (Online Only).

Caregiving arrangements by abuse status for the most common caregivers. Cases with undocumented arrangements not represented. P-values from comparison of adjusted abuse rates between different and same arrangements. 26 cases classified as “Indeterminate” with regard to abuse are not represented in either the abuse or accident columns but are included in the total count (“All” columns) and accounted for in the calculation of percentages.

		Arrangement different than usual			Arrangement same as usual			
	Cases Present as Caregiver	All (% of caregiver N)	Abuse (row %)	Accident (row %)	All (% of caregiver N	Abuse (row %)	Accident (row %)	P-value Different vs. Same
Mother	967	364 (36%)	66 (18%)	296 (81%)	603 (59%)	58 (10%)	539 (89%)	< .001
Other Female	234	50 (21%)	14 (28%)	36 (72%)	184 (77%)	8 (4%)	174 (95%)	.002
Grandmother	113	43 (37%)	8 (19%)	34 (79%)	70 (60%)	4 (6%)	66 (94%)	.04
Babysitter	97	26 (27%)	13 (50%)	13 (50%)	71 (72%)	29 (41%)	39 (55%)	.80
Aunt	60	19 (32%)	6 (32%)	13 (68%)	41 (68%)	5 (12%)	35 (85%)	.04
Father	428	213 (47%)	74 (35%)	135 (63%)	215 (47%)	57 (27%)	155 (72%)	.02
Boyfriend	94	59 (56%)	58 (98%)	0 (0%)	35 (33%)	31 (89%)	4 (11%)	.99
Other Male	49	17 (34%)	14 (82%)	3 (18%)	32 (64%)	5 (16%)	27 (84%)	.99
Total	1539	572 (35%)	178 (31%)	386 (67%)	967 (60%)	147 (15%)	808 (84%)	< .001