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Child Protective Services-Investigated Maltreatment by Fathers:
Distinguishing Characteristics and Disparate Outcomes

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Executive Summary

Background

Child welfare systems in the United States have yet to effectively engage and leverage fathers as a potential resource for youth, despite legal mandates and research showing that fathers benefit child development. Barriers include difficulties with father engagement, the lack of appropriate interventions for fathers, gender bias, safety concerns for children who experience maltreatment by fathers, and co-occurring problems, such as intimate partner violence and parental substance use problems. This study advances the development of intervention in this area by first, identifying the distinguishing characteristics of maltreatment attributed to fathers and second, determining whether father perpetration is associated with disparate Child Protective Services (CPS) investigation outcomes.

Method

Secondary data analysis was conducted of the second National Survey of Child and Adolescent Well-being (NSCAW-II), a nationally representative study of children investigated for maltreatment by CPS. Two samples of children were drawn who were reported to CPS for physical abuse (n = 594) and neglect (n = 1,349) attributed to the mother alone, the father alone, or both mother and father. Study measures included caseworker-reported maltreatment characteristics (subtype, severity, number of co-occurring types), co-occurring risk factors (prior reports of maltreatment, parental substance use, parental mental health problems, intimate partner violence, and parental history of detention or arrest), and child demographics (race, ethnicity, gender, and age). Outcomes were level of caseworker-rated global risk (range: 1–5) and whether (*yes/no*) the CPS investigation resulted in services being provided or arranged, substantiation, out-of-home placement, criminal investigation, and criminal charges. ANOVAs and chi-square analyses were conducted to assess perpetrator group differences at the bivariate level. Multivariate linear and logistic regression analyses were then conducted to assess whether the individual to whom the maltreatment was attributed (i.e., the mother and/or father) was associated with investigation outcomes, controlling for maltreatment characteristics, co-occurring risk factors, and child demographics. Finally, interaction effects between perpetrator group and child demographics on investigation outcomes were examined: race X perpetrator, ethnicity X perpetrator, gender X perpetrator, and age X perpetrator.

Findings

Bivariate analyses indicated that mother and father co-perpetration was generally associated with the highest level of maltreatment risk. This included the highest level of severity (injury/harm), number of co-occurring maltreatment types, and co-occurrence of parental substance use, serious parental mental health problems, and intimate partner violence. In addition, children within the mother and father co-perpetrator group were the youngest, on average. Maltreatment attributed to father alone was generally comparable to that attributed to mother alone. Father-alone perpetration, however, was associated with less severe physical abuse behavior types and lower parental mental health problems. On the other hand, father-alone maltreatment was associated with higher co-occurring intimate partner violence than mother-alone maltreatment.

Regression analysis found that father-alone attribution was positively associated with criminal charges for both physical abuse and neglect. In addition, father involvement in neglect, alone and with mother, was associated with greater odds of criminal investigations.

Interaction effects were also found, indicating higher risk for criminal investigation and charges for father-alone perpetrated physical abuse when the child was Hispanic. Lower substantiation was found for father-alone neglect when the child was identified as a race other than White or Black (i.e., American Indian, Asian, other). Interaction effects involving age generally found higher CPS intervention for maltreatment involving fathers of younger children.

Specifically, mother and father co-responsibility for neglect was positively associated with substantiation and criminal charges when children were younger, relative to mother-alone neglect. Finally, gender X perpetrator interactions showed that mother and father neglect involving girls was associated with higher caseworker-rated risk and more services, but mother-alone neglect involving boys was associated with higher caseworker-rated risk and services.

Discussion

Findings show diversity in the risk of maltreatment attributed to fathers. In general, patterns of higher risk were identified where mothers and fathers together were indicated to be responsible, but not when father alone was indicated to be responsible. Findings suggest disparities in responses to CPS reports of maltreatment that disadvantage fathers, particularly in regard to the criminalization of maltreatment. A continuum of prevention and intervention services to address father-perpetrated maltreatment is needed to safeguard child well-being and preserve father-child relationships. Trainings for individuals involved in responding to maltreatment reports and coordinated diversion efforts between child welfare and criminal justice systems are needed to address bias against fathers.

Background and Introduction

A.1 Fathers and Child Welfare

Child Protective Services (CPS) systems in the United States are federally mandated to engage fathers (42 U.S.C. § 1320a-2a; 45 C.F.R. § 1355.31). However, despite this and research indicating the importance of father relationships for healthy child development (e.g., Dubowitz et al., 2001), child welfare systems have yet to effectively leverage fathers as a potential resource for youth (Brown, Callahan, Strega, Walmsley, & Dominelli, 2009; Gordon, Oliveros, Hawes, Iwamoto, & Rayford, 2012; Zanoni, Warburton, Bussey, McMaugh, 2013).

Fathers, along with mothers, are the most common perpetrators of maltreatment investigated by CPS (United States Department of Health and Human Services, 2019). Therefore, the lack of father engagement and inclusion of specific services for fathers is concerning. Appropriate interventions may restore healthy family dynamics. Even if separation from a maltreating father is needed to protect the child, interventions should address the father's behavior in order to prevent the future victimization of another child or intimate partner (Scott, 2012). Inaction may also allow other harmful co-occurring risk factors that the father is experiencing (e.g., mental health problems, substance use) to fester (Scott, 2012). Finally, knowledge of the nature of father-perpetrated maltreatment and how CPS systems are responding to it are needed to support child well-being.

A.2 Maltreatment by Fathers

A clear understanding of the characteristics of maltreatment attributed to fathers and how these characteristics may differ from maltreatment attributed to other perpetrators (e.g., mothers) is needed to guide interventions. Existing evidence suggests that father-perpetrated physical abuse is often more severe and even fatal than that perpetrated by other caregivers (Schnitzer & Ewigman, 2005). Although relevant, these studies reflect incomplete knowledge, pertaining mainly to physical abuse of very young children involving shaking and head trauma. Distinguishing characteristics of other types of maltreatment by fathers (e.g., neglect) and maltreatment during other developmental time periods (i.e., middle childhood, adolescence) remain unclear. Such information is vital for designing prevention and intervention services for fathers, as well as for guiding CPS in effectively supporting the safety, permanency, and well-being of children who have been victims of maltreatment attributed to fathers.

A.3 Bias as a Potential Barrier to Father Inclusion

Myriad factors prevent better father inclusion in child welfare, including bias. CPS systems have historically centered around mothers as default clients, who may also serve as gatekeepers controlling access to fathers (Brewsaugh & Strozier 2016; Maxwell, Scourfield, Featherstone, Holland, & Tolman, 2012). Fears or uncertainty about dangerous fathers and related concerns about child safety may also prevent fathers' effective engagement (Scourfield et al., 2012). Caseworkers may have negative stereotypes about fathers as violent, restrictive views on men's abilities to assume caregiving roles, or lack skills on how to engage fathers (Bellamy, 2009; Brown et al., 2009). Sexism has been shown to impact caseworkers' attitudes towards father involvement and lead to their preference for working solely with mothers (Brewsaugh, Masyn, & Salloum, 2018). These biases may lead to greater scrutiny of fathers as potential safety risks (O'Donnell, Johnson, D'Aunno, & Thornton, 2005) and, potentially, differential treatment of cases attributing maltreatment to fathers.

A.4 Outcomes of Maltreatment by Fathers

Whether gender bias leads to disparate CPS investigation outcomes for mother- and father-perpetrated maltreatment remains largely unknown. A past study identified disparities in out-of-home placement, with greater risk associated with physical abuse attributed to mother only versus father only (Crawford & Bradley, 2016). However,

this analysis is limited because it restricted the sample to maltreatment attributed to one parent in single parent households and therefore would not represent many cases of maltreatment attributed to fathers and/or mothers Moreover, few co-occurring risk factors that may affect out-of-home placement were considered and child removal was the sole outcome considered.

A.5 Aims of the Current Study

This study seeks to guide CPS practice and to support the development of interventions for maltreating fathers and their affected children. It addresses the following research questions: 1) What are the distinguishing characteristics of maltreatment attributed to fathers? and 2) Are there differences in investigation outcomes for maltreatment attributed to fathers as compared to mothers, controlling for maltreatment characteristics, co-occurring risk factors, and child demographics? Specific outcomes included caseworkers' subjective ratings of global risk, service referrals, substantiation, out-of-home placement, criminal investigations, and criminal charges filed.

Methods

B.1 Study Sample

Secondary data analysis of the second National Survey on Child and Adolescent Well-Being (NSCAW II) was conducted. NSCAW-II is a longitudinal panel study of children who were investigated by CPS for maltreatment reports in the United States. The study used a multi-stage, national probability sampling strategy, with 5,872 children ages 0 to 17.5 years sampled from 81 counties across 30 states within the United States (Dowd et al., 2013). Children were sampled from investigations closed during a 15-month period beginning in February 2008. Baseline data collection took place between April 2008 and December 2009, within four months of a CPS investigation being closed. Follow-up data at 18 months and 36 months were also collected (Dowd et al., 2013). NSCAW II used in-person interviews with multiple informants, including the CPS caseworker, the child, and the child's primary caregiver. The primary caregiver was defined in the NSCAW II as the caregiver in the household who was the most knowledgeable about the child; in cases where the mother and father were equally knowledgeable, the mother was selected as the default primary caregiver (Dowd et al., 2013).

The present analysis used two analytic samples of children drawn from NSCAW II baseline data. These included children for whom the mother and/or father was indicated as responsible for alleged physical abuse (n = 594) or neglect (n = 1,349). The summary of these samples is shown in Table 1.

Analytic samples were derived by first, using caseworker reports to identify children with any alleged physical abuse (n = 1,195) or neglect (n = 2,301). Neglect included investigations of supervisory neglect, physical neglect, moral/legal maltreatment, and educational maltreatment. Next, the sample was further refined to children whose mother (i.e., biological or adoptive parent) or father (i.e., biological or adoptive parent) were indicated as responsible for the alleged maltreatment. Data regarding the individual responsible were missing for 30% of physical abuse cases and 36% of neglect cases. The samples of 594 children with mothers and/or fathers indicated as responsible for the alleged physical abuse represented 71% of physical abuse allegations with valid perpetrator data (i.e., about 29% of physical abuse was perpetrated by someone other than the mother or father). The 1,349 children with mothers and/or fathers indicated as responsible for the neglect represented 92% of neglect allegations with valid perpetrator data. Children in the physical abuse and neglect samples may have also experienced sexual abuse and/or emotional abuse. However, a specific sample of sexually abused youth was not included because it was rarely perpetrated by mothers in the study sample, prohibiting comparisons. Perpetrator data were not collected for emotional abuse; therefore, a specific sample of emotionally abused youth were not included.

B.2 Measures

Study measures include data on perpetrator groups, maltreatment characteristics, co-occurring risk factors, demographics, and case outcomes.

Perpetrator groups

For each sample, grouping variables were derived to indicate the individual(s) responsible for the alleged maltreatment: mother alone (mother responsible without father also being indicated as responsible), father alone (father responsible without mother also being indicated as responsible), and mother and father (father and mother both indicated as responsible). These variables were coded from caseworker data indicating the relationship to the child of the individual reported to be responsible for the alleged physical abuse or neglect.

Maltreatment characteristics

For the physical abuse sample, the following maltreatment characteristic variables were included: subtype (i.e., severity of behavior), severity of harm, and maltreatment co-occurrence. For the neglect sample, the following maltreatment characteristic variables were included: subtype, severity of harm, and maltreatment co-occurrence. These variables are coded from the caseworker data on the nature of the alleged maltreatment. Caseworker questions were based on the Modified Maltreatment Classification System (MMCS) (English & the LONGSCAN Investigators, 1997) but have unknown reliability and validity.

Subtype. Physical abuse was coded into subtypes according to the severity of the behavior: less severe, more severe, and most severe based on caseworker indications. The response option hit/kick to the buttocks was coded as less severe physical abuse. The response options hit/kick to the face/head/neck, hit/kick to the torso, and hit/kick to the limbs/extremities were coded as more severe physical abuse. The response options violent handling of the child (pushing, shoving, throwing, pulling, dragging), choking/smothering, burns, and shaking were coded as most severe physical abuse.

Three variables indicated neglect type based upon the caseworker reports: physical neglect, supervisory neglect, and moral/legal or educational neglect. Within physical neglect, five subtypes were further examined: food neglect (child not supplied with adequate food); clothing neglect (child does not have clothing that is sanitary, appropriate for weather, or permits the child freedom of movement); shelter neglect (child does not have adequate shelter); medical/dental neglect (child does not have adequate medical, dental, or mental health care); and hygiene neglect (child does not have adequate hygiene). Within supervisory neglect, three subtypes were further examined: lack of supervision (child left unsupervised for periods of time); environment neglect (failure to ensure child is playing in safe area); and lack of substitute care (failure to provide adequate substitute care).

Severity. Severity of physical abuse injury (i.e., physical effect on the child, as opposed to caregiver behavior) was rated by the caseworker on a five-point scale: *no marks* = 1, *minor marks* = 2, *numerous or severe marks* = 3, *hospitalized fewer than 24 hours* = 4, and *hospitalized more than 24 hours* = 5.

Neglect severity was measured on a scale of 1–5. Neglect severity was collected in separate fields for each of the ten neglect subtypes (i.e., food neglect, clothing neglect, shelter neglect, medical/dental neglect, hygiene neglect, lack of supervision, environment neglect, lack of substitute care, moral/legal maltreatment, educational maltreatment). A summary neglect severity variable was therefore derived by calculating the maximum value of these fields. All severity scores were rated by the caseworker on a scale from 1–5: *mild* = 1, *moderate* = 2, *serious* = 3, *severe* = 4, or *grave* = 5. The measures in the NSCAW II included more details in the response options clarifying the distinction between scale points for each subtype of neglect. For example, severity was rated as follows for food neglect: *mild*

(no regular meals, young child fixes meals) = 1; *moderate (caregiver does not ensure that food is available)* = 2; *serious (frequently missed meals)* = 3; *severe (poor nourishment to the point that child fails to gain weight or grow at expected rate)* = 4; and *grave (poor nourishment to the point that child has severe physical consequences)* = 5.

Co-occurring maltreatment. Both samples included a variable indicating the number of co-occurring maltreatment types. This variable ranged from 1–5 and included physical abuse, neglect, emotional maltreatment, sexual abuse, and other maltreatment. Other maltreatment included abandonment, exploitation (e.g., sale of minor's time or behavior, includes prostitutes a child), and other.

Co-occurring risk factors. Co-occurring risk factors were determined by caseworker report. Items were project-developed questions based on questions from Michigan, New York, Washington, Illinois, and Colorado risk assessment forms and checklists (Dowd et al., 2013). Caseworkers reported whether or not (*yes* = 1, *no* = 0) there were any prior reports of maltreatment to the agency; if, at the time of the investigation, the primary caregiver had any serious mental health or emotional problems; if, at the time of the investigation, the primary caregiver had a recent history of arrests or detention; and if, at the time of the investigation, was there active domestic violence. In addition, caseworkers reported whether there was active alcohol use by the primary caregiver, active alcohol use by the secondary caregiver, active drug use by the primary caregiver, or active drug use by the secondary caregiver. A summary variable (*yes* = 1, *no* = 0) was created to indicate active alcohol and/or drug abuse by the primary and/or secondary caregiver.

Child, mother, and father demographics

Child demographics. Child demographic variables included age, gender, race, and ethnicity. Child age, measured in months in the NSCAW II data, was converted into years. Child gender was measured dichotomously as *male* = 0 and *female* = 1. Child race was recoded based on distributions from Black, White, American Indian, or Asian/Hawaiian/Pacific Islander to three separate dichotomous variables indicating whether the child was Black, White, or Other (*yes* = 1, *no* = 0). Child ethnicity was measured dichotomously based on whether they are Hispanic (*yes* = 1, *no* = 0).

Mother and father contacts. Whether the child co-resided with and/or was in contact with his or her mother (*yes* = 1, *no* = 0) and father (*yes* = 1, *no* = 0) was determined using caregiver-reported data. This included data on the child's relationship to the primary caregiver, secondary caregiver, and other household members. If the relationship to the child was biological or adoptive mother for any of these questions, mother was indicated as in the household. Likewise, if the relationship to the child was biological or adoptive father for any of these questions, father was indicated as in the household. If the mother or father was not residential (the primary caregiver, secondary caregiver, or in the household), the caregiver was asked whether the mother or father had any contact (seeing the child in person, talking with the child over the telephone, or having some other contact with the child) with the child in the past 12 months. Finally, an "any contact" (i.e., residential or non-residential) variable was created to indicate if the mother/father co-resided or was in nonresidential contact with the child (*yes* = 1, *no* = 0). These data were current to the time of the caregiver interview and thus may not reflect the time of the allegation (e.g., if the child experienced a placement change as a result of the allegation).

Case outcomes

Outcome variables, based on caseworker data, come from project-developed questions on the case investigation and circumstances surrounding the investigative report.

Caseworker ratings of risk. Caseworkers rated the severity of risk based on the overall investigation on a 4-point scale: *none* = 1, *mild* = 2, *moderate* = 3, *severe* = 4. The caseworker was instructed not to be concerned with whether the report was substantiated when prompted to describe the level of risk. This was a global rating of the case as a

whole versus a specific rating of the behavior or injury associated with the maltreatment. This question was relatively abstract in wording; therefore, caseworker ratings would have been relatively subjective and potentially biased, as well as influenced by maltreatment severity, co-occurring risk factors, etc.

Services. Caseworkers reported whether services were provided or arranged for the family as result of the investigation: *yes* = 1, *no* = 0. The caseworker was asked, regardless of the outcome of the investigation, if any services have been referred (including suggesting to the client that services may be needed or giving the client provider contact information), provided, or arranged for the family (including contacting a provider, completing the necessary paperwork, and/or making an appointment).

Substantiation. Whether the outcome of the investigation was substantiated was coded as *yes* = 1 or *no* = 0. The caseworker was asked if the outcome of the investigation was substantiated (i.e., found to be valid according to state law), indicated (evidenced by investigation but not to legal standards), neither substantiated nor indicated, unfounded or ruled out, high risk, medium risk, or low risk. Caseworker responses of high risk, medium risk, or low risk were used in cases where the agency did not classify reports/investigations as substantiated or not. These response options were coded as missing data in the present study.

Out-of-home placement. Caseworkers recorded whether the outcome of the investigation resulted in a new out-of-home placement for the child (*yes* = 1, *no* = 0), as well as the placement date. Children who were in out-of-home care (foster home, kin-care, treatment foster care, specialized foster care, family foster agency, group home, residential facility or other out-of-home) at the time of the interview and whose placement date followed the report date were coded as having a new out-of-home placement. Parent and child reports of out-of-home care were incorporated when the caseworker variable was missing.

Criminal investigations and charges. Caseworkers indicated whether the allegation resulted in a criminal investigation and, if so, whether charges were filed (*yes* = 1, *no* = 0). The NSCAW did not specify who the criminal charges were brought against.

B.3 Data Analysis

Bivariate analysis *(Research Question 1)*

All analyses were conducted in SPSS version 24 (IBM Corp., 2016). Following coding and preliminary analysis, bivariate analyses were conducted to answer Research Question 1. For each sample, chi-square tests and ANOVA were used to determine whether the maltreatment characteristics, co-occurring risk factors, demographics, and case outcomes differed based on the perpetrator group (mother alone, father alone, or mother and father together).

Bivariate analyses were also conducted examining the relationship between the independent variable and the dependent variables, to check for sparse cells and to assess which variables were likely to confound relations of interest. Allison's (2012) criteria that the variance inflation factor (VIF) be below 2.50 and thus R^2 be below 0.60 were applied to safeguard multicollinearity. Since logistic regression analysis does not produce multicollinearity diagnostics in SPSS, the linear models were run for the sole purpose of assessing VIF.

Multivariate analysis *(Research Question 2)*

For each sample, hierarchical multivariate analyses (Ordinary Least Squares (OLS) regression and logistic regression) were used to assess perpetrator effects on investigation outcomes, controlling for maltreatment characteristics, co-occurring risk factors, and child demographics. Variables were entered into two steps in the hierarchical multivariate analyses. First, perpetrator group effects were analyzed in models controlling for maltreatment characteristics, co-occurring risk factors, and child demographics. Second, interaction effects between perpetrator groups and child

demographic variables were analyzed for each outcome. Interaction terms were entered individually in separate models in addition to the Step 1 variables as follows: perpetrator X child age (step 2a), perpetrator X child gender (step 2b), perpetrator X child race (step 2c), and perpetrator X child ethnicity (step 2d). Child age was centered prior to creating interaction terms, and then scenarios were estimated for age at the mean and at one standard deviation below and above the mean in order to interpret interactions.

Missing data were handled via listwise deletion. In these analyses, mother-alone perpetration and child Black race were used as reference categories.

Results

C.1 Bivariate Analyses

Maltreatment characteristics

Table 2 shows bivariate analyses comparing physical abuse characteristics by alleged perpetrator. Physical abuse that was a less or more severe type of behavior but not the most severe type of behavior was significantly more likely to be attributed to the father alone than to mother and father together. Physical abuse attributed to mother and father together was significantly more injurious (severe) on average than physical abuse attributed to mother or father alone. Significantly more co-occurring maltreatment types were observed for physical abuse attributed to mother and father.

Table 3 shows bivariate analyses comparing neglect characteristics for perpetrator groups. Neglect attributed to mother and father was the most harmful (severe). Physical neglect in general and proper clothing, adequate shelter, and adequate hygiene subtypes were significantly overrepresented in neglect attributed to mothers and fathers together. Supervisory neglect overall and the left unsupervised subtype were significantly underrepresented in neglect attributed to mother and father.

Co-occurring risk factors

Physical abuse and neglect attributed to fathers alone were associated with significantly lower caregiver serious mental health problems relative to other perpetrator groups (Tables 2 and 3). Maltreatment attributed to mother and father was associated with higher occurrence of intimate partner violence. Caregiver substance use was overrepresented in neglect attributed to mother and father relative to mother-alone and father-alone neglect.

Child and parent demographics

Children were older, on average, when physical abuse and neglect were attributed to father alone (Tables 2 and 3). Children were younger, on average, when physical abuse and neglect were attributed to mother and father. Black children were overrepresented in cases of physical abuse and neglect attributed to mother alone. White children were overrepresented in physical abuse and neglect involving fathers (i.e., alone or with mothers). Hispanic children were overrepresented in neglect attributed to mother alone.

C.2 Multivariate Analyses

Caseworker-rated global risk

As demonstrated in Table 4, multivariate analysis indicated no significant perpetrator effects on caseworker ratings of global risk. As expected, caseworkers rated higher risk when maltreatment was more severe, there were more co-occurring maltreatment types, in the presence of active caregiver substance use, and the caregiver had serious mental health problems. In cases of physical abuse, caseworkers also perceived higher

risk when there were prior reports of maltreatment and when the caregiver had recent arrests or detention. Caseworkers perceived lower risk when children were older, when the child was White in allegations of physical abuse, and for girls in allegations of neglect.

Services provided/arranged

As demonstrated in Table 5, perpetrator identity did not affect services being provided/arranged in multivariate analysis. Services were more likely to be provided/arranged when maltreatment was more severe, when there was caregiver substance use, when the caregiver had serious mental health problems, and when the child was Hispanic. Services were also more likely to be provided/arranged when there were prior reports of maltreatment in allegations of neglect. Services were less likely when the child was White in allegations of physical abuse and when the child was older in allegations of neglect.

Substantiation

As demonstrated in Table 6, there were no significant perpetrator effects on substantiation in multivariate analysis. Substantiation was more likely when maltreatment was more severe and when there was caregiver substance use. Substantiation was also more likely when there were more co-occurring maltreatment types with physical abuse, with moral/legal or educational neglect, and when the caregiver had serious mental health problems and when there was intimate partner violence in allegations of neglect. Substantiation was less likely when the child was White in allegations of physical abuse.

Out-of-home placement

As demonstrated in Table 7, perpetrator identity did not affect the likelihood of an out-of-home placement in multivariate analysis. Out-of-home placement following investigation was more likely when maltreatment was more severe, when the caregiver had serious mental health problems, and when the caregiver had recent arrests or detention. Out-of-home placement was also more likely when there were more co-occurring maltreatment types in allegations of physical abuse, when there were prior reports of maltreatment in allegations of neglect, and when there was caregiver substance use in allegations of neglect. Out-of-home placement was less likely when the child was White than Black and, in allegations of neglect, when the child was older and a race other than White or Black.

Criminal investigation

As demonstrated in Table 8, neglect attributed to father alone and neglect attributed to mother and father were associated with significantly more criminal investigations than neglect attributed to mother alone after controlling for covariates. A criminal investigation was also more likely when maltreatment was more severe, when physical abuse was the most severe type, when the caregiver had recent arrest or detention in allegations of physical abuse, in cases of supervisory neglect, when there was caregiver substance use in allegations of neglect, and when the child was Hispanic in allegations of neglect. A criminal investigation was less likely when the child was a girl in allegations of neglect.

Charges filed

As demonstrated in Table 9, physical abuse perpetrated by father alone was associated with significantly more charges filed than physical abuse perpetrated by mother alone after controlling for maltreatment characteristics, co-occurring risk factors, and child demographics. Additionally, neglect perpetrated by father alone was associated with significantly more charges filed than neglect perpetrated by mother alone after controlling for maltreatment characteristics, co-occurring risk factors, and child demographics. Charges were also more likely to be filed when maltreatment was more severe, for the most severe physical abuse types, when there was supervisory neglect, when

there was moral/legal or educational neglect, and in allegations of neglect, when there was caregiver substance use, recent caregiver arrests or detention, and the child was Hispanic. Charges were less likely to be filed when the child was older or White in allegations of neglect.

Interaction Effects

Child age X perpetrator. Significant interactions between child age and perpetrator groups are shown in Figure 1. When neglect was attributed to mother and father, substantiation was more probable when the child was younger. However, there were minimal child age differences in substantiation when neglect was attributed to mother alone or father alone.

Out-of-home placement was more probable for physical abuse attributed to mother and father when the child was younger than when the child was older but did not affect out-of-home placement when physical abuse was attributed to either parent alone.

Criminal investigations were more likely to occur when the child was younger for physical abuse attributed to the father alone and together with the mother. There were minimal age effects on criminal investigation when physical abuse was attributed to mother alone

Criminal investigation was more likely to occur for neglect attributed to father alone when the child was younger and less likely to occur when the child was older while there were minimal age effects on criminal investigation on neglect attributed to other perpetrators.

Child gender X perpetrator. Significant child gender X perpetrator interactions are shown in Figure 2. Caseworkers perceived higher global risk, on average, for girls when neglect was attributed to mother and father but for boys when neglect was attributed to mother or father alone. Similarly, services were more likely to be provided or arranged for neglect attributed to mother and father when the child was a girl. For neglect attributed to mother alone, services were more likely to be provided or arranged when the child was a boy. Although the gender effect for neglect attributed to father alone on services mirrored that for mother and father, it did not significantly differ from the mother alone effect.

Out-of-home placement was higher for boys in cases of neglect attributed to fathers, alone and together with mothers. The gender effect for neglect attributed to mother and father significantly differed from the mother-alone gender effect, which showed slightly higher risk of out-of-home placement for girls.

Child Race/Ethnicity X perpetrator. Figure 3 shows significant interactions between child race or ethnicity and perpetrator groups. When physical abuse was attributed to the father alone, the caseworker perceived higher risk when the child was Hispanic. When physical abuse was attributed to mothers alone or together with fathers, however, there were no notable racial/ethnic differences in caseworker perceived risk. Similarly, for physical abuse attributed to father alone, criminal investigation was more likely when the child was Hispanic. For physical abuse attributed to mother alone or to mother and father, criminal investigation was more likely when the child was non-Hispanic.

For neglect attributed to father alone, substantiation was more likely to occur when the child was White or Black versus another race. Substantiation was more likely for neglect attributed to mother alone when the child was a race other than White or Black. The pattern for race/ethnicity effects for neglect attributed to mother and father mirrored that of neglect attributed to father alone but did not significantly differ from neglect attributed to mother alone.

D. Discussion

D.1 Key Findings and Interpretation

The distinguishing characteristics of maltreatment attributed to fathers and mothers

This study expands past research notably by demonstrating how maltreatment attributed to mothers and fathers alone and together varies on a wide range of characteristics and co-occurring risk factors in a diverse sample of children investigated by CPS. Findings revealed a general pattern of higher risk when physical abuse and neglect were attributed to mother and father together, but not father alone. Various markers of risk, including maltreatment severity and co-occurrence, the presence of caregiver mental health and substance use problems, intimate partner violence, and younger average child age were more prevalent in maltreatment attributed to mothers and fathers. Father-alone maltreatment, on the other hand, was associated with less severe physical abuse behavior types, lower caregiver serious mental health problems, and older average child age. Whereas past research has suggested that maltreatment involving fathers is higher risk, particularly for infants and toddlers (Schnitzer & Ewigman, 2005), this study using a CPS sample ranging from infancy to adolescence does not portray this pattern. The sole variable showing higher risk for the father-alone group was intimate partner violence.

Other findings showed perpetrator differences in the prevalence of neglect subtypes, child race/ethnicity, and parent contact and co-residential status, suggesting different contexts and related family service needs for maltreatment attributed to mothers and/or fathers. The high prevalence of physical neglect in the mother and father group, along with other risk factors, suggests significant parental dysfunction related to substance use, intimate partner violence, and parental mental health problems with relatively acute risk. In contrast, high levels of supervisory neglect along with evidence of fewer households including both mother and father in the mother-alone and father-alone groups suggests service needs related to social support, parenting stress, and childcare assistance. This constellation of needs appears to especially pertain to mother-alone maltreatment and disproportionately affects Black children.

Perpetrator-related disparities in investigation outcomes

Father involvement with neglect, alone or with mother, was associated with the maltreatment investigation leading to a criminal investigation. Physical abuse and neglect attributed to father alone was associated with higher odds of the CPS investigation resulting in charges filed. In corroboration of past research, these findings may suggest gender bias within CPS systems (Amato, 2018; Brewsaugh et al., 2018). It is possible that CPS caseworkers and others involved in maltreatment investigations may involve law enforcement professionals more often when maltreatment involves fathers because they presume fathers to be incapable parents or assume that they present more safety risks to children and mothers. Gender bias may lead to the tendency to be less forgiving of fathers' alleged maltreatment behaviors, leading to criminalization instead of mental or behavioral health interventions. The absence of intervention tools for fathers may also contribute to this pattern. Finally, it is possible that caseworkers, a disproportionately female group, more often enlist the support of law enforcement professionals when fathers are involved in maltreatment because they fear for their own safety (Baum, 2017). This may inadvertently disadvantage fathers, leading to disparities in criminal justice outcomes after CPS investigation. On the other hand, these biases may be embedded in institutions serving families rather than individual caseworkers. For example, policy may dictate circumstances of maltreatment that must be referred to a prosecutor in a manner that disproportionately affects fathers. For example, 26 state statutes require cross-reporting to law enforcement agencies when maltreatment is attributed to a non-family member, involves sexual abuse, or resulted in severe injury to the child (Child Welfare Information Gateway 2016).

Race/ethnicity X perpetrator interaction effects suggest that some father-related disparities are apparent only when particular racial/ethnic groups are involved. Findings suggest, for example, that greater risk and criminality may be perceived when fathers perpetrate physical abuse and children are Hispanic. This finding may also indicate additional institutional factors affecting Hispanic families—for example, related to legal immigration and citizenship status. On the other hand, lower substantiation for father-alone maltreatment associated with "Other" race may indicate that men in these groups are perceived to be less dangerous.

Interaction effects involving age generally found higher CPS intervention (i.e., substantiation, criminal charges, out-of-home placement) for maltreatment involving mothers and fathers together of younger children. Likewise, father-alone maltreatment, relative to mother-alone maltreatment, was associated with higher criminal investigations when children were younger. Fathers may be perceived as particularly inappropriate parents for younger children, leading to disparate levels of CPS and legal intervention.

Neglect involving girls was associated with higher caseworker perceived risk and services when mother and father were involved, whereas boys were higher on these outcomes when mother alone was involved. Girls may be perceived to be more vulnerable when maltreatment involves fathers, perhaps because of the high prevalence of intimate partner violence co-occurrence involving victimization of the mother. On the other hand, mothers may be seen as unable to meet the needs of boys when neglect is alone attributed to them. This may relate to the higher prevalence of single mothers and older average child age in the mother-alone group. Single-mother parenting may be perceived to uniquely disadvantage older boys, for example, when delinquent behaviors are involved. The opposite pattern in the gender interaction effect found for out-of-home is perplexing; out-of-home placement was more common for mother and father neglect than mother-alone neglect, but only for boys. Boys may be perceived to be less fragile in these circumstances than girls, contributing to disproportionate parental separation in the form of out-of-home placement.

D.2 Strengths and Limitations

Strengths of our analysis include the large sample size. Missing data, however, was significant, particularly on the perpetrator variable. These missing data may have biased the sample—for example if perpetrators were systematically not reported for cases with particular characteristics or outcomes. This was particularly a concern for neglect. As an act of omission, identifying an individual responsible for neglect may be tricky and subject to bias in and of itself. Most of the study variables relied on caseworker report, which allowed for standardization but nonetheless is only one perspective and subject to caseworker knowledge. Because parent-report measures were only collected when parents were primary caregivers, children in out-of-home care would have been largely excluded from the sample if parent-reported measures of substance use, intimate partner violence, and mental health were used. Therefore, the use of caseworker reported data on these variables allow us to assess a larger sample that included this key subgroup of children. Despite these advantages, the reliance on caseworker report could have led to measurement error, especially given several single-item measures of complex phenomena. Finally, most co-occurring risk factors were asked about primary or secondary "caregivers" who were not necessarily mothers and fathers. For example, a youth may be under the care of grandparents and experience maltreatment by their mother. Questions pertaining to only the primary caregiver (e.g., serious mental health problems, recent history of arrest or detention) may not have adequately captured co-occurring risk factors related to the father in particular, since fathers are less often primary caregivers. Another limitation of the NSCAW II dataset is that it only allows researchers to establish maternal and paternal residential and contact status at the time of the interview versus the time of the maltreatment. Given the substantial proportion of children who are placed in out-of-home care as a result of maltreatment investigations, their contact and residential status with fathers at the time of the interview may have been different than it was during the time of the alleged maltreatment.

Mother and father are defined as biological and adoptive parents in this study. This decision was based on the lower stability and longevity expected in stepparent and other parental relationships. However, we acknowledge diversity in families and the important role that nontraditional mother and father figures play in many children's lives.

Finally, the effects of perpetrator for sexual and emotional abuse could not be examined because mother-perpetrated sexual abuse was too rare and because perpetrator information was not collected for emotional abuse.

D.3 Implications for Practice

Findings imply the need for CPS and other practitioners to be cognizant of the heterogeneity of maltreatment perpetrated by fathers. Maltreatment attributed to fathers alone was generally comparable in risk to mother-alone maltreatment, with the exception of co-occurring intimate partner violence. However, maltreatment attributed to mothers and father together was more consistently associated with higher acute risk on various measures. Differences in maltreatment attributed to mothers and/or fathers generally suggest unique profiles and related service needs, pointing to a need to develop and implement a continuum of father-inclusive intervention and prevention programs. First, there is a need for maltreatment prevention for expectant and current fathers. Few fathers have participated in empirically supported maltreatment prevention programs and in general, programs are needed that have content that is geared to fathers and prioritize father engagement (Smith, Duggan, Bair-Merrit, & Cox, 2012). In cases of indicated maltreatment, risk should determine the intervention response. Supportive intervention and prevention efforts may sufficiently support functional family interactions in some circumstances. Other situations may require more intensive efforts and, in some cases, parental separation, out-of-home placement and/or criminal justice intervention. One promising program is *Caring Dads*, which was developed and researched in Canada (Scott & Lishak, 2012). *Caring Dads* is a group-based, community intervention program for fathers who have abused or neglected their children or exposed their children to intimate partner violence. It involves 17 weeks of empirically based, manualized group parenting intervention, outreach to mothers, and collaborative case management with fathers and other involved professionals. This program has exhibited significant effects, moderate in effect size, in fathers' over-reactivity to their children and respect for their partners commitment and judgment. In addition, significant small effects were found in fathers' hostility and verbal anger, and parental laxness and hostility (Scott & Lishak, 2012).

Findings suggest potential bias involved in CPS investigation processes that disadvantage fathers, particularly in terms of criminal justice outcomes. Interaction analysis findings additionally suggest that anti-father biases may arise when children are younger, girls (or, in the case of out-of-home placement, boys), and Hispanic. The most obvious implication of these findings is perhaps the need for training for caseworkers and others involved in maltreatment investigation to address gender bias, including self-awareness of this bias and the advancement of more progressive attitudes regarding parenting and gender. However, given the lack of direct evidence in this study of individual level bias, there is also a need to further explore and address the root causes of the observed disparities. For example, if female caseworkers feel unsafe investigating cases of father-perpetrated maltreatment, bias training will be insufficient. This scenario would imply the need to devise interventions to ensure caseworker safety and security that do not disadvantage fathers. It is possible that the biases observed here are more systemic and reflect policy issues that dictate CPS practice and/or the disproportionate representation of men, particularly men of color, within the criminal justice system. This may suggest a need for alternative criminal justice responses, including diversion programs. Coordinated efforts between child welfare and criminal justice systems are also indicated. Last, greater consideration for fathers' and children's mental health needs are needed. In terms of fathers, findings from our study, alongside evidence of the dearth of appropriate intervention programs, suggests a general lack of recognition and intervention in the mental health needs of maltreating fathers. In general, there is a need to shift away from criminalization and toward recognizing and providing therapy for underlying mental health concerns, including fathers' own past exposure to trauma. Finally, the disparate levels of criminal investigation and charges resulting

from child maltreatment involving fathers has implications for child mental health that should be considered by child welfare systems.

D.4 Directions for Future Research

Future research should continue to explore the characteristics of maltreatment attributed to various perpetrators and potential disparities based on perpetrator identity. Replication of the current study is needed to confirm results, ideally with more robust measures of co-occurring risk factors based on the perspectives of multiple reporters. More comprehensive measures of fathers' and mothers' incarceration history would be helpful. An expanded focus inclusive of other maltreatment types, namely emotional abuse and sexual abuse, and of other perpetrators in addition to biological and adopted mothers and fathers would further enrich understanding of this topic. Additional research should be conducted to help clarify the reasons for the observed disparities. For example, the roles of caseworker bias, gender, and fear in their behavioral responses to maltreatment investigations involving fathers and of parental criminality warrant further research. Research focusing on more discrete age groups of children may also provide helpful information to fine-tune practical responses. Future research might examine perpetrator race, as opposed to child race, and a wider range of contextual variables regarding children's family systems, coresidential and otherwise, at the time of the maltreatment. Scholarship to advance understanding of the predictors of maltreatment by father perpetrators, including how the etiology of child maltreating may differ for men and women, will be a necessary component to prevention. Lastly, there is a need to understand how maltreatment by mothers and fathers my differentially affect child health and development.

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Table 1. Maltreatment Report Frequencies by Alleged Perpetrator/ Individual Responsible

	Physical Abuse	Neglect
Any report	843	1468
Mother and father together	85 (10%)	261 (18%)
Mother alone	313 (37%)	968 (66%)
Father alone	196 (23%)	120 (8%)
Either mother or father	594 (71%)	1349 (92%)

Table 2. Bivariate Analyses for Physical Abuse (n = 594)

	Mother Alone	Father Alone	Mother and Father	*n*	*df*	*x² /F*	*p*
N	313 (52.7%)	196 (33.0%)	85 (14.3%)				
Maltreatment Characteristics							
Severity of behavior type							
Less severe	**38 (12.1%)**	**37 (18.9%)**	**6 (7.1%)**	**594**	**2**	**8.29**	**0.016**
More severe	**166 (53.0%)**	**112 (57.1%)**	**35 (41.2%)**	**594**	**2**	**6.09**	**0.047**
Most severe	97 (31.0%)	73 (37.2%)	37 (43.5%)	594	2	5.37	0.068
Severity of injury	**2.2 (1.2)**	**2.3 (1.3)**	**2.8 (1.5)**	**559**	**2**	**6.80**	**0.001**
# Co-occurring treatment types	**1.3 (0.6)**	**1.3 (0.5)**	**1.5 (0.6)**	**594**	**2**	**4.16**	**0.016**
Co-Occurring Risk Factors							
Prior reports of maltreatment	176 (57.7%)	95 (50.0%)	38 (45.2%)	579	2	5.40	0.067
Caregiver substance use	61 (20.2%)	44 (22.9%)	25 (29.8%)	578	2	3.48	0.176
Caregiver serious mental health problems	**81 (27.2%)**	**36 (19.0%)**	**26 (32.1%)**	**568**	**2**	**6.46**	**0.039**
Caregiver recent arrests or detention	50 (17.4%)	20 (11.0%)	15 (18.5%)	550	2	4.21	0.122
Intimate partner violence	**27 (8.9%)**	**44 (23.5%)**	**25 (30.9%)**	**572**	**2**	**31.18**	**0.000**
Child Demographics							
Child age (years)	**6.4 (5.0)**	**7.2 (5.5)**	**3.4 (3.7)**	**594**	**2**	**17.85**	**0.000**
Child gender (female)	153 (48.9%)	79 (40.3%)	38 (44.7%)	594	2	3.59	0.166
Child race							
Black	**128 (41.7%)**	**35 (18.2%)**	**29 (34.9%)**	**582**	**2**	**29.59**	**0.000**
White	**141 (45.9%)**	**130 (67.7%)**	**49 (59.0%)**	**582**	**2**	**23.28**	**0.000**
Other	38 (12.4%)	27 (14.1%)	5 (6.0%)	582	2	3.61	0.164
Child Hispanic	86 (27.6%)	54 (27.7%)	23 (27.1%)	592	2	0.01	0.994
Parent Demographics							
Any mother contact	**300 (95.8%)**	**175 (89.3%)**	**84 (98.8%)**	**594**	**2**	**13.34**	**0.001**
Mother in household	**217 (69.3%)**	**112 (57.1%)**	**45 (52.9%)**	**594**	**2**	**11.95**	**0.003**
Mother in contact, but not in household	**83 (26.5%)**	**63 (32.1%)**	**39 (45.9%)**	**594**	**2**	**11.83**	**0.003**
Any father contact	**204 (65.2%)**	**184 (93.9%)**	**78 (91.8%)**	**594**	**2**	**69.13**	**0.000**
Father in household	**73 (23.3%)**	**105 (53.6%)**	**30 (35.3%)**	**594**	**2**	**48.47**	**0.000**
Father in contact, but not in household	**131 (41.9%)**	**79 (40.3%)**	**48 (56.5%)**	**594**	**2**	**6.98**	**0.031**
Case Outcomes							
Caseworker-rated risk	**2.5 (1.1)**	**2.6 (1.1)**	**2.9 (1.1)**	**552**	**2**	**3.70**	**0.025**
Services provided/arranged	227 (74.7%)	145 (75.9%)	70 (83.3%)	579	2	2.76	0.251
Substantiated	99 (33.8%)	68 (37.6%)	37 (46.3%)	554	2	4.26	0.119
New out-of-home placement	**86 (27.5%)**	**41 (20.9%)**	**39 (45.9%)**	**594**	**2**	**18.42**	**0.000**
Criminal investigation	**98 (32.7%)**	**85 (44.5%)**	**42 (50.6%)**	**574**	**2**	**12.15**	**0.002**
Charges filed	**38 (12.7%)**	**42 (22.0%)**	**12 (14.5%)**	**574**	**2**	**7.71**	**0.021**

Note. Significant group differences are in bold.

Table 3. Bivariate Analyses for Neglect (n = 1349)

	Mother Alone	Father Alone	Mother and Father	n	df	x^2 /F	p
N	968 (71.8%)	120 (8.9%)	261 (19.3%)				
Maltreatment Characteristics							
Physical neglect	**344 (35.5%)**	**39 (32.5%)**	**139 (53.3%)**	1349	2	**29.34**	**0.000**
Adequate food	109 (11.3%)	15 (12.5%)	40 (15.3%)	1349	2	3.20	0.202
Proper clothing	**81 (8.4%)**	**8 (6.7%)**	**34 (13.0%)**	1349	2	**6.34**	**0.043**
Adequate shelter	**113 (11.7%)**	**11 (9.2%)**	**52 (19.9%)**	1349	2	**14.08**	**0.001**
Adequate medical/dental care	124 (12.8%)	11 (9.2%)	44 (16.9%)	1349	2	4.85	0.088
Adequate hygiene	**73 (7.5%)**	**8 (6.7%)**	**48 (18.4%)**	1349	2	**29.26**	**0.000**
Supervisory neglect	**738 (76.2%)**	**93 (77.5%)**	**164 (62.8%)**	1349	2	**20.04**	**0.000**
Supervision	**399 (41.2%)**	**54 (45.0%)**	**76 (29.1%)**	1349	2	**14.48**	**0.001**
Environment	225 (23.2%)	32 (26.7%)	75 (28.7%)	1349	2	3.64	0.162
Substitute care	153 (15.8%)	12 (10.0%)	32 (12.3%)	1349	2	4.31	0.116
Moral/legal or educational neglect	38 (3.9%)	2 (1.7%)	11 (4.2%)	1349	2	1.67	0.435
Severity	**2.1 (1.2)**	**2.1 (1.3)**	**2.5 (1.3)**	1259	2	**9.63**	**0.000**
# Co-occurring maltreatment types	1.4 (0.8)	1.3 (0.8)	1.5 (0.9)	1349	2	2.48	0.084
Co-Occurring Risk Factors							
Prior reports of maltreatment	582 (61.6%)	65 (55.6%)	142 (56.1%)	1315	2	3.54	0.171
Caregiver substance use	**311 (33.0%)**	**39 (33.1%)**	**110 (43.5%)**	1314	2	**9.88**	**0.007**
Caregiver serious mental health problems	**305 (33.5%)**	**12 (10.6%)**	**88 (36.1%)**	1268	2	**26.53**	**0.000**
Caregiver recent arrests or detention	229 (25.7%)	23 (20.5%)	57 (23.8%)	1241	2	1.161	0.447
Intimate partner violence	**110 (11.8%)**	**16 (13.8%)**	**57 (22.9%)**	1296	2	**19.89**	**0.000**
Child Demographics							
Child age (years)	**5.0 (4.8)**	**6.7 (5.3)**	**4.2 (4.6)**	1349	2	**10.93**	**0.000**
Child gender (female)	457 (47.2%)	52 (43.3%)	114 (43.7%)	1349	2	1.46	0.481
Child race							
Black	**361 (38.0%)**	**31 (26.1%)**	**51 (20.1%)**	1323	2	**32.15**	**0.000**
White	**481 (50.6%)**	**69 (58.0%)**	**174 (68.5%)**	1323	2	**26.40**	**0.000**
Other	108 (11.4%)	19 (16.0%)	29 (11.4%)	1323	2	2.19	0.334
Child Hispanic	**291 (30.1%)**	**18 (15.0%)**	**71 (27.2%)**	1348	2	**12.17**	**0.002**
Parent Demographics							
Any mother contact	**935 (96.6%)**	**104 (86.7%)**	**254 (97.3%)**	1349	2	**28.18**	**0.000**
Mother in household	**637 (64.8%)**	**67 (55.8%)**	**143 (54.8%)**	1348	2	**11.01**	**0.004**
Mother in contact, but not in household	**308 (31.8%)**	**37 (30.8%)**	**111 (42.5%)**	1349	2	**11.06**	**0.004**
Any father contact	**633 (65.5%)**	**114 (95.0%)**	**230 (88.1%)**	1348	2	**86.41**	**0.000**
Father in household	**176 (18.2%)**	**66 (55.0%)**	**112 (42.9%)**	1348	2	**120.99**	**0.000**
Father in contact, but not in household	457 (47.3%)	48 (40.0%)	118 (45.2%)	1348	2	2.40	0.302
Case Outcomes							
Caseworker-rated risk	**2.7 (1.0)**	**2.5 (1.1)**	**2.9 (1.0)**	1232	2	**5.92**	**0.003**
Services provided/arranged	**747 (78.2%)**	**82 (68.3%)**	**212 (83.5%)**	1329	2	**11.02**	**0.004**
Substantiated	**383 (43.7%)**	**46 (42.2%)**	**128 (55.2%)**	1218	2	**10.38**	**0.006**
New out-of-home placement	293 (30.3%)	29 (24.2%)	91 (34.9%)	1349	2	4.62	0.099
Criminal investigation	**152 (16.0%)**	**35 (29.2%)**	**59 (23.3%)**	1323	2	**16.82**	**0.000**
Charges filed	**72 (7.6%)**	**19 (15.8%)**	**33 (13.0%)**	1323	2	**13.51**	**0.001**

Note. Significant group differences in bold.

Table 4. Multivariate Analyses for Caseworker-Rated Risk

	Physical Abuse			Neglect		
	β	95% CI	P	β	95% CI	p
Step 1						
Father alone perpetrator	0.05	-0.08, 0.30	0.265	-0.01	-0.20, 0.16	0.839
Mother & father perpetrator	0.01	-0.23, 0.28	0.849	0.01	-0.12, 0.17	0.857
Most severe physical abuse behavior type[a]	0.04	-0.09, 0.26	0.364			
Severity of injury/harm	**0.41**	**0.28, 0.42**	**0.000**	**0.43**	**0.31, 0.40**	**0.000**
Physical neglect				0.01	-0.11, 0.17	0.681
Supervisory neglect				0.02	-0.10, 0.21	0.489
Moral/legal or educational neglect				-0.01	-0.32, 0.25	0.822
# Co-occurring maltreatment types	**0.10**	**0.04, 0.35**	**0.011**	**0.05**	**0.01, 0.22**	**0.041**
Prior reports of maltreatment	**0.13**	**0.11, 0.46**	**0.001**	0.04	-0.02, 0.20	0.095
Caregiver substance use	**0.12**	**0.10, 0.53**	**0.004**	**0.17**	**0.26, 0.49**	**0.000**
Caregiver serious mental health problems	**0.18**	**0.26, 0.66**	**0.000**	**0.17**	**0.24, 0.48**	**0.000**
Caregiver recent arrests or detention	**0.08**	**0.02, 0.48**	**0.036**	0.05	-0.00, 0.24	0.055
Intimate partner violence	0.08	-0.01, 0.48	0.065	0.02	-0.09, 0.22	0.403
Child age (years)	**-0.11**	**-0.04, -0.01**	**0.014**	**-0.15**	**-0.04, -0.02**	**0.000**
Child gender (female)	-0.01	-0.18, 0.15	0.854	**-0.06**	**-0.23, -0.03**	**0.015**
Child race (White)	**-0.11**	**-0.44, -0.05**	**0.012**	-0.04	-0.19, 0.04	0.190
Child race (Other)	-0.06	-0.49, 0.09	0.173	-0.05	-0.33, 0.03	0.105
Child Hispanic	0.04	-0.10, 0.30	0.340	0.04	-0.03, 0.20	0.150
R² / Adjusted R²		0.402 / 0.380			0.422 / 0.412	
Step 2a (age X perpetrator interaction)						
Child age*father alone	0.02	-0.03, 0.04	0.692	0.04	-0.01, 0.06	0.183
Child age*mother & father	-0.04	-0.10, 0.03	0.342	0.01	-0.02, 0.03	0.795
Step 2b (gender X perpetrator interaction)						
Child gender*father alone	-0.08	-0.64, 0.11	0.160	-0.01	-0.40, 0.31	0.789
Child gender*mother & father	-0.03	-0.65, 0.35	0.553	**0.09**	**0.09, 0.62**	**0.010**
Step 2c (race X perpetrator interaction)						
Child race (White)*father alone	-0.07	-0.61, 0.24	0.381	-0.07	-0.74, 0.10	0.140
Child race (White)*mother & father	-0.04	-0.66, 0.37	0.584	-0.01	-0.36, 0.28	0.807
Child race (Other)*father alone	0.00	-0.68, 0.73	0.946	-0.05	-0.96, 0.16	0.164
Child race (Other)*mother & father	0.01	-0.82, 1.02	0.831	0.01	-0.39, 0.60	0.680
Step 2d (ethnicity X perpetrator interaction)						
Child Hispanic*father alone	**0.14**	**0.11, 0.94**	**0.012**	-0.01	-0.56, 0.38	0.719
Child Hispanic*mother & father	0.02	-0.45, 0.65	0.730	-0.01	-0.36, 0.25	0.737

Notes. [a] Burning/violent handling/choking/shaking (reference category is less severe types). CI = Confidence Interval. Significant parameters are in bold.

Table 5. Multivariate Analyses Predicting Services

	Physical Abuse			Neglect		
	OR	95% CI	*p*	OR	95% CI	*p*
Step 1						
Father alone perpetrator	1.45	0.83, 2.55	0.194	0.84	0.49, 1.44	0.532
Mother & father perpetrator	1.53	0.65, 3.57	0.327	0.90	0.56, 1.44	0.648
Most severe physical abuse[a]	0.91	0.54, 1.53	0.727			
Maltreatment severity	**1.40**	**1.11, 1.77**	**0.005**	**1.94**	**1.58, 2.36**	**0.000**
Physical neglect				1.34	0.78, 2.32	0.287
Supervisory neglect				1.10	0.61, 1.96	0.761
Moral/legal or educational neglect				2.53	0.91, 7.04	0.075
# Co-occurring maltreatment types	0.98	0.61, 1.58	0.938	1.35	0.87, 2.07	0.180
Prior reports of maltreatment	1.34	0.82, 2.20	0.248	1.70	1.20, 2.41	0.003
Caregiver substance use	**2.61**	**1.19, 5.70**	**0.017**	**2.79**	**1.72, 4.53**	**0.000**
Caregiver serious mental health problems	**3.07**	**1.44, 6.52**	**0.004**	**2.34**	**1.44, 3.81**	**0.001**
Caregiver recent arrests or detention	1.60	0.72, 3.56	0.253	1.37	0.84, 2.22	0.202
Intimate partner violence	1.65	0.63, 4.34	0.309	1.19	0.60, 2.36	0.615
Child age (years)	0.98	0.93, 1.03	0.473	**0.93**	**0.90, 0.97**	**0.000**
Child gender (female)	0.90	0.55, 1.47	0.372	0.83	0.59, 1.16	0.264
Child race (White)	**0.43**	**0.24, 0.78**	**0.005**	0.88	0.60, 1.29	0.505
Child race (Other)	0.60	0.24, 1.41	0.238	1.19	0.64, 2.19	0.584
Child Hispanic	**2.44**	**1.29, 4.63**	**0.006**	**1.61**	**1.06, 2.45**	**0.026**
R²/Adjusted R²		0.134/ 0.206			0.191/ 0.296	
Step 2a (age X perpetrator interaction)						
Child age*father alone	1.03	0.93, 1.14	0.556	1.06	0.95, 1.19	0.292
Child age*mother & father	1.00	0.81, 1.23	0.977	1.01	0.92, 1.11	0.810
Step 2b (gender X perpetrator interaction)						
Child gender*father alone	0.95	0.33, 2.79	0.931	2.70	0.91, 7.97	0.072
Child gender*mother & father	1.27	0.23, 7.13	0.783	**2.99**	**1.09, 8.21**	**0.033**
Step 2c (race X perpetrator interaction)						
Child race (White)*father alone	0.29	0.05, 1.53	0.143	0.97	0.29, 3.28	0.958
Child race (White)*mother & father	0.27	0.03, 2.74	0.266	1.36	0.45, 4.12	0.584
Child race (Other)*father alone	0.12	0.01, 1.10	0.061	0.77	0.13, 4.50	0.769
Child race (Other)*mother & father	0.28	0.01, 6.98	0.438	1.32	0.23, 7.60	0.756
Step 2d (ethnicity X perpetrator interaction)						
Child Hispanic*father alone	0.89	0.23, 3.48	0.869	1.46	0.24, 8.85	0.680
Child Hispanic*mother & father	0.20	0.03, 1.23	0.083	0.54	0.18, 1.60	0.267

Notes. [a] Burning/violent handling/choking/shaking (reference category is less severe types). OR= odds ratio; CI = confidence interval. Significant parameters are in bold.

Table 6. Multivariate Analyses Predicting Substantiation

	Physical Abuse			Neglect		
	OR	95% CI	P	OR	95% CI	P
Step 1						
Father alone perpetrator	1.55	0.91, 2.66	0.108	0.98	0.57, 1.67	0.935
Mother & father perpetrator	0.97	0.49, 1.91	0.921	0.80	0.80, 1.77	0.398
Most severe physical abuse[a]	0.88	0.54, 1.43	0.605			
Maltreatment severity	**2.01**	**1.65, 2.45**	**0.000**	**1.49**	**1.49, 1.94**	**0.000**
Physical neglect				0.81	0.81, 1.89	0.317
Supervisory neglect				0.90	0.90, 2.28	0.131
Moral/legal or educational neglect				**1.33**	**1.33, 7.19**	**0.009**
# Co-occurring maltreatment types	**1.85**	**1.21, 2.82**	**0.004**	0.92	0.67, 1.28	0.618
Prior reports of maltreatment	1.66	1.03, 2.67	0.038	0.90	0.66, 1.23	0.493
Caregiver substance use	**2.98**	**1.65, 5.37**	**0.000**	**2.95**	**2.12, 4.10**	**0.000**
Caregiver serious mental health problems	1.64	0.96, 2.79	0.069	**1.79**	**1.28, 2.51**	**0.001**
Caregiver recent arrests or detention	0.66	0.35, 1.27	0.213	1.37	0.96, 1.95	0.086
Intimate partner violence	1.15	0.60, 2.18	0.676	**1.76**	**1.11, 2.79**	**0.017**
Child age (years)	0.98	0.93, 1.03	0.448	0.99	0.96, 1.02	0.556
Child gender (female)	1.19	0.76, 1.87	0.452	0.77	0.57, 1.04	0.088
Child race (White)	**0.47**	**0.28, 0.80**	**0.005**	1.08	0.76, 1.51	0.678
Child race (Other)	0.98	0.44, 2.18	0.961	1.02	0.60, 1.71	0.954
Child Hispanic	1.27	0.73, 2.19	0.401	0.97	0.69, 1.37	0.857
R^2 / Adjusted R^2		0.231/ 0.314			0.229/ 0.306	
Step 2a (age X perpetrator interaction)						
Child age*father alone	1.03	0.94, 1.14	0.514	1.04	0.94, 1.16	0.467
Child age*mother & father	0.84	0.69, 1.03	0.086	**0.87**	**0.79, 0.95**	**0.002**
Step 2b (gender X perpetrator interaction)						
Child gender*father alone	1.70	0.61, 4.73	0.306	0.96	0.33, 2.78	0.933
Child gender*mother & father	3.31	0.87, 12.64	0.080	1.51	0.68, 3.34	0.309
Step 2c (race X perpetrator interaction)						
Child race (White)*father alone	0.43	0.13, 1.36	0.151	0.57	0.16, 2.00	0.382
Child race (White)*mother & father	1.22	0.31, 4.77	0.771	0.62	0.24, 1.57	0.315
Child race (Other)*father alone	0.37	0.05, 2.54	0.308	**0.17**	**0.03, 0.97**	**0.046**
Child race (Other)*mother & father	3.83	0.34, 43.43	0.278	0.29	0.07, 1.24	0.095
Step 2d (ethnicity X perpetrator interaction)						
Child Hispanic*father alone	1.16	0.38, 3.56	0.790	0.82	0.20, 3.45	0.791
Child Hispanic*mother & father	1.74	0.41, 7.44	0.455	0.84	0.35, 2.02	0.700

Notes. [a] Burning/violent handling/choking/shaking (reference category is less severe types). OR= odds ratio; CI = confidence interval. Significant parameters are in bold.

Table 7. Multivariate Analyses Predicting New Out-of-Home Placement

	Physical Abuse			Neglect		
	OR	95% CI	P	OR	95% CI	p
Step 1						
Father alone perpetrator	0.63	0.35, 1.13	0.118	1.10	0.63, 1.93	0.743
Mother & father perpetrator	1.53	0.80, 2.92	0.202	1.07	0.72, 1.58	0.755
Most severe physical abuse[a]	1.18	0.73, 1.90	0.505			
Maltreatment severity	**1.34**	**1.12, 1.61**	**0.001**	**1.57**	**1.39, 1.78**	**0.000**
Physical neglect				1.37	0.91, 2.07	0.127
Supervisory neglect				1.18	0.75, 1.86	0.474
Moral/legal or educational neglect				1.14	0.46, 2.85	0.775
# Co-occurring maltreatment types	**1.56**	**1.06, 2.28**	**0.023**	1.27	0.94, 1.72	0.125
Prior reports of maltreatment	1.34	0.82, 2.19	0.240	**1.54**	**1.11, 2.13**	**0.009**
Caregiver substance use	1.37	0.78, 2.39	0.279	**2.16**	**1.56, 2.98**	**0.000**
Caregiver serious mental health problems	**2.00**	**1.20, 3.34**	**0.008**	**1.61**	**1.16, 2.23**	**0.004**
Caregiver recent arrests or detention	**2.54**	**1.43, 4.50**	**0.001**	**1.60**	**1.14, 2.25**	**0.006**
Intimate partner violence	1.52	0.80, 2.88	0.197	1.30	0.86, 1.97	0.217
Child age (years)	0.96	0.91, 1.01	0.146	0.95	0.92, 0.99	0.007
Child gender (female)	0.99	0.62, 1.59	0.978	0.97	0.72, 1.32	0.854
Child race (White)	**0.49**	**0.29, 0.83**	**0.008**	**0.70**	**0.49, 0.98**	**0.038**
Child race (Other)	0.78	0.36, 1.69	0.537	**0.49**	**0.28, 0.86**	**0.013**
Child Hispanic	1.12	0.64, 1.98	0.684	1.06	0.74, 1.51	0.747
R2/ Adjusted R2		0.179/ 0.259			0.184/ 0.263	
Step 2a (age X perpetrator interaction)						
Child age*father alone	0.91	0.82, 1.02	0.090	1.07	0.96, 1.19	0.244
Child age*mother & father	**0.73**	**0.57, 0.94**	**0.013**	0.96	0.87, 1.05	0.325
Step 2b (gender X perpetrator interaction)						
Child gender*father alone	0.44	0.14, 1.41	0.167	0.53	0.17, 1.65	0.275
Child gender*mother & father	0.68	0.19, 2.40	0.544	**0.41**	**0.19, 0.89**	**0.023**
Step 2c (race X perpetrator interaction)						
Child race (White)*father alone	1.10	0.32, 3.78	0.880	1.03	0.26, 4.10	0.962
Child race (White)*mother & father	1.63	0.44, 6.02	0.465	0.52	0.21, 1.25	0.143
Child race (Other)*father alone	1.06	0.17, 6.60	0.949	1.62	0.26, 10.10	0.604
Child race (Other)*mother & father	1.82	0.18, 18.69	0.615	1.19	0.30, 4.79	0.806
Step 2d (ethnicity X perpetrator interaction)						
Child Hispanic*father alone	0.92	0.26, 3.23	0.899	0.70	0.15, 3.28	0.651
Child Hispanic*mother & father	0.81	0.20, 3.26	0.762	1.70	0.71, 4.06	0.231

Notes. [a] Burning/violent handling/choking/shaking (reference category is less severe types). OR= odds ratio; CI = confidence interval. Significant parameters are in bold.

Table 8. Multivariate Analyses Predicting Criminal Investigation

	Physical Abuse			Neglect		
	OR	95% CI	*p*	OR	95% CI	*p*
Step 1						
Father-alone perpetrator	1.66	0.94, 2.91	0.079	**3.31**	**1.96, 5.58**	**0.000**
Mother & father perpetrator	1.08	0.52, 2.25	0.840	**1.63**	**1.06, 2.50**	**0.027**
Most severe physical abuse[a]	**1.66**	**1.00, 2.75**	**0.049**			
Maltreatment severity	**3.14**	**2.48, 3.97**	**0.000**	**1.18**	**1.03, 1.35**	**0.020**
Physical neglect				0.90	0.58, 1.41	0.655
Supervisory neglect				2.07	1.20, 3.57	0.009
Moral/legal or educational neglect				1.32	0.51, 3.42	0.568
# Co-occurring maltreatment types	1.25	0.79, 1.98	0.333	1.34	0.97, 1.86	0.072
Prior reports of maltreatment	1.00	0.61, 1.64	0.983	0.92	0.65, 1.31	0.637
Caregiver substance use	1.42	0.76, 2.65	0.274	**1.48**	**1.03, 2.14**	**0.035**
Caregiver serious mental health problems	0.95	0.53, 1.71	0.859	1.10	0.75, 1.61	0.635
Caregiver recent arrests or detention	**2.01**	**1.02, 3.96**	**0.044**	1.21	0.82, 1.78	0.343
Intimate partner violence	1.64	0.80, 3.37	0.176	1.12	0.71, 1.78	0.632
Child age (years)	0.97	0.92, 1.02	0.292	0.99	0.96, 1.03	0.737
Child gender (female)	1.05	0.65, 1.70	0.835	**0.70**	**0.50, 0.98**	**0.036**
Child race (White)	0.92	0.53, 1.62	0.783	0.79	0.54, 1.16	0.223
Child race (Other)	1.44	0.64, 3.27	0.377	0.65	0.35, 1.20	0.165
Child Hispanic	0.70	0.38, 1.29	0.254	**2.16**	**1.49, 3.13**	**0.000**
R² / Adjusted R²		0.332/ 0.448			0.072/ 0.117	
Step 2a (age X perpetrator interaction)						
Child age*father alone	**0.88**	**0.80, 0.98**	**0.018**	**0.86**	**0.77, 0.97**	**0.014**
Child age*mother & father	**0.77**	**0.62, 0.96**	**0.020**	1.00	0.92, 1.09	0.972
Step 2b (gender X perpetrator interaction)						
Child gender*father alone	0.40	0.14, 1.17	0.094	0.78	0.28, 2.17	0.638
Child gender*mother & father	0.97	0.22, 4.19	0.962	1.30	0.56, 3.02	0.543
Step 2c (race X perpetrator interaction)						
Child race (White)*father alone	0.97	0.28, 3.40	0.965	0.65	0.20, 2.05	0.458
Child race (White)*mother & father	0.33	0.07, 1.54	0.158	0.67	0.25, 1.79	0.419
Child race (Other)*father alone	1.03	0.15, 6.94	0.975	0.16	0.02, 1.07	0.059
Child race (Other)*mother & father	0.10	0.01, 2.29	0.151	0.85	0.19, 3.69	0.825
Step 2d (ethnicity X perpetrator interaction)						
Child Hispanic*father alone	**7.91**	**2.21, 28.28**	**0.001**	0.81	0.23, 2.92	0.751
Child Hispanic*mother & father	0.99	0.18, 5.57	0.993	1.98	0.82, 4.80	0.129

Notes. [a] Burning/violent handling/choking/shaking (reference category is less severe types). OR= odds ratio; CI = confidence interval. Significant parameters are in bold.
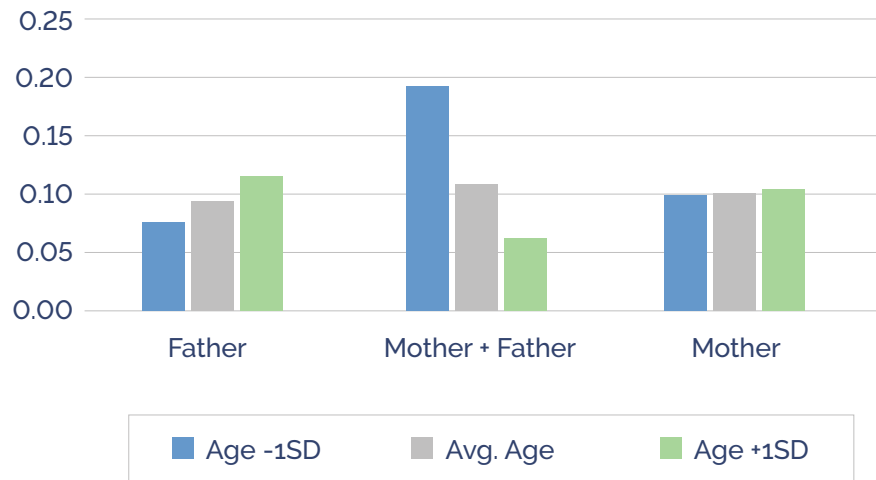
Table 9. Multivariate Analyses Predicting Charges Filed

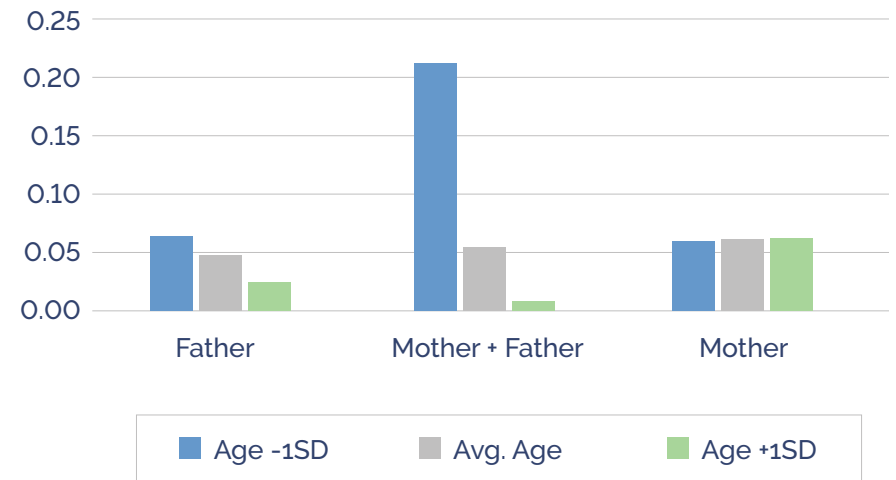|	Physical Abuse			Neglect		
	OR	95% CI	p	OR	95% CI	P
Step 1						
Father-alone perpetrator	**1.97**	**1.01, 3.83**	**0.048**	**3.96**	**1.99, 7.88**	**0.000**
Mother & father perpetrator	0.56	0.23, 1.37	0.202	1.66	0.94, 2.95	0.083
Most severe physical abuse[a]	**1.93**	**1.08, 3.45**	**0.026**			
Maltreatment severity	**1.89**	**1.51, 2.36**	**0.000**	**1.30**	**1.09, 1.55**	**0.004**
Physical neglect				1.13	0.65, 1.98	0.666
Supervisory neglect				**2.91**	**1.40, 6.06**	**0.004**
Moral/legal or educational neglect				**3.64**	**1.12, 11.80**	**0.031**
# Co-occurring maltreatment types	1.55	0.96, 2.49	0.071	1.24	0.81, 1.48	0.321
Prior reports of maltreatment	0.84	0.46, 1.53	0.577	0.99	0.61, 1.59	0.959
Caregiver substance use	1.20	0.59, 2.42	0.618	**1.64**	**1.02, 2.64**	**0.043**
Caregiver serious mental health problems	1.24	0.64, 2.38	0.520	1.07	0.65, 1.76	0.805
Caregiver recent arrests or detention	1.93	0.92, 4.04	0.081	**2.10**	**1.31, 3.39**	**0.002**
Intimate partner violence	1.94	0.93, 4.03	0.078	1.36	0.78, 2.38	0.281
Child age (years)	1.00	0.94, 1.07	0.985	**0.93**	**0.88, 0.99**	**0.024**
Child gender (female)	0.85	0.48, 1.51	0.575	0.74	0.47, 1.16	0.192
Child race (White)	0.55	0.29, 1.07	0.077	**0.59**	**0.35, 0.98**	**0.043**
Child race (Other)	0.37	0.12, 1.13	0.082	0.50	0.22, 1.16	0.106
Child Hispanic	1.39	0.70, 2.74	0.347	**2.26**	**1.37, 3.71**	**0.001**
R^2/ Adjusted R^2		0.181/ 0.301			0.079/ 0.172	
Step 2a (age X perpetrator interaction)						
Child age*father Alone	0.95	0.84, 1.07	0.386	0.89	0.75, 1.06	0.182
Child age*mother & father	1.01	0.80, 1.28	0.927	0.94	0.82, 1.09	0.401
Step 2b (gender X perpetrator interaction)						
Child gender*father alone	1.79	0.51, 6.31	0.363	0.65	0.17, 2.52	0.531
Child gender*mother & father	0.88	0.14, 5.45	0.888	1.84	0.60, 5.65	0.287
Step 2c (race X perpetrator interaction)						
Child race (White)*father alone	2.08	0.51, 8.49	0.309	0.33	0.08, 1.37	0.127
Child race (White)*mother & father	1.37	0.24, 7.83	0.722	0.34	0.10, 1.18	0.090
Child race (Other)*father alone	0.34	0.03, 3.48	0.374	0.37	0.04, 3.43	0.380
Child race (Other)*mother & father	0.00	0.00, 0.00	0.999	1.16	0.17, 7.96	0.878
Step 2d (ethnicity X perpetrator interaction)						
Child Hispanic*father alone	4.03	0.99, 16.40	0.051	1.04	0.23, 4.81	0.958
Child Hispanic*mother & father	1.51	0.22, 10.48	0.677	2.61	0.83, 8.23	0.103

Notes. [a] Burning/violent handling/choking/shaking (reference category is less severe types). OR= odds ratio; CI = confidence interval. Significant parameters are in bold.

Figure 1. Predicted Probabilities for Interactions Between Perpetrator Groups and Child Age (at Sample Mean and at One Standard Deviation Above and Below the Mean).
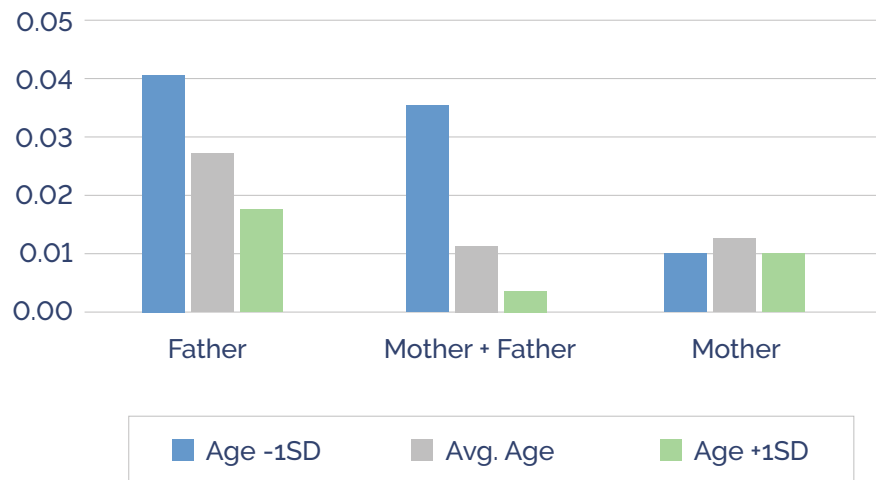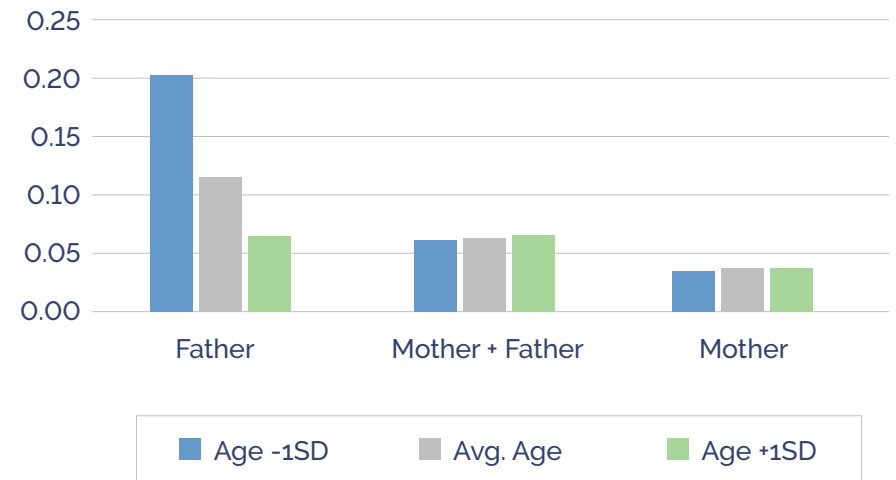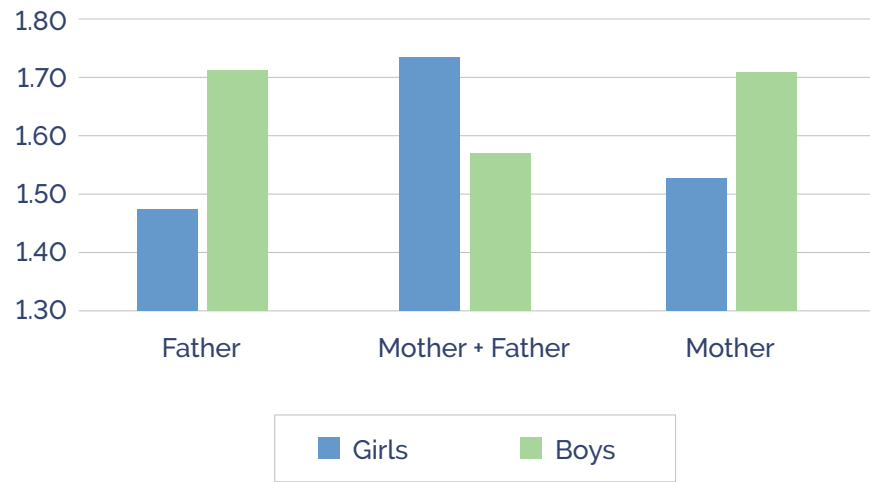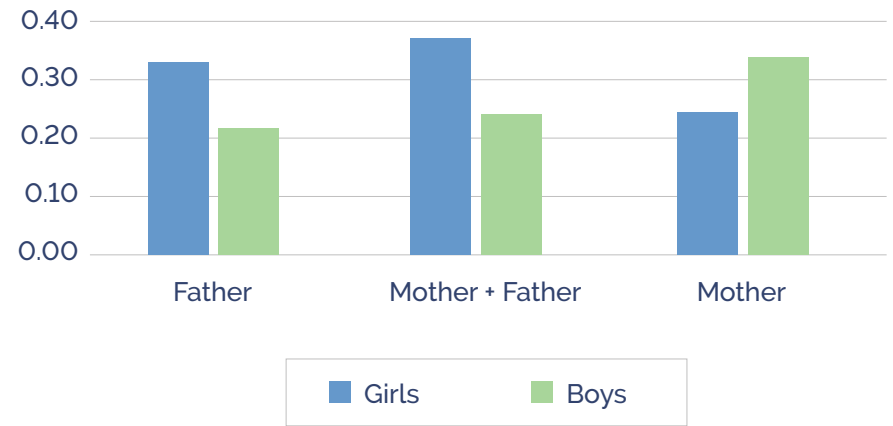
Figure 2. Predicted Probabilities for Interactions Between Perpetrator Groups and Child Gender.

Interaction Predicting Caseworker-Rated Risk (Neglect)

Interaction Predicting Services (Neglect)

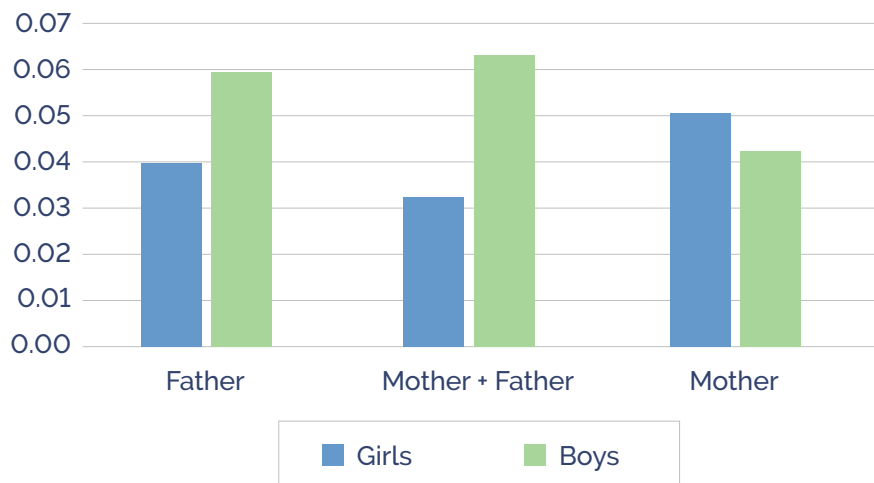Interaction Predicting New Out-of-Home Placement (Neglect)

Figure 3. Predicted Caseworker Rated Risk and Probabilities of Substantiation and Criminal Investigation for Interactions Between Perpetrator Groups and Child Race or Ethnicity.

Interaction Predicting Caseworker-Rated Risk (Physical Abuse)

Interaction Predicting Services (Neglect)

Interaction Predicting New Out-of-Home Placement (Neglect)