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Who makes the call? Examining the relationship between child maltreatment referral sources and case outcomes in the United States, 2008-2018

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ABSTRACT

Background: Research shows general increases in child maltreatment reports in the U.S. However, less is understood about how reporting varies across states and changes over time, from a perspective of referral sources. While recent studies during COVID-19 reported a reduction in maltreatment referrals, predominantly school referrals, little research has examined changes in maltreatment referrals by referral sources before the pandemic and how different referral sources are associated with case outcomes, particularly out-of-home placement.

Objectives: This study examined 1) variations across states and changes over time in maltreatment reporting by referral source and 2) the relationship between referral sources type and two case outcomes: substantiated maltreatment and out-of-home placement.

Participants and setting: We used 2008–2018 data ($N = 24,349,293$) from the National Child Abuse and Neglect Data System.

Methods: We used descriptive trend analysis and pooled, fixed effects binary logistic regression.

Results: We found gradual increases in reporting during 2008–2018, with substantial variations across states and referral sources. States rely differently on certain reporter types, while we see the largest increase in education referrals and a small decrease in social services referrals. Regression results showed that education referrals were less likely to result in out-of-home placement; law enforcement referrals were most likely to be substantiated, while social service referrals were most likely to result in out-of-home placement.

Conclusion: This study makes unique contributions to literature by expanding our knowledge of referral sources and examining the likelihood of substantiation and out-of-home placement by referral source type. We provide child welfare policy and practice implications.

1. Introduction

Every year, about four million reports of child maltreatment allegations are investigated by public child welfare agencies in the United States (U.S. Department of Health and Human Services [U.S. DHHS], 2022a). These investigations are normally initiated by calls (i.e., reports or referrals) made to child abuse and neglect hotline numbers. The individuals making these calls (i.e., referral

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sources) come from a host of social institutions (e.g., schools, healthcare facilities, social service agencies, the legal system) and community members (e.g., neighbors or friends). When a family is reported for suspicions of child maltreatment, they have been referred to child protective services. The majority of those individuals making the referrals are mandated reporters, such as education personnel, law enforcement personnel, medical personnel, social service personnel, and mental health personnel (U.S. DHHS, 2022b).

Studies have shown wide variation in the volume of referrals made to the child abuse and neglect hotlines between states and counties (e.g., Dakil et al., 2011). Variations in referral sources may contribute to such variations in reports across states, and certain referral sources may contribute to disproportionate racial/ethnic responses. Some studies suggest that disproportionality existing at the “front end” of the child welfare system may drive persistent disproportionalities that endure and amplify throughout the system (e.g., Mumpower, 2010; Park et al., 2022). In other words, referral sources play a significant role in how families interact with the child welfare system and the eventual outcome for parents and children.

Studies conducted during the COVID-19 pandemic found that referrals from schools dramatically decreased during the early pandemic periods after schools were shut down (e.g., Park et al., 2022), consistent with statistics reported by the federal government (U.S. DHHS, 2019; U.S. DHHS, 2020). However, little research to date has closely looked at national-level changes in referral sources over time—including pre-pandemic periods—as well as state variation, which may be influenced by between-state differences and within-state changes in child welfare policy (e.g., extended foster care programs). In the interest of extending our knowledge from recent evidence on referral source shifts during COVID-19, this study expands the study period to a decade dating prior to the pandemic (2008–2018) to examine: (1) how child maltreatment referral sources change over time and vary by state, and (2) to what extent referral sources are associated with two child welfare case outcomes: substantiated maltreatment and out-of-home placement. While substantial research has documented maltreatment referrals generally (as noted in the background below), to the knowledge of the authors, no studies to date have examined changes in maltreatment referrals and the likelihood of case outcomes, particularly out-of-home placement, from a perspective of referral sources. To assess these questions, we analyzed National Child Abuse and Neglect Data System (NCANDS) data, using fixed effects logistic regression.

2. Background

Research suggests that the prevalence of child maltreatment and maltreatment reporting vary according to the sociohistorical context, such as pandemics and recessions (Schneck-Fontaine & Gassman-Pines, 2020; Schusterman et al., 2022). This study builds upon knowledge about trends in child maltreatment reporting and child welfare case outcomes. Below, we assess the existing literature concerning this topic, by beginning with a review of mandated reporting policies in the U.S. context.

2.1. U.S. mandated reporting policy

As the Child Abuse Prevention and Treatment Act of 1988, the primary federal child welfare policy, requires each state to have mandated reporter laws (Kesner, 2008; Templeman & Davis, 2022), mandated reporting policy is developed and overseen at the state level (Krase & DeLong-Hamilton, 2015; Templeman & Davis, 2022). Currently, 47 states have mandated reporting policies that require particular professionals who work with children and youth to report suspicious child maltreatment (Kim & Maguire-Jack, 2021). For example, teachers, law enforcement, medical personnel, social services personnel, and mental health personnel are generally considered mandated reporters in states with mandated reporting laws, while some states have expanded their policies to include additional professionals (e.g., clergy, athletic trainers) in their definition of mandated reporters (Krase & DeLong-Hamilton, 2015). Moreover, several states (e.g., Kentucky, Texas) have instituted universal mandated reporting laws to require every person over the age of 18 to report suspicious child maltreatment (Kim & Maguire-Jack, 2021; Krase & DeLong-Hamilton, 2015). Policies and programs concerning mandated reporter training also vary by state, resulting in substantial variation in training quality and training requirements across the nation (Ho et al., 2017; Kesner, 2008; Kesner & Robinson, 2002).

2.2. Trends in child maltreatment reporting over time

Research shows that overall child maltreatment reporting has steadily increased in the U.S. since the 1970s (McDaniel, 2006). Data show that annual U.S. child maltreatment reports increased from 38.9 to 47.8 per 1000 children between 2007 and 2018 (U.S. DHHS, 2020). Looking at changes in reporting over time by reporter type, Kim and Maguire-Jack (2021) used National Child Abuse and Neglect Data System (NCANDS) data from 2003 to 2017 and found that reports from professional referral sources increased, while reports from nonprofessional referral sources did not change significantly. Similarly, Tonmyr et al. (2010) found that maltreatment reports in Canada increased between 1998 and 2003 across all professional reporting sources, with nonhealthcare referrals increasing more rapidly than those by healthcare professionals. Yet, there is limited research examining changes in reporting in the U.S. over time segregated by specific reporter type (e.g., education personnel, law enforcement personnel, medical personnel, social service personnel, and mental health personnel).

Changes in child welfare policies may explain mechanisms of changes in reporting over time. In a study using NCANDS data from 2005 to 2018, Day and colleagues (2022) found that changes to state policy and hence administrative system operations did have long-term effects on both reporting and substantiation of child maltreatment cases. For example, implementing a centralized intake system for child maltreatment reports resulted in an increase in reporting of 14–16 % during the first two years following implementation; and shifts in data reporting, instituting mandated reporters, adding new staff, and expanding the scope of child maltreatment definitions increased reporting. Notable in their findings was that raising the standard of child maltreatment evidence decreased the number of

reports over time (Day et al., 2022).

2.3. Geographic variations in child maltreatment reporting

Using NCANDS data from 2010, Krase and DeLong-Hamilton (2015) compared reporting rates between the states that had universal mandated reporting laws and those that did not, finding no significant differences in overall rates of referrals. Ho et al. (2017) also found no significant difference in rates of reporting and confirmed victimization between the states with universal mandated reporting laws and those without.

One study by LaBrenz and colleagues (2022) using NCANDS data from 2019 examined maltreatment substantiation rates by state. They found that some states (Connecticut, Hawaii, Louisiana, Massachusetts, New Mexico, Rhode Island, South Dakota, Utah) had 10 % or higher substantiation rates above the national average rate (20.7 %), while other states (Georgia, Kansas, Missouri, New Hampshire, New Jersey, Tennessee, Washington) had 10 % or lower substantiation rates below the national average rate.

As noted above, while a few studies have examined reporting rates by mandated reporting policy and maltreatment substantiation rates by state, limited research to date has examined how referral sources geographically differ across states. This gap in evidence is vital to fill because the geographical context within which children and families live can vary due to state policies and practices. For example, the institution of central intake hotlines, the requirement of specialized training for mandated reporters, or the availability of mental health counselors required for schools can contribute to differences in awareness of mandated reporting, access to reporting mechanisms, and the makeup of reporters, resulting in variations in child welfare case processing and decision-making flows. As a result, where children and families reside may potentially influence how they contact and interact with the child welfare system, as well as decisions on maltreatment reporting.

2.4. Child maltreatment reporting and mandated reporter types

Some studies have examined reporting rates by reporter type. Mandated professional reporters refer the most child maltreatment cases to the child welfare system (Foster et al., 2010; McDaniel, 2006). Among the mandated reporters, education personnel consistently refer the highest proportion of maltreatment reports to the child welfare system (Ho et al., 2017; Kesner & Robinson, 2002; King & Scott, 2014; Schusterman et al., 2022). For example, Schusterman et al. (2022) using NCANDS data from 2019 found that education personnel made 22 % of all child maltreatment reports, followed by law enforcement (19 %), medical personnel (11 %), social service personnel (10 %), and mental health providers (6 %).

Studies also find that the demographics of children referred for maltreatment vary significantly by reporter types. Education professionals were more likely than law enforcement and medical personnel to report older children, while medical personnel were more likely to report younger children (Kesner, 2008; Kesner & Robinson, 2002; Tonmyr et al., 2010). Additionally, educators were more likely than medical personnel and social services personnel to report White children and less likely than medical personnel to report African American children (Kesner & Robinson, 2002). King and Scott (2014) show that compared to other types of mandated reporters, educators were more likely to refer chronic maltreatment cases that had lasted six months or longer and been previously referred to the child welfare system. In a study investigated in Canada, educators were more likely than other mandated reporters to refer families with greater numbers of children and children with functioning problems, while educators were less likely to report cases involving family-level factors (e.g., housing instability, low incomes, single parenting).

2.5. Child welfare case outcomes and mandated reporter types

2.5.1. Substantiation of child maltreatment

Looking at rates of substantiation, the largest proportion of substantiated reports comes from mandated reporters (Ho et al., 2017; King et al., 2013). Among the mandated reporters, studies have shown that cases referred by law enforcement personnel had the highest substantiation rate, followed by medical personnel, mental health personnel, and education personnel (Kesner, 2008). Another study using NCANDS data from 2019 showed that about 33 % of referrals from law enforcement were substantiated, followed by 27 % from medical personnel, 22 % from social services, and 16 % from foster care providers, while reports made by other professionals (e.g., education personnel, childcare providers, mental health personnel) were all substantiated at about the similar rates (10–13 %) (Schusterman et al., 2022).

Looking at the likelihood of substantiation, most studies used nonmandated reporters as the reference group. Studies have shown that reports made by law enforcement are significantly more likely than those made by nonmandated reporters to be substantiated (Foster et al., 2010; Ho et al., 2017; Kesner, 2008; King et al., 2013). In comparison, the study by Ho et al. (2017) found that cases reported by mental health personnel were less likely than nonmandated reporters to be substantiated and that there was no difference in the likelihood of substantiation between cases reported by education and childcare personnel and nonmandated reporters.

Considering substantiation and maltreatment type, the authors found that reports of physical abuse were most likely to be substantiated when made by law enforcement, followed by social services, childcare personnel, education personnel, and mental health personnel (Ho et al., 2017). Those findings are in line with the study by King et al. (2013) that focused on California. In that study, the authors found that physical abuse was more likely to be substantiated when reported by law enforcement or medical personnel, while sexual abuse was more likely to be substantiated when reported by law enforcement. Potential explanations for law enforcement's high substantiation rate across abuse types may include the fact that law enforcement personnel are familiar with the legal definitions of crime and trained to obtain sufficient evidence to prove that a law has been broken (Ho et al., 2017; Kesner, 2008; King et al., 2013).

Another possible explanation is that referrals by law enforcement may have a high substantiation rate because law enforcement come into contact with families at the acute moment of maltreatment (e.g., responding to a domestic violence call) (King et al., 2013).

As noted above, studies have shown a stark contrast between the reports made by law enforcement and those by education personnel, which make the largest proportion of mandated reporters but consistently have the lowest rate of substantiation among mandated professionals (Ho et al., 2017; Kesner, 2008; King & Scott, 2014). For example, educators had the lowest substantiation rates among mandated reporters: 54–56 % compared to a 72 % average rate (Kesner & Robinson, 2002; King & Scott, 2014). In other words, education personnel were found to be more than twice as likely as other mandated reporters to have their reports unsubstantiated (King & Scott, 2014). There is often no required training for mandated reporters and the trainings that are offered vary in quality, which could, in turn, impact the quality of reporting and evidence that education personnel provide to child welfare systems (Ho et al., 2017; Kesner, 2008; Kesner & Robinson, 2002). The reporting of educators may also rely on emotional or behavioral changes in students or self-disclosure, which might not be sufficient evidence for substantiation of maltreatment (Ho et al., 2017; King & Scott, 2014).

2.5.2. Out-of-home placement

Very little research to date has examined outcomes (e.g., out-of-home placement) beyond the substantiation decision point in the U.S. child welfare system. One study (Kim & Maguire-Jack, 2021) showed that child maltreatment referrals from mandated reporters had a slightly higher chance of their cases being intact family cases rather than foster care placement cases. Another study (Tonmyr et al., 2010) conducted in Canada found that cases resulting in out-of-home placement were more likely to be reported by healthcare personnel than other mandated reporters. To the best knowledge of the authors, no study to date has examined the likelihood of out-of-home placement by different reporter type.

The current study considers the influence of different referral sources on the likelihood that a child is placed in out-of-home care. We consider this outcome because the lack of evidence on the relationship between referral source type and foster care placement may limit policy reform and advocacy efforts of practitioners and administrators, particularly those promoting family preservation and child removal prevention based on laws such as the Family First Prevention Services Act of 2018. By understanding the extent to which different mandated professionals exercise their role in case outcomes, this study can shed light on mechanisms through which certain referral types may play a role in disproportionate case outcomes.

2.6. Present study

Prior research suggests that reporters play a significant role at the front end of the child welfare system, and that they have distinctive roles in the substantiation of child maltreatment. However, research on their roles in other child welfare case decision outcomes, particularly out-of-home placement, has yet to be conducted. To fill this gap in research, the present study makes important contributions to the literature and advances our understanding of the influence of different referral sources on child welfare case outcomes, by addressing two research aims:

1. Examine how child maltreatment referral sources change over time and vary by state.
2. Assess the relationship between referral sources and two child welfare case outcomes: substantiated maltreatment and out-of-home placement.

3. Methods

3.1. Analysis plan

In order to best achieve the two research aims stated above, we use the National Child Abuse and Neglect Data System (NCANDS) child files from 2008 to 2018, merged with ACS data and some additional sources, to provide descriptive analysis and to conduct pooled logistic regression analysis with fixed effects on state and year, for the outcomes we are interested in this study: substantiated maltreatment and foster care placements. The descriptive analysis examines trends in referral sources and maltreatment reporting over time and across states. For our models, the use of logistic regression with fixed effects takes advantage of the hierarchical structure of the data (e.g., reports nested in states, over years) while controlling for time-invariant factors within the states in which reports are clustered (Firebaugh et al., 2013). Our models also employ robust standard errors clustered by state to reduce bias in standard error estimates given the structure of the data (McNeish & Kelley, 2019).

3.2. Data and sample

We used two primary sources of data: (1) National Child Abuse and Neglect Data System (NCANDS) Child File datasets from 2008 to 2018; and (2) American Community Survey (ACS)¹ data for the same time periods. NCANDS data were retrieved from the National Data Archive on Child Abuse and Neglect (NDACAN), which gathers state- and county-reported child welfare administrative data and

¹ ACS data were retrieved from the National History GIS (NHGIS) using their Data Finder tool (<https://data2.nhgis.org/>).

provides them to the U.S. Children's Bureau each year (U.S. Children's Bureau, 2021a). While NCANDS is the largest population-level administrative data that represent the experiences of children and adolescents involved in the U.S. child welfare system, it is imperfect and has some shortcomings arising from inconsistencies in the data collection and reporting practices of individual states (as discussed in our Limitations section). The respective year NCANDS Child Files were appended into a single file, and then ACS data were merged into that file using Stata. In addition to NCANDS and ACS data, we used other data sources to include three additional measures capturing state child welfare policy variations developed by Nadon and Ybarra (forthcoming): (1) whether a state has extended foster care (EFC)²; (2) whether a state has a guardianship payment program³; and (3) how a state's child welfare system is administered (state, county, or hybrid).⁴

From the final merged dataset, cases with children under age 18 from 50 states and D.C. were selected, excluding cases from Puerto Rico, cases missing the referral source, and cases missing the state (Puerto Rico cases were not included due to data from Puerto Rico child welfare policies and demographics being inconsistently available), yielding a total of 39,628,067 cases. In focusing our research aim on the key, distinct reporters of child maltreatment, the study sample for regression analysis was restricted to cases referred from top five referral sources (education personnel, legal/law enforcement personnel, medical personnel, social service personnel, mental health personnel), making up 61.5 % of the total cases during 2008–2018, and the analysis focused on unique reports. Thus, IDs were grouped by Child ID, Report ID, and year. Any duplicates across Child ID, Report ID, and year were dropped by the earliest date, keeping the most recent report. This process yielded an analytic sample of 24,349,293 unique cases. Analysis was conducted in Stata 17, and any missing data (e.g., missing foster care placement data or race data) were coded appropriately and addressed in the models by Stata's default handling of missing data, which is listwise deletion or "full case analysis" (Meyer, 2022).

3.3. Measures

3.3.1. Dependent variables

The dependent variables include two binary measures of child welfare case outcomes: (1) whether a child maltreatment report was substantiated (yes/no); and (2) whether a report involved out-of-home placement (yes/no). **Substantiation** is based on whether the disposition decision of a case was identified as substantiated. **Out-of-home placement** is based on whether the indication of foster care services was identified.⁵ NCANDS data refer to cases in which a child was placed in foster care as "foster care services" (U.S. Children's Bureau, 2021b).⁶

3.3.2. Independent variables

Referral Source. Our primary independent variable is a categorical measure of, according to prior literature, child maltreatment referrals by five most common mandated reporters: (1) education personnel; (2) legal, justice system, or law enforcement personnel; (3) medical personnel; (4) social service personnel; and (5) mental health personnel. Of these five categories, mental health personnel was coded as the reference group based on their smallest share of referrals among the cases used in this study.

Child-Level Factors. There are four child-level demographic factors included in this study: **age**, **sex** (females, males), **ethnicity** (Hispanic,⁷ any race), and **race** (Native American/Alaskan Native, Asian, Black, Hawaiian/Pacific Islander, Multiracial, White). Age was coded as a categorical variable with five categories based on key developmental stages: infants/toddlers (ages 0–3.99), pre-K/ kindergarten (ages 4–5.99), middle childhood (ages 6–9.99), early adolescence (ages 10–13.99), and late adolescence (ages 14–17.99). Additionally, we included two categorical measures of maltreatment characteristics: **child maltreatment allegation types**, a set of binary, non-exclusive variables identifying if a child had any of each of the following alleged maltreatment types recorded in their case: neglect, physical abuse, sexual abuse, medical neglect, psychological/emotional abuse, no alleged maltreatment/other; and **prior maltreatment history**, capturing whether a child had histories of prior substantiated or indicated child maltreatment reports (yes/no).

Contextual Factors. Drawing on other public-source data, the study included two time-varying measures of state- and system-level characteristics to account for the influence of contextual factors in the relationships between referral sources and child welfare case outcomes: (1) **poverty rate** of the child's residing state (ranging from 10 to 24 %, and varying across years); and (2) **child welfare system administration structure** in the child's residing state (1 = state-administered, 2 = county-administered, 3 = hybrid). We included statewide poverty rates as a proxy for the socioeconomic status of families in order to control for a critical confounding factor in its relationship with child welfare case outcomes and to account for the system's class-based biases (e.g., Landers et al., 2019). The

² Nadon & Ybarra's EFC data was collected from: <https://www.childwelfare.gov/pubpdfs/extensionfc.pdf>.

³ Nadon & Ybarra's Guardianship payment data was collected from: <https://www.grandfamilies.org/topics/guardianship-assistance>.

⁴ Nadon & Ybarra's Data on state administration of child welfare was collected from: <https://www.childwelfare.gov/pubs/factsheets/services/>.

⁵ Of note, the service variables in NCANDS data are not as high quality as some other basic case information, such as the referral source, because the information is collected and reported by individual states that may differently define and gather data. As a result, the out-of-home placement variable has more missing data than the substantiation variable. We further discuss this in the Limitations section.

⁶ For additional information about NCANDS definitions, readers can refer to: https://www.ndacan.acf.hhs.gov/datasets/pdfs_user_guides/ncands-child-file-codebook.pdf.

⁷ The authors of this study are aware of movements to transition away from the use of the term *Hispanic*, in favor of other terms such as *Latinx* or *Latine*. Because the NCANDS data we used for analysis utilizes the term *Hispanic*, we use this term throughout the manuscript for the interest of consistency.

Table 1
Descriptive statistics for independent and dependent variables.

	Original sample (N = 39,628,067)		Analytic sample (N = 24,349,293)	
	n/Mean	%/S.D.	n/Mean	%/S.D.
Child demographic characteristics				
Gender				
Female	19,693,795	49.4	12,004,201	49.3
Male	19,696,275	50	12,174,647	50
	237,997	0.6	170,445	0.7
Race/Ethnicity				
Black	8,763,283	22.1	5,558,196	22.8
White	22,373,602	56.5	13,324,905	54.7
Multiracial	1,738,314	4.4	1,041,221	4.3
Native American/Alaska Native	454,524	1.2	299,363	1.2
Asian	374,560	0.95	288,931	1.2
Hawaiian/Pacific Islander	80,527	0.20	59,044	0.24
Hispanic				
Missing ethnicity data	8,081,420	29.39	7,156,257	29.39
Missing race data	6,802,484	17.17	4,180,774	17.17
	5,843,265	14.8	3,777,633	15.6
Age (0–18)				
	7.7	5.6	8	5.1
0–3	10,607,911	26.8	6,097,844	25.1
4–5	5,049,693	12.7	2,861,402	11.8
6–9	9,516,202	24	5,891,775	24.2
10–13	7,845,710	19.8	5,065,619	20.8
14+	6,608,559	16.7	4,432,653	18.2
Independent variable				
Referral source				
Education personnel	4,409,268	18.4	7,302,984	29.8
Legal/law enforcement personnel	3,290,597	18.4	7,261,509	29.7
Social services personnel	2,097,777	11.1	4,404,441	18
Medical personnel	7,271,660	8.3	3,284,510	13.4
Mental health personnel	7,307,075	5.3	2,095,849	8.6
Other relative	266,661	7.4	–	–
Parent	159,608	7	–	–
Friends/neighbors	149,353	5.1	–	–
Child daycare provider	2,756,431	0.67	–	–
Substitute care provider	2,947,157	0.4	–	–
Alleged victim	2,025,396	0.38	–	–
Alleged perpetrator	18,643	0.05	–	–
Anonymous reporter	3,666,521	9.3	–	–
Other	3,261,928	8.2	–	–
Other covariates				
History of prior maltreatment allegation (yes)	9,778,852	24.7	5,892,529	24.2
Child Maltreatment Allegation Types				
Neglect	21,170,638	53.4	11,743,863	61.53
Physical abuse	7,593,496	19.2	5,071,079	22.75
Sexual abuse	2,187,146	5.5	1,536,956	7.5
Medical neglect	485,576	1.2	363,067	2.55
Psychological/emotional maltreatment	1,562,809	3.9	1,005,117	7.42
No alleged maltreatment/other	6,571,184	16.6	4,739,472	20.48
Poverty rate in child's state (9.5–24.2 %)	15.2	2.5	15	2.5
Extended foster care in child's state (yes)	26,120,788	65.8	16,196,965	66.1
Guardianship payment program in child's state (yes)	32,942,721	83.2	20,331,660	83.5
System administration in child's state				
State-Administered	27,552,197	69.3	16,849,711	69.2
County-Administered	11,197,816	28.2	6,915,199	28.4
Hybrid-Administered	878,062	2.5	584,383	2.4
Year				
2008	3,329,878	8.4	1,937,274	8.0
2009	3,297,021	8.3	1,931,045	7.9
2010	3,189,053	8.1	1,886,163	7.8
2011	3,330,012	8.4	1,967,646	8.1
2012	3,516,863	8.9	2,124,623	8.7
2013	3,494,745	8.8	2,129,851	8.8
2014	3,642,315	9.2	2,253,764	9.3
2015	3,757,444	9.5	2,353,559	9.7
2016	3,943,537	9.9	2,501,882	10.3
2017	4,029,303	10.2	2,579,712	10.6

(continued on next page)

Table 1 (continued)

	Original sample (N = 39,628,067)		Analytic sample (N = 24,349,293)	
	n/Mean	%/S.D.	n/Mean	%/S.D.
2018	4,097,904	10.3	2,683,774	11.0
Outcome variables				
Substantiated maltreatment	8,533,110	21.5	6,306,467	25.9
Out-of-home placement	2,565,419	6.5	2,848,867	11.7

child welfare administrative structure is included in the models to capture service operation and administrative context in how cases are reviewed and managed, informed by previous research showing that administration structure has significant effects on child welfare outcomes (e.g., Elgin & Carter, 2019).

Additionally, we included two measures of state child welfare policy: (3) whether *extended foster care* is implemented in the child's residing state (yes/no, varies by year); and (4) whether a *guardianship payment* program is available in the child's residing state (yes/no). We account for these major policy measures as markers of the type and the range of resources that children and families involved in their child welfare system may receive. Although extended foster care policy may not be explicitly related to maltreatment reporting and substantiated cases, it can reflect both how resources are distributed in an area (e.g., caseworkers may have a larger caseload if there is an extended foster care [EFC] caseload in an area) and how states conceptualizes the role of the child welfare system in terms of service provision and generosity.

Finally, we include fixed effects in the form of dummy variables for (5) *year* of referral disposition start dates, and (6) *state* that captures the child's resident state. By including both the time-varying measures and states, we account for time and geographical effects in our analysis and take advantage of the nested structure of the data (McNeish & Kelley, 2019).

3.4. Data analysis

We first describe sample characteristics. Next, we show descriptive analysis examining how referral sources changed over time and varied by state during the study period, using the original data ($N = 39,628,067$). Lastly, we present results from binary logistic regression for each of two outcome measures to evaluate the relationship between five referral source types and the two child welfare case outcomes, using data focused on unique cases across the five referral sources ($N = 24,349,293$). We report regression results using odds ratios.

4. Results

4.1. Sample description

Table 1 shows the characteristics of all child maltreatment cases referred between 2008 and 2018 in the U.S. using the original dataset ($N = 39,628,067$). In Table 1, we also provide descriptive statistics from the analytic sample ($N = 24,349,293$) focused on the cases from five referral sources. Looking at original data (left column), most of the cases were referred from five mandated professions (61.5 %); they were almost equally referred from education personnel (18.4 %) and legal/law enforcement personnel (18.3 %), followed by social service personnel (11.1 %), medical personnel (8.3 %), and mental health personnel (5.3 %).

Regarding child characteristics, slightly less than half of the cases had females (49.7 %) and more than half had White children (56.5 %), followed by Black (22.1 %), multiracial (4.4 %), Native American/Alaska Native (1.2 %), Asian (0.95 %), and Hawaiian/Pacific Islander (0.20 %). The average and median of children's age in all cases were 7.7 and 7.0, respectively.

In terms of maltreatment characteristics, nearly a quarter of the cases (24.7 %) involved a prior maltreatment history. Looking at the primary alleged maltreatment type, more than half had neglect cases (53.4 %), followed by physical abuse (19.2 %), sexual abuse (5.5 %), emotional abuse (3.9 %), and medical neglect (1.2 %), as well as all other maltreatment types (16.8 %).

Regarding system characteristics, over two-thirds of cases were referred from state-administered child welfare systems (69.3 %), over one-quarter were referred from county-administered child welfare systems (28.2 %), and 2.5 % was referred from states with hybrid systems. Looking at state child welfare policy, about two-thirds of cases were referred from states that had the extended foster care policy (65.8 %), and the majority of the cases were referred from states that provided guardianship payment programs (83.2 %). The average state poverty rate across reports in this sample was 15.2 % (ranging from 9.5 % to 24.2 %), compared to the estimated national average poverty rate of 11.8 % in 2018 (U.S. Semega, Kollar, Creamer, & Mohanty, 2019).

Looking at cases over time and across states, annual child maltreatment reports steadily increased over the study period, from 8.4 % in 2008 to 10.3 % in 2018. Most cases were reported from large states, including California (12 %), Florida (10 %), Texas (8 %), New York (7 %), and Michigan (5 %). Of the cases included in the study sample, over one-fifth of them were substantiated for child maltreatment (21.5 %) and about 6.5 % resulted in out-of-home placement.

4.2. Changes over time and variation by state in referral sources: 2008–2018

4.2.1. Changes in child maltreatment referral sources over time

Fig. 1 displays annual rates of child maltreatment referrals in the U.S. from 2008 to 2018. Given our research aim, we present rates for the top five mandated reporters (not the share of five mandated reporters). Over the 11 years studied, nationally education personnel and legal/law enforcement personnel were the most common sources of child maltreatment referrals (18.4 % and 18.3 %, respectively), while mental health personnel were the least common source of child maltreatment referrals (5.3 %).

Looking at changes over time by referral source, we find that national rates of overall referrals from four sources steadily increased over time (from 8.4 % to 10.3 %), with the largest increase found in education personnel referrals (3.1 %) and the smallest increase found in mental health personnel referrals (1.0 %). The rates of referrals from social services personnel decreased, from 11.6 % in 2008 to 10.5 % in 2018.

4.2.2. Variation in child maltreatment referral sources by state

Table 2 depicts rates of child maltreatment referral sources by state, which varied substantially. Focusing on the five mandated referral sources, 25 states and D.C. had rates above the national average (63 %), ranging from 63 to 79 %. Of those 25 states, four states (Connecticut, Hawaii, Illinois, Massachusetts) had referral rates at least 10 % above the national average rate. In comparison, the other 25 states had rates below the national average, ranging from 42 to 62 %. Of those 25 states, five states (Idaho, Mississippi, New Jersey, New Mexico, West Virginia) had referral rates that were 10 % or lower than the national average rate.

Looking at state variations by referral source, we find discernable patterns from some states. While most states generally had equal or greater rates of educational personnel referrals than rates of legal/law enforcement referrals, some states (e.g., Colorado, Florida, Hawaii, North Carolina, North Dakota, South Dakota, Utah) had the higher rates of “legal/law enforcement” referrals than educational personnel referrals with a 2–17 % difference, while other states (e.g., Maryland, Michigan, New York, Ohio, Oklahoma) had the higher rates of “social service personnel” referrals than educational personnel referrals with a 1–32 % difference. Furthermore, while the mental health personnel referrals made up only 5.3 % of the total U.S. child maltreatment referrals between 2008 and 2018, California—a state with the largest foster care population in the U.S. and known for progressive social service policies and safety-net resource availability—had the highest rate of mental health personnel referrals (12.5 %).

4.3. Referral sources and child welfare case outcomes

To examine the effects of different referral sources on outcomes, we compared the likelihood of referrals resulting in (1) substantiation and (2) out-of-home placement, using the analytic sample focused on top five referral sources (N = 24,349,293). Table 3 shows the results from our binary logistic regression analyses. In Table 3, the left column (Model 1) presents the results from analysis examining associations of referral sources with substantiation, and the right column (Model 2) presents the results from analysis

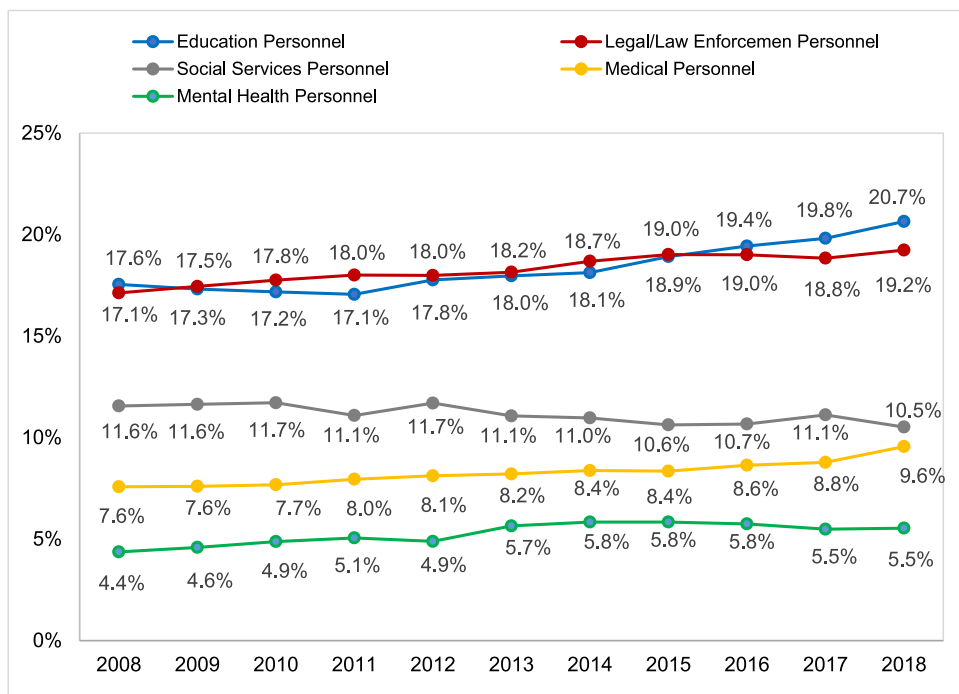


Fig. 1. Referral rates by referral sources over time: 2008–2018 (N = 39,628,067).

Table 2
Referral rates by referral source by state ($N = 39,628,067$).

State	Education personnel	Legal/law enforcement personnel	Social services personnel	Medical personnel	Mental health personnel	Sum of five sources
Alabama	15.00	22.56	10.61	7.29	2.80	58.26
Alaska	17.52	25.47	13.82	9.63	4.27	70.71
Arizona	20.33	17.55	7.54	13.43	5.49	64.34
Arkansas	18.87	13.95	8.83	6.92	9.52	58.09
California	20.81	17.93	6.80	6.78	12.52	64.84
Colorado	17.10	25.68	6.22	9.94	8.72	67.66
Connecticut	22.17	26.27	6.26	11.58	7.82	74.10
D.C.	24.50	15.52	22.29	4.15	4.24	70.70
Delaware	22.08	27.64	4.49	11.29	4.30	69.80
Florida	17.06	25.30	8.59	7.80	3.00	61.75
Georgia	26.71	16.03	9.16	9.66	8.83	70.39
Hawaii	17.07	25.44	18.24	15.31	2.66	78.72
Idaho	16.77	21.01	4.50	8.69	0.52	51.49
Illinois	24.57	23.10	10.95	12.39	2.12	73.13
Indiana	16.58	19.10	4.01	9.34	4.07	53.10
Iowa	15.85	20.30	16.03	5.88	4.57	62.63
Kansas	22.35	10.04	17.62	5.90	0.10	56.01
Kentucky	15.13	17.55	10.53	5.85	4.46	53.52
Louisiana	16.36	13.97	9.16	11.96	2.91	54.36
Maine	17.94	18.46	10.39	11.17	9.65	67.61
Maryland	10.00	8.21	41.71	4.13	5.20	69.25
Massachusetts	21.36	26.37	13.81	15.73	0.00	77.27
Michigan	17.32	15.39	20.96	6.34	4.19	64.20
Minnesota	20.59	26.62	10.10	9.08	5.32	71.71
Mississippi	12.62	6.26	12.58	7.04	3.22	41.72
Missouri	19.12	14.70	13.50	7.00	5.32	59.64
Montana	13.92	21.67	13.92	5.73	4.93	60.17
Nebraska	20.97	19.71	8.42	8.95	4.27	62.32
Nevada	23.91	24.31	6.93	9.69	4.12	68.96
New Hampshire	18.67	19.04	10.23	7.44	7.17	62.55
New Jersey	19.09	16.35	5.93	7.30	4.03	52.70
New Mexico	13.84	20.62	3.91	5.69	3.13	47.19
New York	16.65	11.40	19.54	5.30	4.26	57.15
North Carolina	14.94	23.12	14.99	13.03	0.00	66.08
North Dakota	22.68	31.45	8.74	7.60	1.77	72.24
Ohio	12.07	18.17	15.84	5.00	4.46	55.54
Oklahoma	11.99	14.82	18.51	7.39	6.51	59.22
Oregon	18.75	24.00	15.34	9.38	4.80	72.27
Pennsylvania	23.14	6.46	16.02	12.15	9.36	67.13
Rhode Island	20.89	23.09	8.01	13.35	1.96	67.30
South Carolina	25.04	17.13	9.48	10.85	2.61	65.11
South Dakota	15.18	32.17	2.11	6.46	4.67	60.59
Tennessee	15.96	19.66	14.37	9.73	1.98	61.70
Texas	16.35	17.07	6.35	10.91	3.80	54.48
Utah	11.41	24.42	12.31	6.92	3.15	58.21
Vermont	23.54	19.48	11.84	7.13	10.10	72.09
Virginia	22.71	20.72	5.94	7.75	7.63	64.75
Washington	17.12	12.50	18.72	6.50	7.16	62.00
West Virginia	17.36	10.01	14.02	6.47	1.97	49.83
Wisconsin	16.09	21.09	15.24	5.32	5.31	63.05
Wyoming	23.07	23.10	6.31	5.67	6.43	64.58
Total	18.44	18.35	11.13	8.30	5.29	61.51
(State totals/ National total)						
National average	18.45	19.45	11.80	8.55	4.73	62.98
(Average of all states)						

examining associations of referral sources with out-of-home placement.

As shown in [Table 3](#), compared to referrals from mental health personnel, those from education personnel were associated with significantly lower odds of out-of-home placement ($OR = 0.70$). In comparison, we find that referrals from all other mandated reporters (legal/law enforcement, social services, and medical personnel) were more likely than those from mental health personnel to result in both substantiation and out-of-home placement. Particularly, referrals from legal/law enforcement were associated with the highest odds of substantiation ($OR = 3.20$), while referrals from social services personnel were associated with the highest odds of out-of-home placement ($OR = 1.88$).

Our analyses also find several covariates that were significantly associated with the likelihood of two child welfare case outcomes. Regarding child demographic factors, referrals having female children were more likely than referrals having male children to result in

Table 3Estimates of child welfare case outcomes from logistic regression models ($N = 24,349,293$).^a

	Model 1: Substantiated maltreatment			Model 2: Out-of-home placement		
	OR	S.E.	<i>p</i>	OR	S.E.	<i>p</i>
Independent variable						
Referral source (Ref: Mental health personnel)						
Education personnel	1.00	0.06	0.99	0.70	0.04	<0.001
Legal/law enforcement personnel	3.20	0.13	0.00	1.38	0.10	<0.001
Medical personnel	2.17	0.11	0.00	1.54	0.12	<0.001
Social services personnel	1.74	0.08	0.00	1.88	0.07	<0.001
Child demographic characteristics						
Gender (Ref: Male)						
Female	1.04	0.01	<0.001	1.01	0.01	0.098
Race (Ref: White)						
Native American/Alaska Native	1.23	0.03	<0.001	1.32	0.09	<0.001
Mixed Race/More than One Race	1.13	0.02	<0.001	1.39	0.04	<0.001
Black	1.10	0.05	0.024	1.12	0.05	<0.001
Hawaiian/Pacific Islander	1.11	0.05	0.014	1.00	0.06	0.937
Asian	0.98	0.06	0.766	0.70	0.03	<0.001
Hispanic	1.12	0.04	0.002	0.93	0.02	0.884
Age (Ref: 14+)						
0–3	1.77	0.04	<0.001	1.74	0.11	<0.001
4–5	1.34	0.03	<0.001	1.09	0.06	0.139
6–9	1.27	0.02	<0.001	0.93	0.05	0.147
10–13	1.17	0.01	<0.001	0.88	0.03	<0.001
Maltreatment characteristics						
History of prior maltreatment allegations (Ref: No)						
	0.72	0.04	<0.001	0.40	0.03	<0.001
Child Maltreatment allegation Types						
Neglect	1.91	0.19	<0.001	2.64	0.33	<0.001
Physical abuse	1.24	0.12	0.020	1.57	0.09	<0.001
Sexual abuse	1.88	0.22	<0.001	1.36	0.11	<0.001
Medical neglect	1.01	0.11	0.900	1.45	0.12	<0.001
Psychological/emotional maltreatment	1.45	0.15	<0.001	0.98	0.13	0.852
State/system-level factors						
Poverty rate in child's state						
	1.09	0.050	0.050	1.11	0.08	0.133
Extended foster care in child's state (Ref: No)						
	1.03	0.05	0.501	1.06	0.18	0.736
Guardianship payment program in child's state (Ref: No)						
	0.26	<0.01	<0.001	3.90	0.28	<0.001
System administration in child's state (Ref: County administered)						
State administered	1.02	0.03	0.506	2.65	0.20	<0.001
Hybrid administered	0.56	0.01	<0.001	1.09	0.11	0.373

^a Note that the state and year dummy variables included in these models are not displayed in the tables for ease of display.

substantiation ($OR = 1.04$). Compared to referrals involving White children, referrals involving Black children, Native American/Alaskan Native, multiracial, Hawaiian/Pacific Islander, and Hispanic children were significantly associated with 10–23 % higher odds of substantiation. Referrals involving Native American, multiracial, and Black children had 12–39 % higher odds out-of-home placement, while those involving Asian children had 30 % lower odds of being placed in out-of-home care, compared to the referrals involving White children. Referrals involving younger children were more likely than those involving older children to result in both outcomes, with children at 0–3 ages having the highest odds of both substantiation ($OR = 1.77$) and out-of-home placement ($OR = 1.74$).

Regarding maltreatment characteristics, children who had histories of prior maltreatment were 28 % less likely to have their reports substantiated and 60 % less likely to be placed in foster care, compared to those who did not have such histories. Additionally, referrals for all types of alleged maltreatment, except for medical neglect for substantiation and emotional maltreatment for foster care placement, were significantly associated with both outcomes compared to referrals with no alleged maltreatment or other maltreatment types (e.g., siblings investigated due to a report made for another sibling), with neglect being associated with the highest odds of both substantiation ($OR = 1.91$) and out-of-home placement ($OR = 2.64$).

We also find several contextual factors included in this study were significantly associated with both case outcomes. First, poverty rates were positively associated with the odds of substantiation; each additional increase in poverty percentage within states increased the odds of substantiation by 9 %. Furthermore, some state-level child welfare policies were associated with both outcomes. Referrals from states that had adopted a guardianship payment program were associated with 74 % lower odds of substantiation, but nearly 4 times higher odds of out-of-home placement. We also find that the structure of child welfare systems within states was significantly

associated with child welfare case outcomes. Compared to county-administered child welfare systems, having a hybrid-administered system was associated with a 44 % decrease in the odds of substantiation, while having a state-administered system was associated with about 3.5 times higher odds of out-of-home placement.

5. Discussion

This study aimed to examine how child maltreatment referral sources changed over time between 2008 and 2018 and varied by state, as well as investigate the relationships between referral sources and child welfare case outcomes. Key contributions include using over a decade of national child welfare administrative data combined with census data to elucidate the role of child maltreatment referral sources in maltreatment substantiation and children's out-of-home placement, controlling for a robust set of child and contextual characteristics.

Several noteworthy findings emerged, including a steady increase in child maltreatment referrals over the 11-year study period. This is consistent with prior research showing a consistent increase in child maltreatment reporting, especially among mandated reporters and professionals (Kim & Maguire-Jack, 2021; McDaniel, 2006; Tonmyr et al., 2010). Particularly, child maltreatment referrals from education personnel had the largest increase over time among those of all examined mandated reporters, as well as generally making up the largest proportion of referrals in the U.S. This suggests the increasingly large role that educational personnel play in making mandated child maltreatment referrals and supports prior evidence documenting similar findings (Ho et al., 2017; Kesner & Robinson, 2002; King & Scott, 2014; Schusterman et al., 2022).

Our results showed state variations in overall rates of child maltreatment referrals, as well as rates by referral sources, with half of the states having referral rates above the national average and another half of the states having referral rates below it. Such variations may likely reflect different child protection and child welfare policies and practices across states. For example, some states (e.g., Texas, Kentucky, Florida) legally require all adults be mandated reporters while other states do not have such laws that could potentially drive up rates of child maltreatment referrals (Palusci et al., 2016). Our results support prior research that has documented similar state variations in child maltreatment referrals and other types of child welfare system contact (LaBrenz et al., 2022; Yi et al., 2023).

Concerning associations between child maltreatment referral sources and child welfare case outcomes, we found that among all mandated referrals, those from education personnel predicted the lower odds of a child's placement into out-of-home care, while referrals from all other personnel were associated with higher odds of both outcomes. This finding is consistent with those from prior research (Ho et al., 2017; Kesner, 2008; McDaniel, 2006; Schusterman et al., 2022), possibly suggesting limited mandated reporter training or that existing training on child maltreatment detection varied in quality. Evidence from educational personnel may not be rigorous enough for substantiating alleged child maltreatment and subsequently involving child removal (Ho et al., 2017; King & Scott, 2014). Alternatively, teachers and other educational staff may call child protective services for reasons other than child maltreatment concerns (e.g., seeking help for children to meet their basic needs). Given a general lack of alternative systems or other mechanisms in the U.S., it may mean that educational personnel may feel as if they do not have other options but to call child protective services to advocate for necessary support and resources for children.

In comparison, child maltreatment referrals from legal or law enforcement personnel predicted the highest likelihood of child maltreatment substantiation, and those from social service personnel predicted the highest likelihood of children's out-of-home placement. Law enforcement personnel is more likely than other mandated reporters to have the training and specialty to detect evidence for child maltreatment substantiation and also come in contact with families when cases are most acute, severe, and injurious (Ho et al., 2017; Kesner, 2008; King et al., 2013). Similarly, social service personnel might see children when things have progressively worsened in child maltreatment cases, turning to out-of-home placement as a last resort or after all alternative options have been exhausted.

Additional noteworthy findings emerged related to child-level factors, including children's gender, race, and age. Concerning child gender, child maltreatment referrals involving female children were more likely to be substantiated than those involving male children. These results may reflect societal norms around being more protective of girls than boys when it comes to child abuse and neglect and family separation. For example, such norms may include, but are not limited to, concerns that girls compared to boys may be less likely to physically protect themselves against child abuse and neglect, resulting in girls being more likely than boys to experience removal from their families (Josenhans et al., 2020).

Regarding children's race, child maltreatment referrals involving children of color, except for Asian children and Hispanic children, were linked with higher odds of both substantiation and out-of-home placement. These results are consistent with previous research documenting persistent racial disparities in child welfare system contact and involvement such that Black children and Native American or Alaskan Native children experience the highest risks of confirmed maltreatment and foster care entry (Yi et al., 2023). For example, Black children and Native American or Alaska Native children have risks of confirmed child maltreatment and foster care entry that are more than double to triple those of White children depending on their state of residence (Yi et al., 2023). Such racial disparities are likely attributed to a combination of disproportionate needs (e.g., poverty, material hardship) and disproportionate treatment (e.g., systemic racism, structural bias) (Dettlaff & Boyd, 2020).

Related to children's age, child maltreatment referrals involving younger children, especially children between the ages of 0–3, were associated with higher odds of both substantiation and out-of-home placement. Youngest children at ages 0–3 years represent the largest child population in the U.S. child welfare system, making up 45 % of substantiated or indicated maltreatment cases (U.S. DHHS, 2023). This large proportion of young children may be reflected in our findings, in addition to social norms around child protection and child safety when young children are involved. Developmentally, infants, toddlers, and preschoolers are at higher risk of child maltreatment-related mortality (U.S. DHHS, 2023; Lee, Kirsch, et al., 2023), and thus cases involving younger children may be more

readily substantiated and lead to out-of-home placement given the nature of serious child maltreatment consequences.

Concerning child maltreatment characteristics, we find that a history of prior child maltreatment was associated with lower odds of both outcomes. This finding is both contrary to some previous research on the recurrence of child maltreatment (e.g., White et al., 2015) and consistent with some research (Lee, Steelesmith, et al., 2023), with the findings of prior allegations being related to lower odds of physical abuse (2023). One possible reason explaining this difference between the current study and contrasting research (e.g., White et al., 2015) is that previous research did not take into account referral sources or state and time variations in the various predictors, as is done in our current models. It is possible that, when holding factors like referral sources and state policies constant, prior allegations of child maltreatment might have a more protective effect against recurring child maltreatment. For example, having alleged child maltreatment opens families up to new, otherwise unavailable, services and resources in many states (e.g., Fong, 2017). While families certainly ought to have access to such services before they become entangled in the system, this reality might help explain our distinct finding in this study.

Furthermore, although most alleged maltreatment types were associated with higher odds of both outcomes, neglect, in particular, was linked with the highest odds of both substantiation and out-of-home placement in this study. This finding is consistent with earlier findings showing that reports of neglect are the most common reason for the removal of children from their homes (U.S. DHHS, 2022a). However, neglect is also the most commonly associated allegation with poverty, and has a deeply subjective definition (e.g., Roberts, 2009). As such, it is important to note that the implications of this finding are substantial for lower income families who may be struggling with resource needs.

Additionally, important findings emerged related to contextual factors, including states' poverty rates, child welfare policy, and the child welfare system administrative structure. First, higher poverty rates were associated with increased odds of substantiation. Our results confirm a large body of research documenting poverty as a risk factor associated with confirmed child maltreatment (Drake & Jonson-Reid, 2013; Hunter & Flores, 2021; McGuinness & Schneider, 2007), and support policy and program efforts focused on addressing poverty and economic hardship among families (e.g., TANF, EITC, child tax credits) as promising measures to prevent and reduce child maltreatment (Ginther & Johnson-Motoyama, 2022; Maguire-Jack et al., 2022; Rostad et al., 2020).

Second, our findings related to effects of states' child welfare policies provide important insights. The existence of statewide guardianship payment programs was associated with significantly lower odds of substantiation, while the same programs were associated with significantly higher odds of out-of-home placement. States with policies that financially support guardians, many of whom tend to have socioeconomically disadvantaged backgrounds, may also have other programs in place that alleviate child caregiving burdens (e.g., financial stress) that help curb the likelihood of substantiation, but perhaps guardian payment programs to support caregivers may not be sufficient to prevent the likelihood of foster care entry. Further research is needed to better understand the generally mixed findings concerning the effects of states' various child welfare policies on different child welfare case outcomes.

Lastly, with regard to child welfare administrative structure, our study finds that, compared to having county-administered child welfare systems, having a hybrid system was associated with significantly lower odds of substantiation, while having a state-administered system was associated with significantly higher odds of out-of-home placement. The child welfare system administrative structure represents the statutory and administrative context within which states handle policy implementation and service provision of their child welfare agencies (i.e., whether policies and services are overseen by a centralized state agency or multiple decentralized county agencies within the state). Currently, child welfare agencies in 40 states and the District of Columbia operate under state-administered child welfare systems, while nine states (i.e., California, Colorado, Minnesota, New York, North Carolina, North Dakota, Ohio, Pennsylvania, and Virginia) have county-administered systems and two states (i.e., Nevada and Wisconsin) have hybrid systems (Child Welfare Information Gateway, 2018). While limited research has closely examined the effects of different child welfare agency structures on service and family outcomes, research on federalism and social policy implementation suggests that the discretion in how states structure and operate their child welfare agencies may shape the ways in which families become involved with this arm of the government, thus also shaping family outcomes (e.g., Allard, 2009; Michener, 2018). Our finding that referrals from state-administered systems were associated with the increased odds of children's out-of-home placement may reflect that centralized child welfare systems may be more efficient when it comes to mobilizing enforcement of state statutes and laws regarding child maltreatment. However, our results run contrary to the limited but growing body of literature on child welfare system administration. For example, recent evidence shows higher rates of foster care placement in county-administered child welfare agencies than state-administered agencies (e.g., Elgin & Carter, 2019). Our distinct finding in this study highlights the need for greater attention to this variable in future child welfare research on both policy and practice, in order to grow our understanding of the mechanism that the child welfare system administration structure plays in child welfare outcomes in the United States.

6. Limitations and future research directions

Our findings come with some notable limitations. As indicated above, since our second dependent variable (out-of-home placement) included substantial missing data compared to substantiations (foster care data have a 13 % missing rate in our final sample, while substantiations is 0 %), it might have limited the validity of study results (e.g., our findings on out-of-home placement may be underreported or underestimated). With the large sample size, while the results from our second model may still provide a good estimate of the directional relationships in this study, it is worth acknowledging such a limitation. Second, NCANDS data contain the substantial missing information on parental and family-level risk factors with >55 % missing data (e.g., parental substance abuse, domestic violence, housing insecurity). To mitigate potential threats to internal validity, we conducted sensitivity analysis comparing the models including those parental and family-level risk factors (not shown) with the models not including those factors (Table 3). This concern is somewhat alleviated by our sensitivity analysis, showing that the results across the models were quite consistent in the

estimated odds, directionality, and significance of the associations, whether or not we include those risk factors. Lastly, there may be other state- and system-level variations in child welfare policies and practices that this study is not able to account for (e.g., state public health and economic policies, state mandatory reporter laws). While each state has unique characteristics and contexts in which child protection services and child welfare systems operate and it is difficult to comprehensively control for geographical variations given the data available. Our statistical controls for state poverty rates, the state child welfare policies, and administrative structure, help increase our confidence that findings reflect differences in child welfare case outcomes associated with the referral sources.

Future research that identifies important system factors and policy contexts can shed light on behind the scenes in child welfare system research. Additional research is also necessary to gain a deeper understanding of how certain types of reporters exercise larger roles in community surveillance and thus influence family outcomes. Future research involving qualitative studies with mandated reporters can shed light on the mechanisms that generate these disproportionate child welfare case outcomes by referral source.

7. Implications for child welfare practice, policy, and research

First, our descriptive trend analysis shows that referral sources gradually changed over time with variations by state. Child welfare agencies in some states rely more or less on certain reporter types (e.g., the highest referral rate from law enforcement is in South Dakota; the highest referral rate from mental health personnel is in California). This suggests that a family's contact with the child welfare system, and the likelihood of case outcomes, may be greatly influenced by where they reside.

Second, regression results show that the likelihood of a referral leading to confirmed maltreatment and out-of-home placement varies depending on who makes the call to the child welfare agency, which has implications for child welfare practice and policy. Particularly, the finding that referrals from educational personnel had the largest increase over time and made up the largest proportion of total referrals, while being associated with lower odds of out-of-home placement, suggests that school systems' alternative to child protective services is critically needed for educational personnel to turn to in supporting the needs and promoting wellbeing of children under their supervision. For instance, social workers in Illinois have noted that while state law requires all mandated reports to contact child protective services for suspected child abuse and neglect, the definition of neglect is vague and subjective (Gormley et al., 2020). This could possibly lead families to be surveilled and punished for lacking the necessary resources to care for their children (Gormley et al., 2020). Subsequently, the social workers developed a guide and a resource list that frontline workers could use as an alternative to calling the Illinois Department of Children and Family Services (Gormley et al., 2020) which is a tool that school systems in the state could also adopt. Other states could use such a tool as a template for developing similar guides for their own educational personnel.

Third, our results show that families of color and those living in higher poverty locales are at higher risks of confirmed maltreatment and child removal, suggesting the influence of race and class within the child welfare system persists. This may reflect that the reporters who make calls to child welfare agencies play an increasingly large role in the lives of families of color and those living with economic hardship, along with families with previous child welfare involvement. This requires child welfare practitioners to better advocate on behalf of families of color and those from impoverished communities, as well as those who primarily contact the child welfare system through the referrals of educators. Importantly, family-strengthening programs and child welfare policies and practices to address economic and racial disparities in the child welfare systems should be developed from multiple angles and through multipronged solutions (e.g., meeting the basic and economic needs of families of color through economic policies like TANF and EITC, adopting culturally responsive and antiracist child welfare practices) (Child Welfare Information Gateway, 2021; Ginther & Johnson-Motoyama, 2022; Lee, Yoon, et al., 2023; Maguire-Jack et al., 2022; Rostad et al., 2020).

Lastly, our study highlights the important policy and practice implications of child welfare policies and policy administration. Our findings regarding guardianship payment programs, for example, highlight that state-level child welfare policy decisions can significantly shape the experiences families have within the system. Moreover, our findings showing that hybrid child welfare systems are associated with decreased odds of substantiations while state-run child welfare systems are associated with increased odds of out-of-home placements suggest the critical role of policy administration decisions in shaping how child welfare policy is carried out on the ground in states across the U.S. Some existing studies have found significant differences in child welfare outcomes by administration type (e.g., e.g., Elgin & Carter, 2019) and it is clear that the administrative structure of state's child welfare systems is an important area for future research.

8. Conclusion

This study examined how referral sources change over time and vary by state, as well as how referral source type is associated with case substantiation and out-of-home placement. The study has several unique contributions to the body of knowledge on child maltreatment and child welfare case outcomes. This is the first of its kind to examine the likelihood of children's out-of-home placement by referral source type. Furthermore, the study provides comparative, nuanced insights into key sources of maltreatment referrals in the U.S. across states, years, and case outcomes, by using national population data over 11 years and by including unique state-level context and policy variables. The results of the study inform future investigations about underlying mechanisms of case substantiation and out-of-home placement from a perspective of referral sources, as well as current child welfare practices and policies to improve case outcomes for children who come in contact with the child welfare system.

Declaration of competing interest

None.

Data availability

The authors do not have permission to share data.

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