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## Trends in substance use among child welfare-involved parents during the COVID-19 pandemic

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### ABSTRACT

**Background and objective:** Parental substance use is a major risk factor for child maltreatment, but the impact of the COVID-19 pandemic on substance use among parents involved in child welfare is not well understood. This study aimed to examine substance use patterns in child welfare cases from 2019 to 2022.

**Participants and setting:** Female parents assessed for child abuse or neglect using administrative data from the Ohio Statewide Automated Child Welfare Information System (Ohio SACWIS). Substance types were recorded during the family assessment at case entry.

**Methods:** A retrospective observational study was conducted to compare substance involvement before, during, and after the onset of the pandemic. Single changepoint analyses identified significant shifts in the mean percentage of cases involving substance use overall and for specific substances during selected weeks of each year.

**Results:** Among 264,380 women investigated, 65,796 (24.9 %) were involved with substance use. In 2020, the percentage of cases involving substance use peaked in the second quarter, driven by polysubstance and cannabis use. Changepoint analyses confirmed these changes. Only in 2020 did substance use cases significantly increase (32.4 % to 41.8 %) in week 10, coinciding with the national emergency declaration. Similar increases were observed for polysubstance and cannabis use.

**Conclusions:** The rise in substance-involved cases early in the pandemic corroborates national trends, with cannabis use notably driving this change, suggesting that parents may have used substances to cope. The high prevalence of polysubstance use highlights the need for targeted treatment programs and policy interventions for parental substance use.

### 1. Introduction

Parental substance use has long been considered a contributing factor to the use of child abuse and neglect, with many of these cases coming to the attention of the child welfare system (Radel et al., 2018). During the early stages of COVID-19 pandemic, referrals to the child welfare system to investigate child abuse and neglect were down in the United States (Brown et al., 2022; Rebbe et al., 2023). However, drug overdose deaths were higher during this same time frame (Ornell et al., 2020; Vo et al., 2022) making it difficult to understand how these differing trends affect children involved in the child welfare system. To date no studies have examined how the pandemic affected referrals to the child welfare system due to concerns of parental substance use.

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Child welfare cases involving substance use tend to be more complex and the abuse and/or neglect more severe (Radel et al., 2018). Children exposed to parental substance use are also less likely to reunify with parents, more likely to end in permanent custody of the state (Frame, 2002) and among those who reunify a higher likelihood of re-entering child welfare systems over time (Lloyd et al., 2017; Meinhofer & Angleró-Díaz, 2019). Importantly, specific substances may differentially affect parenting practices, risk of harm to children and family systems, and by extension, child welfare outcomes (Nutt et al., 2010). Specific substances also require unique treatment modalities. Thus, the absence of studies monitoring trends in substance use, especially during times of heightened distress like the COVID-19 pandemic, limits the ability of child welfare systems to adapt and respond with targeted services that address specific substance use behaviors.

The present study focuses specifically on mothers involved in the child welfare system. In child welfare cases, the mother is typically the central figure, as nearly all cases involve at least one mother, whereas the presence of multiple male parents can make it difficult to isolate their individual influence. This focus ensures consistency in the sample and reflects the typical structure of child welfare cases.

The purpose of the current study was to understand the prevalence and nature of substance use among mothers involved with the Ohio child welfare system before and during the COVID-19 pandemic. Specifically, we 1) described quarterly and monthly changes in child welfare cases involving substance use from 2019 to 2022 and 2) tested for significant differences in mean percentage of cases involving substance use during the initial phases of stay-at-home orders in Ohio (weeks 2 through 20 of 2020).

## 2. Methods

We used administrative data on child abuse and neglect from the Ohio Statewide Automated Child Welfare Information System (Ohio SACWIS) maintained by the Ohio Department of Job and Family Services (ODJFS). We used data from all 88 counties on referrals for investigations of child abuse and neglect. Caseworkers conduct a family assessment to ascertain if there is enough evidence that child abuse and/or neglect occurred or if the children were in imminent risk for harm due to abuse or neglect. This assessment includes information about whether substance use was a risk contributor in the case. To understand possible changes in drug use before, during, and after the initial stay-at-home orders of the COVID-19 pandemic in Ohio, parental substance use data were examined for cases of child abuse or neglect between 2019 and 2022.

Cases were considered substance-involved if substance use was recorded for the female parent on the case. We defined the female parent as the female adult with the role “parent” in the case record. If multiple female adults fit the criteria, the parent with a documented substance use concern was selected. In the event both or neither had a recorded substance use concern, a female parent was randomly selected for the analysis. To maintain consistency in case selection, only the first recorded case per family during the study period was. The time frame for these analyses was restricted to cases from January 2019 onward, six months after the systematic collection of substance type data.

### 2.1. Measurements

#### 2.1.1. Child welfare referral

We evaluated the outcome among child welfare cases investigated for child abuse and neglect. People who suspect a child may be abused or neglected call Child Protective Services to make a referral for investigation. The administrative database, Ohio SACWIS, provided the date of child welfare referral for assessment or investigation, and the assessment/investigation disposition documented by the caseworker and reviewed and approved by the supervisor.

For this study, we excluded cases classified under Family in Need of Services (FINS), post-emancipation services (which support former foster youth up to age 21), and Ohio Kinship and Adoption Navigator (Ohio KAN) cases. These cases do not follow the same investigation process as cases of child abuse and neglect and were not relevant to our research focus.

#### 2.1.2. Categories of substances

Specific types of substances involved in each case were evaluated during the family assessment at case entry and recorded in Ohio SACWIS. Substance use is documented at the individual level based on information gathered by caseworkers during intake, which may include caregiver self-report, caseworker observations, collateral reports, or toxicology screenings when available. To better understand the trends in substance use, we grouped the substances into six categories: alcohol, opioids, medication for opioid use disorder (MOUD), stimulants, depressants, and cannabis (eTable 1 in the Supplement). Individuals using substances from more than one category were identified as polysubstance users. We examined whether the proportion of cases involving substance use among the referrals for child welfare investigations changed during COVID-19.

#### 2.1.3. Child welfare case characteristics and demographics

We provided demographic information about cases for descriptive purposes. These included types of allegations (e.g., physical abuse, neglect), number of allegations, results of the investigation (e.g., whether a family was referred to alternative response or the referral investigation finding, such as whether the referral was substantiated or unsubstantiated), parent age, and race/ethnicity.

### 2.2. Statistical analysis

Chi squared tests were used to assess group differences in those cases where mothers were using substances versus not. We used

graphs to describe quarterly and monthly changes in drug use between January 2019 and December 2022. Trends were examined for any substance use and by substance type. We also evaluated number and type of substance categories involved among polysubstance users. Single changepoint analyses were performed to investigate significant differences in mean percentage of cases involving substance use during weeks 2 to 20 (mid-January through mid-May) as this time period is unlikely to be affected by seasonal fluctuations in child welfare cases, and in substance use due to school breaks, holidays, and associated seasonal changes (Brown et al., 2022; Weiner et al., 2020). Changepoint analyses estimated the point where the statistical properties of a sequence of observations change (Killick & Eckley, 2014) by using a general likelihood ratio-based approach to test the hypothesis (Hinkley, 1970). The null hypothesis was no changepoint and the alternative hypothesis was a single changepoint. If a changepoint was identified, the week of changepoint was reported, and the mean percentage of cases involving substance use before and after the changepoint were compared. If no changepoint was identified, the overall mean percentage of cases involving substance use was reported. All analyses were conducted using R 4.2.2, using the R package “changepoint” (<https://cran.r-project.org/web/packages/changepoint/>).

### 3. Results

Among the 264,380 female parents investigated for child abuse and neglect in Ohio from 2019 to 2022, 65,796 (24.9 %) used at least one substance according to the family assessment at the case entry (Table 1). Women ranged in age from 18.0 to 90.3, with an average age of 33.4 (SD = 7.9). Compared to all female parents who entered the child welfare system in Ohio during the study period, those with substance use issues were significantly younger and more likely to be white. They were also significantly more likely to have lower number of allegations, but more likely to have substantiated allegations of child abuse and neglect.

The number cases referred to child welfare during the initial COVID-19 stay-at-home orders (March 23 through May 1, 2020) was much smaller compared to the same time period in any other years studied (eTable 2 in the Supplement). According to the overall trend of percentage of cases involving substance use by quarter (Fig. 1), both the highest percentage of cases involving any substance use and the highest percentage of cases involving specific substances occurred in the second quarter of 2020 (Fig. 1a). When cases involving use of substances from multiple categories (polysubstance users) were categorized as a separate group they took over most of the fluctuations over the study period and the quarterly trend seemed stable for all the other categories, except for cannabis (Fig. 1b).

To provide more context, we overlaid the monthly trend of each year to examine whether and how substance use in the year 2020 was different given anticipated seasonal changes (Fig. 2). While the trends in 2021 and 2022 were quite similar to that in 2019 with peaks in July, the percentage of cases involving substance use had a much steeper increase starting at the beginning of 2020 and peaking in May (Fig. 2a). Similar patterns were observed in multiple substance categories (eFigure 1 in the Supplement) and among polysubstance users (Fig. 2b). For cases involving one substance category, the use of each substance category was not much different

**Table 1**  
Characteristics of all female parents in the Ohio child welfare system by substance use involvement from 2019 to 2022.

	All female parents		With any substance use		With no substance use		P-value
	N = 264,380		n = 65,796		n = 198,584		
	n	Mean (STD)	n	Mean (STD)	n	Mean (STD)	
Parent Age	264,157	33.35 (7.9)	65,749	30.78 (7.1)	198,408	34.20 (8.0)	<0.001 (103.0) <sup>a</sup>
Disposition	243,865	%	63,684	%	180,181	%	<0.001
Substantiated	33,821	13.9	11,860	18.6	20,961	11.6	(2198.3) <sup>b</sup>
Alternative response <sup>c</sup>	114,165	46.8	32,591	51.2	81,574	45.3	
Unsubstantiated	73,872	30.3	14,894	23.4	58,978	32.7	
Other	22,007	9.0	4339	6.8	18,668	10.4	
Race and ethnicity	259,061	%	64,975	%	194,086	%	<0.001
Hispanic	12,090	4.7	2415	3.7	9675	5.0	(4042.6) <sup>b</sup>
White alone	162,787	62.8	43,436	66.9	119,351	61.5	
Black or African American alone	73,681	28.4	16,235	25.0	57,446	29.6	
Asian alone	1392	0.5	90	0.1	1302	0.7	
American Indian and Alaska Native alone	214	0.1	55	0.1	159	0.1	
Native Hawaiian and Other Pacific Islander alone	238	0.1	22	0.0	216	0.1	
Multiracial	8659	3.3	2722	4.2	5937	3.1	
Allegation							
Number of allegations per person	264,380	1.91 (0.95)	65,796	1.89 (0.90)	198,584	1.92 (0.97)	<0.001 (7.69) <sup>a</sup>
Type of allegations		%		%		%	<0.001
Dependent Child <sup>d</sup>	27,573	10.4	5333	8.1	22,240	11.2	(7378.7) <sup>b</sup>
Emotional Maltreatment	38,457	14.5	7449	11.3	31,008	15.6	
Neglect / Medical neglect	188,328	71.2	47,836	72.7	140,498	70.7	
Physical Abuse / Shaken Baby	193,730	73.3	56,265	85.5	137,465	69.2	
Sexual Abuse	57,396	21.7	7397	11.2	49,999	25.2	
Other	391	0.1	54	0.1	337	0.2	

<sup>a</sup> Welch's t-test (test statistics).

<sup>b</sup> Chi-square test (test statistics).

<sup>c</sup> There was no formal finding/substantiation of the allegation.

<sup>d</sup> The children who are believed to be without proper care.

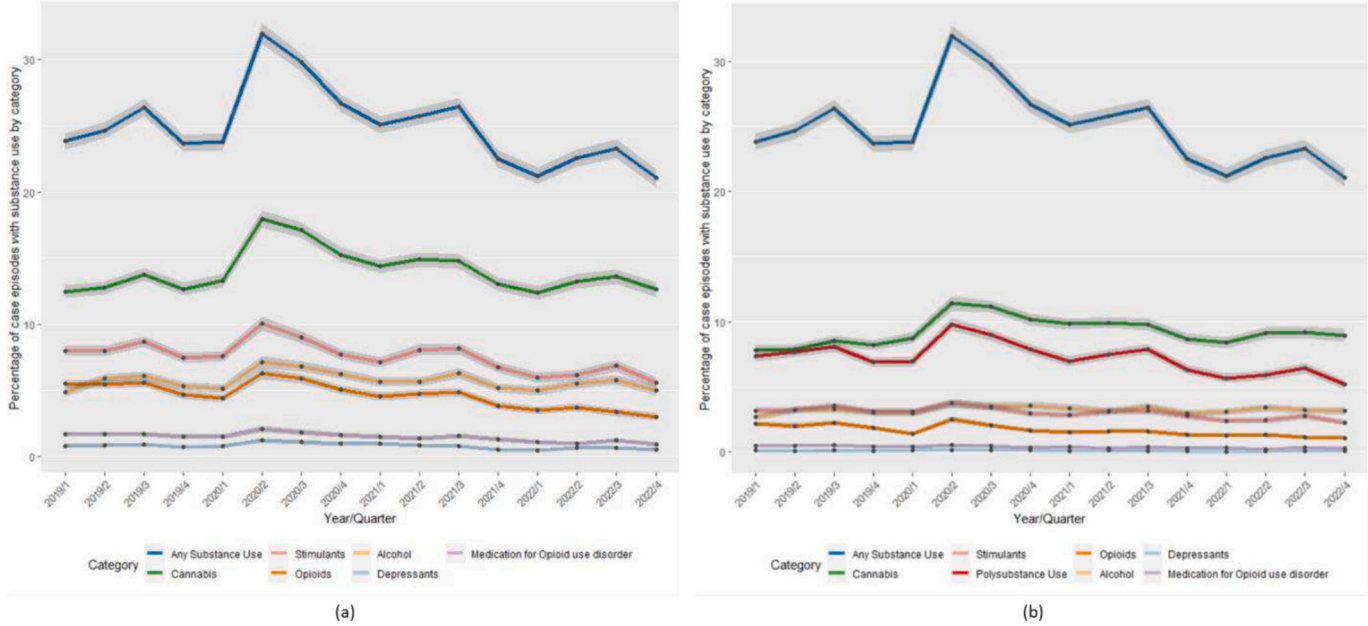
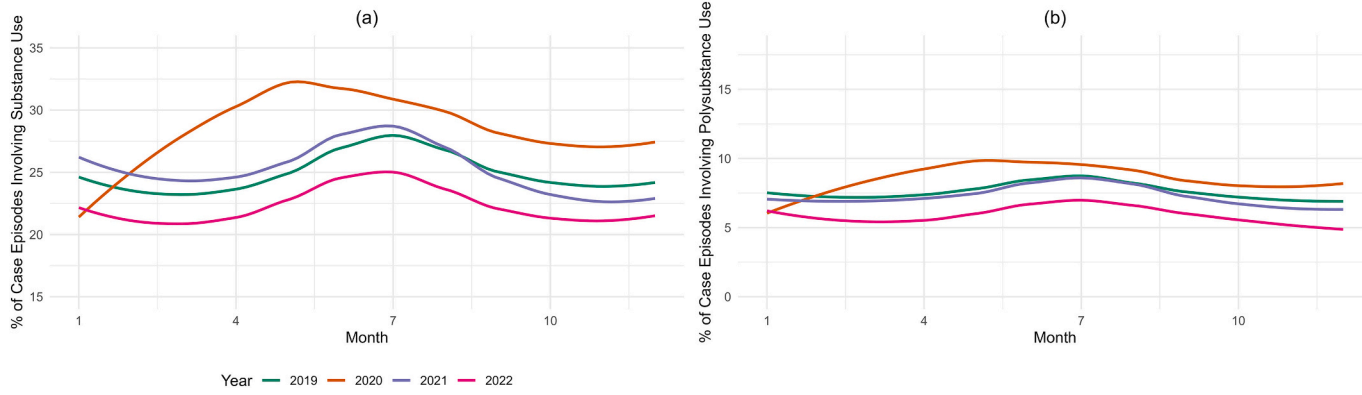


Fig. 1. Percentage of child welfare cases in Ohio that involved substance use (2019–2022), where polysubstance users, who use two or more types of substances, regardless of the types, are (a) included in each category and (b) categorized as a separate group.



**Fig. 2.** Percentage of case episodes involving substance use by month in Ohio (2019–2022). (a) Any substance use. (b) Polysubstance use.

across the years, except for cannabis, where 2019 had the lowest percentage of cases compared to all the following years (eFigure 2 in the Supplement). About three quarters of polysubstance users used substances from two categories (eTable3 in the Supplement). The most common combinations of polysubstance use were cannabis with stimulants, cannabis with alcohol, and stimulants with opioids (eTable4 in the Supplement).

The changepoint analysis identified statistically significant changes in the average number of cases per week in all the years studied (Table 2, Fig. 3a). From weeks 2 through 20 in 2020, it dropped from 1643 to 983 in March, which aligned with the declaration of a national emergency concerning the COVID-19 pandemic. While in all the other years studied, the mean weekly number of cases increased from 1483 to 1650, from 1425 to 1554, and from 1304 to 1515 in February for 2019, 2021, and 2022, respectively. For the weekly percentage of cases involving any substance use, we failed to reject the null hypothesis that no changepoint existed between the weeks 2 through 20 for all years except for 2020, when it increased from 32.4 % to 41.8 % in early March (Table 2, Fig. 3b). Similar patterns were found in cases involving uses of alcohol, stimulants, and cannabis (eFigure3 in the Supplement). When polysubstance users were categorized as a separate group, no changepoint was identified for any substance categories throughout the study period, except for cannabis and polysubstance use in 2020 (eFigure4 in the Supplement).

#### 4. Discussion

This study used child welfare administrative data to investigate changes in the proportion of child welfare cases involving substance use before, during, and after the early phases of the COVID-19 pandemic. Our main findings indicate that despite a decline in the overall number of substantiated cases (Brown et al., 2022) compared to pre-pandemic levels, there was a significant increase in the proportion of cases involving substance use in 2020. Additionally, we found that polysubstance users accounted for observed increases in alcohol and stimulant use but not in cannabis use.

Our findings align with evidence from the general US population that indicates an overall trend towards increased substance use in response to the economic and health pressures of the COVID-19 pandemic (Kumar et al., 2022; Roberts et al., 2021). An increase in the proportion of substance-related cases is notable as they represent individuals who have experienced some of the highest levels of trauma when compared to other families involved in the child welfare system or in the general population. This often translates to more complex and severe cases with a significantly higher probability of the child being placed in out of home care (Radel et al., 2018).

Consistent with prior studies (Brown et al., 2022; Katz et al., 2022), we found an overall decline in the number of substantiated cases during the early phases of the pandemic. This decline is largely attributable to school closures and a resulting decrease in reports of abuse and neglect from school and mental health professionals, while reports from law enforcement and medical personnel increased (Marmor et al., 2023). This shift has implications for the severity and complexity of cases reported as these sources are more likely to identify more severe cases of addiction (Brown et al., 2022). Given these reporting shifts, it is important to consider whether the observed increase in the proportion of substance-related cases reflects a true rise in parental substance use or is partly influenced by changes in reporting patterns. Although we observed a decrease in the absolute number of substance-related cases after the initial phase of the pandemic from 532 to 411 cases per week, the overall number of substantiated child welfare cases declined even more substantially, resulting in a higher proportion of cases involving substance use. Furthermore, if the increase in proportion was solely due to reporting artifacts, we would expect a return to pre-pandemic proportions as reporting patterns normalized. However, our findings indicate that the proportion of cases involving substance use remained elevated beyond 2020, reinforcing the likelihood that these changes reflect both real behavioral shifts and systemic reporting dynamics.

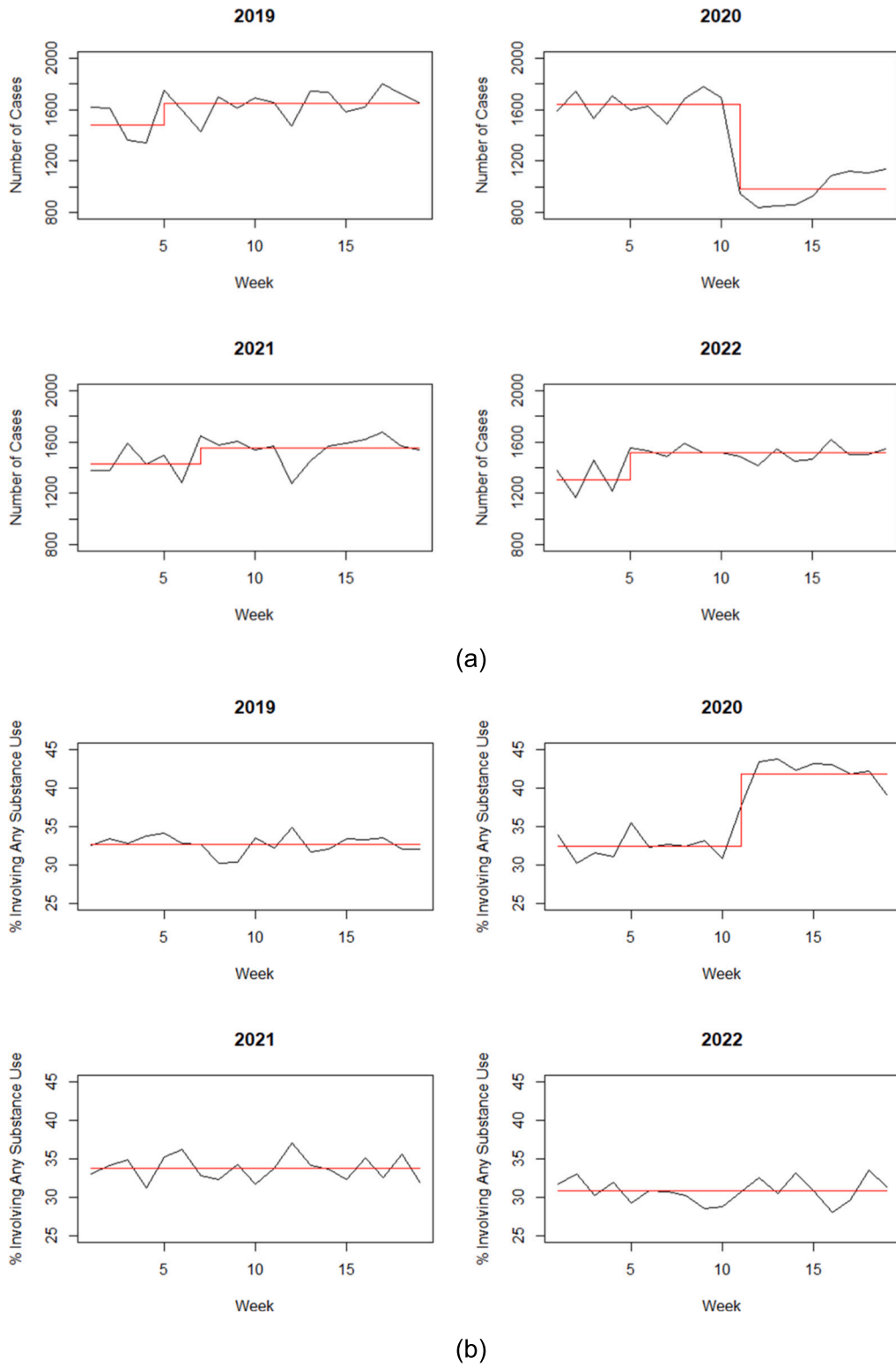
That cannabis use remained significant throughout and was implicated in 6 of the 10 most common polysubstance combinations suggests that anxiety related to the spread of the COVID-19 virus, chronic social isolation, and added homeschooling and parenting responsibilities may have led individuals to initiate or increase frequency of cannabis use as a coping mechanism (Czeisler, 2020; Dubey et al., 2020). Furthermore, because these data were collected prior to legalization of recreational cannabis in Ohio, parents likely also used cannabis to manage chronic mental and physical health conditions (Boehnke et al., 2019). Poor parental health in turn is associated with abusive and problematic parenting (Wolf et al., 2021). Despite its common use, very little is known about marijuana-specific effects of cannabis on parenting behaviors (Freisthler & Kranich, 2022; Kepple et al., 2022).

Studies examining drug use among individuals diagnosed with or at risk of substance use disorders (SUD) report high levels of polysubstance use during the pandemic (Perrone et al., 2023). At-risk individuals may have experienced challenges due to lack of access to treatment and harm reduction services (Boehnke et al., 2021). Indeed, significantly higher positive urine drug tests have been found among individuals at risk of SUDs from the four months before the COVID-19 emergency declaration to the four months after (Wainwright et al., 2020), and the percentage of patients reporting an increase in substance use was shown to be higher among those with greater SUD severity (Jacka et al., 2021). Thus, mothers may have a setback, used different substances as substitutes (Dubey et al., 2020) or to manage symptoms. It is also possible that lockdown measures interrupted typical methods of obtaining preferred drugs (Jemberie et al., 2020). As a result, mothers may have used multiple substances based on availability and out of convenience. The high prevalence of polysubstance use is particularly concerning given its association with higher levels of psychological distress compared to individuals who use fewer substances (Quek et al., 2013; Smith et al., 2011; White et al., 2013). Polysubstance use is also associated with poorer treatment retention (Staiger et al., 2013; Williamson et al., 2006), higher rates of relapse (Connor et al., 2014) and a higher likelihood of re-entry into foster care compared to children removed for reasons related to single substances (Brook & McDonald, 2009; Radel et al., 2018). Despite this, polysubstance use has largely been understudied with respect to child welfare populations, and the differential effects of different substances on parenting behaviors are rarely considered as part of a child welfare case (Kepple et al., 2022).

**Table 2**

Changepoint analysis results of the number of child welfare case episodes and the percentage involving substance use in Ohio from weeks 2 to 20 of each year (2019–2022). Polysubstance users, who use two or more types of substances, regardless of the types, are included in each category and also categorized as a separate group.

	Year											
	2019			2020			2021			2022		
	Change (week)	Pre	Post	Change (week)	Pre	Post	Change (week)	Pre	Post	Change (week)	Pre	Post
# Case episodes	4	1483	1650	10	1643	983	6	1425	1554	4	1304	1515
% Any substance use		32.7		10	32.4	41.8		33.8			30.8	
Polysubstance users included in each category												
% Alcohol		8.9	10		8.8	11.4		9.0			8.4	
% Opioids		8.0	12		7.3	9.4		7.1			6.1	
% Medication for Opioid use disorder		2.4			2.8			2.3			2.0	
% Stimulants		12.3	11		12.0	15.4		11.7			10.2	
% Depressants		1.4			1.7			1.4			1.2	
% Cannabis		18.1	10		18.8	25.1		20.2			18.8	
Polysubstance users categorized as a separate group												
% Alcohol		4.0			4.4			4.1			4.1	
% Opioids		2.2			1.9			1.7			1.5	
% Medication for Opioid use disorder		0.46			0.44			0.40			0.36	
% Stimulants		3.5			3.9			3.4			3.0	
% Depressants		0.14			0.18			0.11			0.09	
% Cannabis		9.4	10		10.0	13.0		11.3			10.5	
% Polysubstance Use		13.0	11		12.8	17.0		12.8			11.2	



**Fig. 3.** Change point analysis results of (a) number of case episodes and (b) percentage of cases involving any substance use among child welfare cases in Ohio from weeks 2 to 20 of each year (2019–2022).

#### 4.1. Implications

COVID-19 shifted substance use patterns among parents reported to the child welfare system. This may be due, in part, to the substances that were more readily available during the early stages of the pandemic (Ali et al., 2021; Gili et al., 2021). Child welfare agencies must monitor shifts in substance use patterns to match caregivers to appropriate treatment modalities for specific substance use behaviors. For example, parents who primarily misuse opioids would benefit from MOUD (Hall et al., 2016). However, stigma around using MOUD among parents involved in the child welfare system is high (Radel et al., 2018). On the other hand, parents who primarily use methamphetamines with no intent to use opioids, but who find fentanyl in their drug supply, would not benefit from MOUD treatment. Different classes of drugs have varying physiological and behavioral effects that differentially affect the risk for using harmful parenting practices (Kepple et al., 2022). Polysubstance use further complicates the varying effects of different drug classes on parenting practices. Treatment options that address both the psychoactive effects of the individual drugs and those used in combination are needed, which also implies a need for a more symbiotic relationship between child welfare and addiction services to support families. Finally, harm reduction approaches need to be introduced to families who use drugs. Substance use alone does not necessarily mean that children are being harmed. We need to understand why some parents who use substances do not end up in the child welfare system to identify strategies that might support families without systems involvement while also keeping children safe from harm (Freisthler, 2024).

#### 4.2. Limitations

We examined cases of child abuse and neglect in Ohio. Ohio was affected heavily by the opioid crisis, with opioid being found in all classes of drugs, including psychostimulants. As such, the drugs of use may look different from child welfare populations in other states. Furthermore, we used administrative data to identify substance use and the types of drugs used. These data were recorded by investigators during the investigation phase of child abuse and neglect cases. Caseworkers might not be aware of all the substances being used or may not identify parental substance use in the initial stages of investigation. Our estimates should be considered lower bound estimates due to these limitations. Relying on these data may also affect the validity of our findings. However, type of drug used is not commonly tracked across states for child welfare populations, making our study a significant advance in the current literature. Finally, no information was available on the quantity and frequency of drug use, which may be better predictors of harm to children.

### 5. Conclusions

The COVID-19 pandemic exacerbated risk factors for child maltreatment, including substance use, while simultaneously disrupting support systems. An effective response to the adverse effects on child welfare-involved families requires attention to type of substance being used and their psychoactive effects. It also necessitates the identification of harm reduction strategies tailored to support families, informed by a better understanding of pandemic-related shifts in substance use patterns. This knowledge will be critical not only in meeting the needs of substance-affected parents and children but also in planning to minimize the adverse effects of the changing nature of the drug supply and events that can isolate families from various forms of social support. Future research is needed to understand how cannabis and polysubstance use affect parenting behaviors and risk of harm to children.

#### CRedit authorship contribution statement

**Yun Ye:** Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Elinam Dellor:** Writing – review & editing, Writing – original draft, Conceptualization. **Bridget Freisthler:** Writing – review & editing, Writing – original draft, Supervision, Resources, Methodology, Funding acquisition, Conceptualization.

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#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chiabu.2025.107487>.

## Data availability

The authors do not have permission to share data.

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