ORIGINAL ARTICLE

Domestic Violence Alleged in California Child Maltreatment Reports During the COVID-19 Pandemic

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Abstract
During the COVID-19 pandemic, reports to child abuse and neglect hotlines have dropped significantly across the United States. Yet, during this same period, calls to domestic violence hotlines have increased. The purpose of this study was to examine if there have been measurable changes in domestic violence-related reports to child abuse and neglect hotlines. Using administrative child protection records from California, we plotted counts and proportions of child maltreatment reports with and without domestic violence allegations before and through the onset of school closures associated with the COVID-19 pandemic. We used an interrupted time series analysis to evaluate whether or not there was a change in domestic violence allegations in child protection reports corresponding to the COVID-19 pandemic. We document that during the first two quarters of 2020 there was a 14.3% drop in the overall number of child protection reports. Despite a decline in maltreatment reporting overall, there was a 25% increase in the proportion of reports with allegations of domestic violence. Our findings suggest both the count and composition of reports to child protection agencies were affected by the COVID-19 pandemic. The current analyses also showcase the seasonality of CPS reports generally, and reports with DV allegations, specifically.

Keywords Child maltreatment · Domestic violence · Child protection · COVID-19 · Child protection systems · Intimate partner violence

The impacts of the COVID-19 pandemic have been far-reaching, including for children and families. There are concerns that two forms of family violence – domestic violence (DV) and child maltreatment – have increased in conjuction with the stress associated with the pandemic (Evans et al., 2020; Herrenkohl et al., 2021; Kofman & Garfin, 2020). While national estimates of DV have remained flat during the past few years (Morgan & Truman, 2019), in April 2020 coinciding with stay-at-home orders at the beginning of the COVID-19 pandemic, calls to domestic violence hotlines increased by approximately 9% relative to the same period in 2019 (National Domestic Violence Hotline, 2020). Conditions that lead to an increase in DV are likely to also affect the safety and well-being of children in homes where DV is occurring (Campbell et al., 2013; Gilbert et al., 2013; Howell et al., 2016).

In the context of child protection systems (CPS), concerns of DV when children are present in the home are often reported to CPS (Victor et al., 2019). But while there has been media coverage of increases in DV and child maltreatment (McCarthy, 2020; Sapien et al., 2020; Taub, 2020), no studies have yet examined whether there is evidence of measurable increases in DV-related reports to child abuse and neglect hotlines. Documenting whether or not there have been increases in reports to CPS with allegations of DV present is important for policymakers and practitioners to ensure that adequate resources are allocated to respond to this form of family violence. In the current study, we examine if there were observable changes in the number and share of CPS reports with allegations of DV that coincided with the COVID-19 pandemic in California.

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Methods

De-identified data on child abuse and neglect reports were extracted from California's Child Welfare Services Case Management System (CWS/CMS) for all 58 counties for the period from January 1st, 2016 through July 31st 2020 (1,828,135 reports involving 2,422,058 children). Maltreatment data included the date of report, a binary indicator (yes/no) if the reporter alleged concerns of DV in the maltreatment report, and reporter type (non-mandated reporter, social service professional, medical provider, law enforcement, or educator). We included all reports to CPS regardless of the screening decision (i.e., whether it was investigated or not). Our estimates are all at the report or incident level; we did not make any adjustments for the number of children on a report or children who may have been reported more than once. This decision is consistent with our interest in the nature of the information communicated in reports to CPS rather than the potential impact on individual children.

We calculated the proportion of DV allegations as a function of total CPS reports by week and year. For the weeks from January through the end of July, we calculated the percentage difference in the count of all CPS reports (regardless of whether DV was alleged) versus those with DV alleged. We made comparisons between the year 2020 relative to the mean counts between 2016 and 2019. To capture known seasonality in CPS reporting, we created a variable identifying those weeks that corresponded with schools being in session, or not (e.g., summer break, winter/Thanksgiving break), or periods of COVID-19 closures.

To examine whether allegations of DV varied over time and exhibited seasonal trends, we plotted: (1) maltreatment report counts and the proportion of reports with DV allegations by week (limiting months from January through July to maintain consistency for all years of data); (2) the percent difference by week for all CPS reports (regardless of whether DV was alleged) versus those with DV alleged between 2020 and the mean of counts for years 2016–2019; (3) the proportion of reports with DV allegations by year with seasonal patterns of school closures; and (4) the count of CPS reports with DV alleged (versus not) and the proportion with DV alleged by reporter type throughout the study period.

We implemented an interrupted-time series (ITS) analysis to evaluate whether or not there was a change in DV allegations in CPS reports associated with the COVID-19 pandemic. ITS has been identified as the strongest quasi-experimental design that uses data before and after an event to measure the effects of said event,

while controlling for trends in the data (Penfold & Zhang, 2013). An ITS was selected as in-person school closures in California (starting on March 16, 2020 and continued through the summer through California Executive Order N-26-20) constituted a well-defined pre- and post-COVID-19 period. Although there are more than 1,000 school districts in California, most students were enrolled in a district that closed between Friday March 13, 2020 and Wednesday March 18, 2020 (Johnson, 2020), almost all schools were closed as of Monday March 16 (Xie et al., 2020). Given the rapid changes that occurred in California, our outcome (counts of CPS reports with a DV allegation) was expected to shift relatively quickly in response to COVID-19 related stressors, thus allowing ascertainment within our study period (Bernal et al., 2017).

We first ran a Poisson model given the use of count data and identified overdispersion through the ratio of residual deviance to degrees of freedom (12.7) being higher than 1 and the 'dispersiontest' function in the R package "AER" (Kleiber & Zeileis, 2008). As a result, we used a quasi-Poisson regression model to account for the overdispersion and assumed a level change following March 16, 2020. The following model was used (Bernal et al., 2017):

$$Y_t = \beta_0 + \beta_1 T + \beta_2 X_t + \beta_3 TX_t$$

where Y_t is the weekly counts of CPS reports with DV allegations, β_0 is the baseline level at $T = 0$, β_1 is the underlying pre-COVID-19 change associated with time, β_2 is the level change associated with COVID-19, and β_3 is the slope change following COVID-19. Due to the observed weekly and school-related seasonal variation in reporting over time, we included both a linear term for time and a Fourier term of four sine/cosine pairs to account for seasonality (Bhaskaran et al., 2013). We observed very consistent patterns aligned with seasonal school breaks in the data which Bhaskaran et al. (2013) identified as a good fit with Fourier terms and has the benefit of modeling patterns smoothly. We ran two sets of models – unadjusted and adjusted for standardized counts of overall CPS reports as an offset term to convert the outcome into a rate (or proportion).

We tested for autocorrelation (when consecutive observations are similar to each other (Bernal et al., 2017)) and partial auto-correlations. We stratified the ITS analyses by reporter type to investigate whether changes in DV allegations varied by who made the CPS report. ITS results are presented as relative risks (RR) with 95% confidence intervals. All analyses were completed using R (R Core Team, 2019). This analysis of de-identified data for this study fell under an existing data sharing agreement with the California Department of Social Services and both state and university human subject approvals.

Results

Changes in Maltreatment Reports During the COVID-19 Pandemic

The onset of COVID-19 led to in-person school closures and stay-at-home orders in 2020 that were associated with significant changes in the number of CPS reports in California. A large drop was observed from over 10,000 reports during the first week of March 2020 to less than 4,400 the first week of April 2020 (Fig. 1). Concurrently, the percentage of CPS reports that included a DV allegation increased with the onset of COVID-19, from a low of just under 10% at the beginning of March 2020 to a high of over 17% at the beginning of April, 2020. These changes are even more apparent when compared to previous years where trends were fairly consistent across months, both in terms of maltreatment report counts and the share of reports with DV alleged.
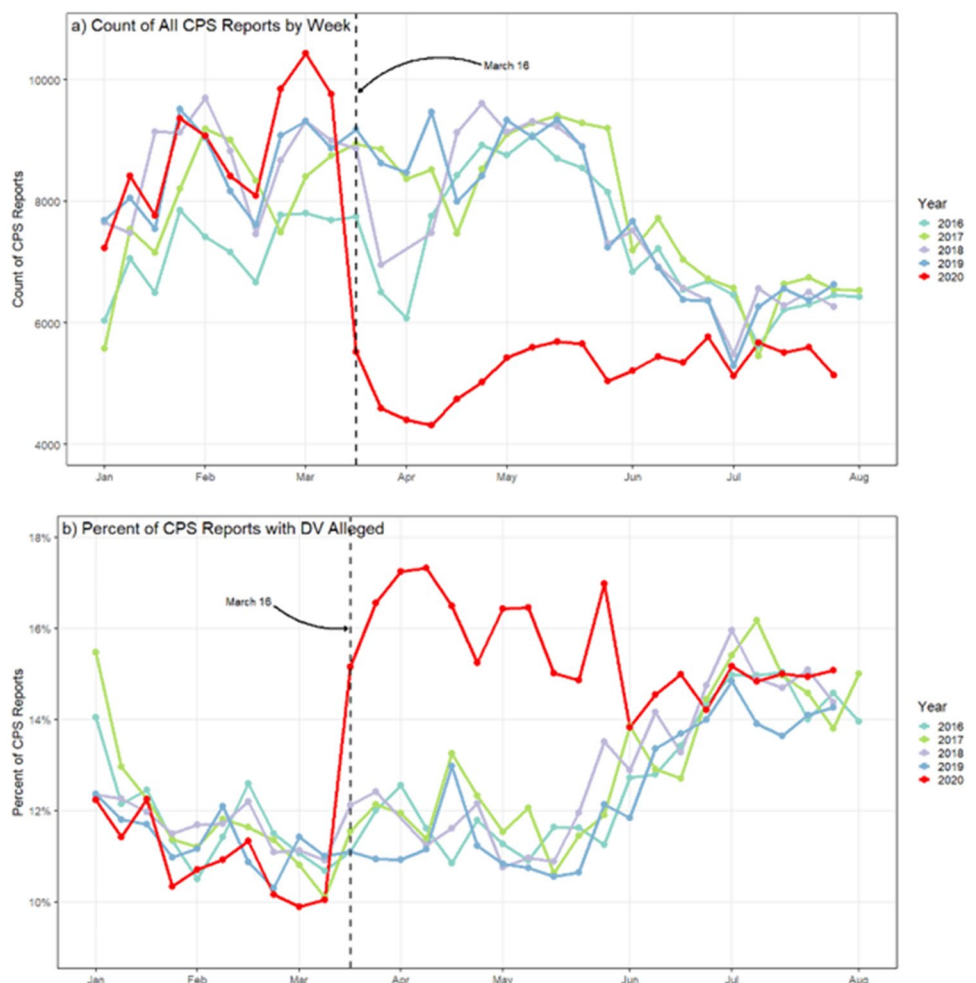
Figure 2 presents the weekly percentage difference in counts of CPS reports between 2020 and the mean of counts from 2016–2019. A clear drop in the count of CPS reports occurred mid-March for both CPS reports overall, and those with DV allegations. For all but one week from the middle of March until the end of June, the percentage difference between 2020 and the mean of the previous four years was more than 40%. For the same time period, the counts of CPS reports with DV alleged also decreased, but with smaller percentage differences that ranged from -11% to -24%.

Comparisons with Previous School Breaks

We identified seasonal trends consistent with established school breaks for the share of CPS reports with DV allegations (Fig. 3). Specifically, the share of reports with DV allegations was consistently higher during school breaks than when school was in session. For weeks when school was in session, the mean was 11.5% of reports with DV allegations versus during summer break (14.3%), winter/Thanksgiving break (15.5%), and the weeks after the COVID-19-related school closures (15.5%).

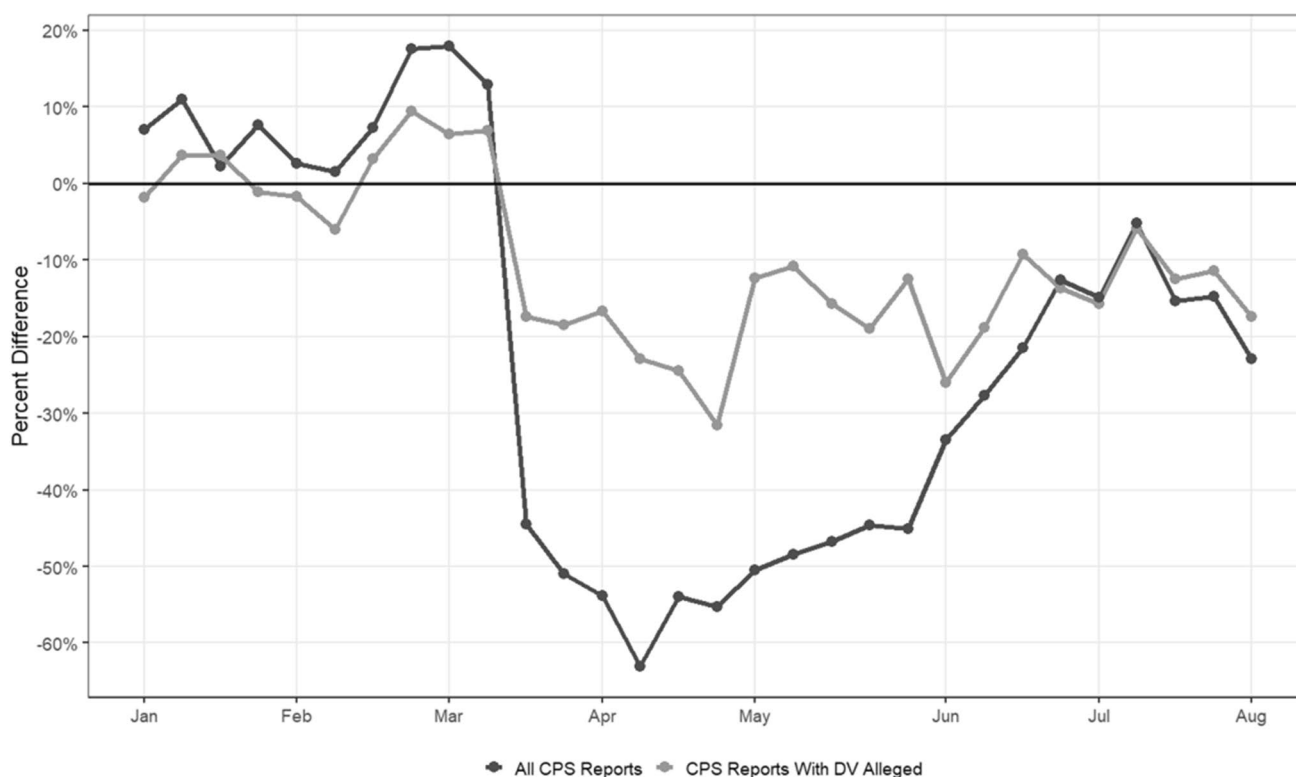**Fig. 1** Count of all CPS Reports and Percent with DV Alleged by Week and Year

Fig. 2 Percent Difference in Count of CPS Reports Between 2020 and Mean of 2016–2019 by Week

Changes in CPS Reports by Reporter Type

The count of CPS reports dropped with the onset of COVID-19 for both social service professionals and educators, regardless of whether the report included a DV allegation (Fig. 4). This aligned with lower numbers of reports from educators consistently observed during summer months. Reports from law enforcement, medical professionals, and non-mandated reporters were steady before and after the onset of COVID-19. The proportion of CPS reports with DV allegations went up for reporters categorized as non-mandated reporters, social service professionals, and law enforcement.

Change in DV Allegations in CPS Reports

As presented in Table 1, the count of CPS reports with DV allegations decreased 16% overall with the onset of COVID-19 (RR: 0.84, CI: 0.79–0.88, $p < 0.001$) and for each of the reporter type categories except non-mandated reporters. When controlling for the overall count of CPS reports, we found strong evidence of an increase in the proportion of CPS reports with DV allegations after the onset of COVID-19 and during our study window. Specifically, we found a 25% increase in the proportion of reports with DV included as an allegation compared to the expected numbers of CPS

reports with DV allegations, after adjusting for seasonality and controlling for the number of CPS reports (RR: 1.25; 95% CI: 1.19—1.32; $p < 0.001$). Results of the stratified analyses by reporter type indicate a 7% increase in the proportion of CPS reports with DV allegations from law enforcement (RR: 1.07, 95% CI: 1.04–1.10, $p < 0.001$). No statistically significant changes in the rates of CPS reports with DV allegations were found for any of the other reporter type categories.

Discussion

We documented substantial changes in the counts and proportions of CPS reports in California that included allegations of DV following in-person school and other closures associated with COVID-19. Counts of CPS reports dropped with the onset of COVID-19 and the composition of allegations in CPS reports also changed. Specifically, there was a 25% increase in the proportion of CPS reports with DV allegations following closures and lockdown orders in mid-March 2020, after adjusting for overall counts of CPS reports and seasonality. Additional analyses indicated that this was impacted by the category of who made the report. There was no change in the count of CPS reports from non-mandated reporters which was coupled with an increase in the
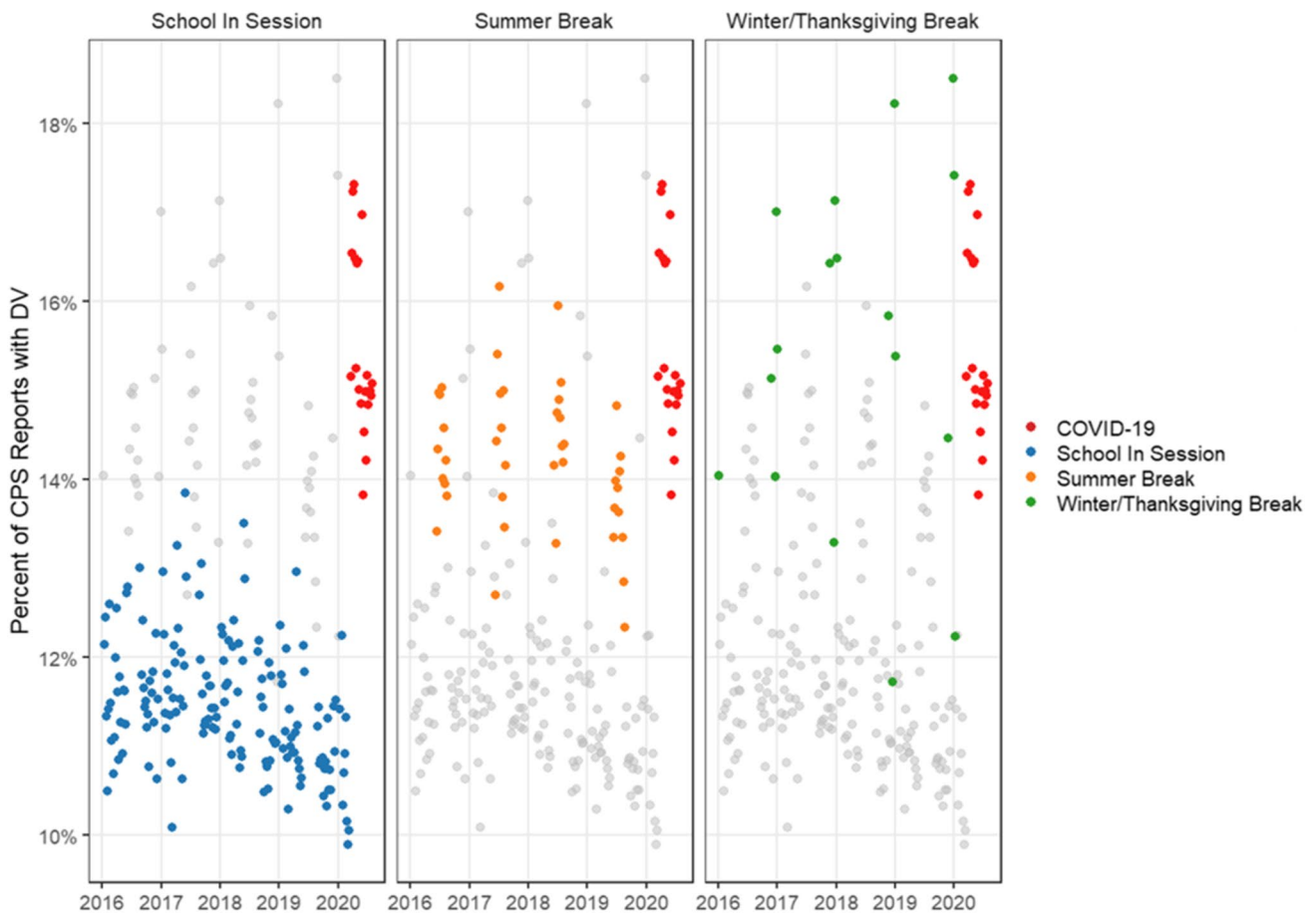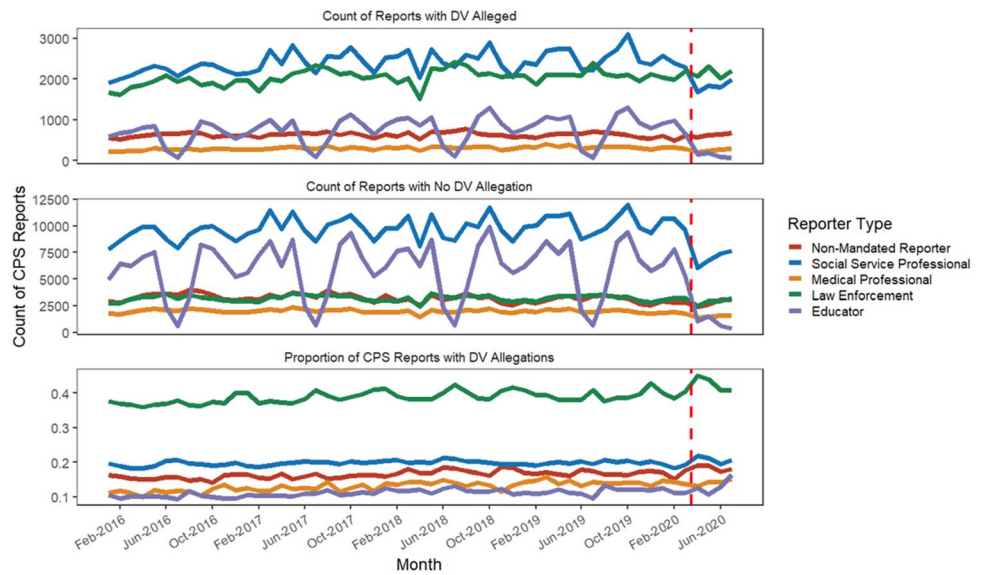
Fig. 3 Percentage of CPS Reports with DV Alleged by Season

Fig. 4 Count of CPS Reports by Reporter Type by Month

proportion of reports that were made by law enforcement. Previous research has indicated that almost half of reports with DV allegations come from law enforcement (Rebbe et al., 2021). Findings highlight that CPS reports with allegations of DV may have been less susceptible to COVID-19-related school closures given the sources of these reports,

Table 1 Relative Risk of CPS Reports with Domestic Violence by Reporter Type

CPS Report Types	Count of CPS Reports with DV			Proportion of CPS Reports with DV		
	Step Change Relative Risk	95% Confidence Interval	*p*-value	Step Change Relative Risk	95% Confidence Interval	*p*-value
All	0.84	0.79–0.88	< 0.001	1.25	1.19–1.32	< 0.001
Reporter Type						
Social Service Professional	0.67	0.62–0.73	< 0.001	1.02	0.99–1.05	0.173
Educator	0.18	0.12–0.28	< 0.001	1.01	0.91–1.13	0.813
Non-Mandated Reporter	0.94	0.87–1.02	0.120	1.04	0.99–1.09	0.136
Law Enforcement	0.93	0.88–0.99	0.014	1.07	1.04–1.10	< 0.001
Medical Professional	0.69	0.62–0.76	< 0.001	0.94	0.87–1.02	0.118

and seasonality in general. Specifically because reports with DV alleged are more likely to come from law enforcement, whose activities were less impacted by the pandemic, like those reports from non-mandated reporters.

A decline in overall reports to CPS hotlines has been met with mixed reactions from child welfare scholars, practitioners, and administrators (Font, 2021; Thomas et al., 2020). Some view it as a needed course correction for a system that has grown too large (Font, 2021; Mathematica, 2020); others are concerned that significant numbers of children have been left unsafe in their homes (Herrenkohl et al., 2021; Humphreys et al., 2020). Although that policy debate remains unsettled, an upward trend in the proportion of reports with DV allegations is notable as it reflects a shift in the nature of potential safety concerns reported to CPS. These types of cases have been previously identified as exceptionally complicated due to the challenges faced by CPS workers in collaborating with law enforcement (Olszowy et al., 2020) and a lack of consensus on how best to handle cases with the co-occurrence of DV and child maltreatment (Coulter & Mercado-Crespo, 2015).

The current analyses also showcase the seasonality of CPS reports generally, and reports with DV allegations specifically. The share of CPS reports with DV allegations was highest during times when schools are closed for summer and winter breaks – periods of time when children are at home with their parents or other caretakers, but also periods of time when the overall distribution of reports shifts away from educators and towards other reporter types. The closures of schools for in-person instruction as a result of COVID-19 resulted in similarly higher proportions of CPS reports with DV allegations. These findings may indicate that children going to school may act as a buffer related to DV. Data from California, however, also indicated that the observed increase in the rate of CPS reports with DV allegations came from one category of reporters – law enforcement – and that these changes were not observed across reporter types. This reinforces the importance of rigorous methods for studying how the pandemic has impacted child

maltreatment and responses of child protection systems during this period. Ongoing data monitoring will be important to determine whether the trends observed in this study for the initial period following the pandemic continued beyond the summer.

Specific implications for practicitioners and policymakers include how the need for services and resources may change as the composition and counts of CPS reports change with the onset of large-scale events like pandemics. Specifically, the increase in proportion of CPS reports with DV allegations indicates the need for cross-system collaboration between CPS and IPV service organizations. Further, previous research has indicated that almost all of CPS reports with DV allegations were screened in for investigations (Rebbe et al., 2021), thus additional resources for CPS investigations may be required despite the actual counts of CPS reports decreasing.

Limitations

This study provides empirical evidence that COVID-19 significantly impacted the count and composition of CPS reports with DV. Notwithstanding numerous strengths, including the use of population-based data for large state, and the ability to incorporate and document maltreatment reporting seasonality patterns, the current study is not without limitations. First, these data come from California and while one in every eight children in the U.S. lives in California (U.S. Census Bureau, 2020), it is unknown how generalizable these results are to other jurisdictions. Second, we were reliant on a single indicator to assess whether DV was alleged with the CPS report and is unknown how reliable this variable was in capturing concerns of DV, while noting that not all concerns of child maltreatment and DV are reported to CPS. Further, given that California is a county-administered child protection system, there could be regional differences in the reporting and documenting of DV concerns in CPS records. Third, the onset of COVID-19 changed practice and policy across a number of domains

that may not be captured in our models and data. Fourth, our study did not take into account how reports were responded to by CPS or variables like family size or child age. Finally, our analysis was conducted while the COVID-19 pandemic continues and analyzed the beginning of the pandemic. Future research should examine if and how trends changed throughout the pandemic and if there were any variations based on community characteristics.

Conclusion

These findings document how the COVID-19-related in-person school closures changed the composition of reports made to CPS in California. Given that child protection systems are reliant on calls from outside of the agency to refer concerns of maltreatment to them, it is not surprising that a major societal change to daily life also impacted CPS reports. Future research should explore further how pandemic responses have corresponded with alterations in the characterization of child maltreatment and reports to CPS. Additional work should also examine if these patterns change as COVID-19 continues to disrupt the 'normal' way of life, or if the patterns observed were stable throughout 2020.

Declarations

Conflict of interest The authors declare they have no conflict of interest.

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