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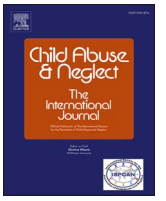

Family structure and children's risk of child protective services re-reports

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ABSTRACT

Background: Single parent families are at higher risk of re-report to Child Protective Services (CPS) than two-parent families. Yet, how single-family homes differ in risk from two-parent families remains under researched.
Objective: To identify heterogenous patterns of child and caregiver factors among CPS-involved families and the subsequent risk for CPS re-report based on child and family characteristics (i.e., sociodemographic information, family structure, and risk indicators).
Participants and setting: Data were from the 2017 National Child Abuse and Neglect Data System Child File ($N = 249{,}026$).
Methods: We conducted latent class analysis (LCA) to identify discrete patterns (i.e., classes) based on child and caregiver risk indicators (e.g., substance use, behavioral health). We then used logistic regression to examine family structure and other family characteristics and CPS indicators predicted CPS re-report for each class.
Results: Results yielded five distinct classes: 1) *Financial Stressors* (25 % of the sample); 2) *Caregiver Substance Use* (16 %); 3) *Complex Household Stressors* (3 %); 4) *Child Disabilities* (4 %); and 5) *Minimal Household Stressors* (53 %). Family structure was significantly associated with CPS re-reports for Classes 1, 2, and 5. For Class 1, single father families had increased odds of CPS re-report compared to other family structures. For Classes 2 and 5, single father families' odds of CPS re-reports were greater than those of married families, but lower than single mother families.
Conclusions: Children growing up in single father families have different likelihoods of repeat CPS involvement compared to those in single mother and married families. Financial stressors and parental substance use within single father families should be addressed.

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1. Introduction

Child protective services (CPS) agencies in the U.S. completed over 3 million investigations (or alternative responses) for allegations concerning the safety of children in 2021 alone (US Department of Health and Human Services, 2023). The likelihood of a new report to CPS following closure of a maltreatment investigation vary from about 31 % to 48 % when families are followed for a period of at least a 3-to-5 years; however, the risk of re-report is highest within the first 6-to-12 months (Connell et al., 2007; Dakil et al., 2011; Drake et al., 2006; Fluke et al., 2005). The risk of subsequent reports to CPS is greater for those families with a history of prior substantiated maltreatment (Connell et al., 2007), history of caregiver substance use issues (Davidson et al., 2019), domestic violence (Davidson et al., 2019), family mental health concerns (Daniel et al., 2010), child developmental/cognitive issues (Turner et al., 2011), low socioeconomic status(SES), or those living at or below the poverty line (White et al., 2015) or households headed by single parents (Daniel et al., 2010). Indeed, in 2022, almost 30 % of all single parents were considered as having low SES (United States Census Bureau, 2023). Research has consistently demonstrated families with a low SES are at higher risk of enduring a CPS investigation as well as having ongoing interactions with the system (Maguire-Jack & Font, 2017; Yang, 2015; Yang & Maguire-Jack, 2018). This is not to suggest that only families with fewer economic resources maltreat their children. However, there is evidence to suggest poverty-associated stressors (e.g., money, food, and housing insecurity) increase the odds that a family will experience a CPS investigation (Yang, 2015).

While there is a clear relationship among a broad spectrum of factors that influence an initial CPS investigation, there is limited research that examines the effect of family structure (i.e., the constellation of caregivers in the household, such as single parent or two-caregiver homes) on risk of re-report. This absence is particularly notable given the steady increase of non-traditional (e.g., non-married) family homes (Kiernan et al., 2020). Of note, single father homes have doubled in the last 25 years from 2.5 % in 1996 to 5 % in 2021 (United States Census Bureau, 2023; Hofferth et al., 2013). Prior research in the CPS system has almost exclusively focused on married and single mother homes (Berger et al., 2017; Waldfogel et al., 2010). Although married and single mother homes comprise the majority of the CPS population, the CPS system is tasked with meeting the needs of all family structures. Thus, for the system to meet their objective, a nuanced understanding of the heterogeneity of CPS-involved families is warranted.

1.1. Family structure and CPS involvement

The composition of families in the U.S. has drastically changed in the past 50 years. Current census data suggest that most children are raised in two-parent married households (Mather et al., 2019); however, since the 1960s the proportion of single parenthood has been steadily on the rise, and shows little evidence of slowing down (Mather et al., 2019). More than half (52 %) of children in African American homes reside with a single parent (47 % mother and 5 % father) (Kids Data, 2022). Latinx households also have a high percentage of single headed homes with almost 30 % of children living with either only their mother (24.5 %) or father (4 %; Kids Data, 2022). Regardless of race or ethnicity, single families generally have been found to be at a higher risk of experiencing a CPS investigation as well as ongoing CPS contact as compared to married families (Turner et al., 2007; van Ijzendoorn et al., 2009). Higher rates among single families have been associated with: (1) lower economic/financial security and stability as compared to homes with two earners; (2) children accessing only one source of caregiver support; and (3) parenting stress due to an inability to share caregiving burdens and responsibilities (Berger, 2004).

In addition to family structure, research has consistently found other areas to increase the risk of CPS involvement including exposure to domestic violence (Lawson, 2019; Victor et al., 2019) and caregiver substance use (Berger et al., 2010; Victor et al., 2018). Caregiver substance use issues, in general and, when combined with domestic violence in particular, consistently elevates caregivers' risk of a CPS investigations as well as having the investigation substantiated (Mirick, 2014). Indeed, the probability of substantiation was nearly 33 % when both substance misuse and domestic violence were identified in the investigation. Other known risk factors of CPS involvement include mental health concerns present in either the child (Grogan-Kaylor et al., 2008) or the caregiver (Hammond et al., 2017; Kaplan et al., 2019). Children with developmental or cognitive concerns are disproportionately represented in CPS investigations, and they face an increased likelihood of continued CPS involvement (Helton et al., 2019), especially within families from minority communities (Slayter, 2016).

Rates of re-report vary based on duration of follow-up. Numerous studies observed that approximately 20 % of families experienced a re-report during the first 24-months post investigation (Casanueva et al., 2015; Fluke et al., 2008), though rates continue to increase over time. When combined with specific CPS risk indicators, re-report findings have found single parent families had higher odds of re-report as compared to children living with two biological parents (Kahn & Schwalbe, 2010). Given the consistency of these risk factors increasing CPS contact and re-report, particularly when combined with high risk factors such as substance use and domestic violence, it is necessary to also identify how family structure may influence overall CPS re-involvement.

1.2. The current study

Multiple family risks are believed to increase the chances of CPS involvement, yet a focus on how family structure further influences this relationship is notably absent from current CPS literature. Person-centered approaches like latent class analyses (LCA) identify the heterogeneity of individuals with similar risk patterns from a seemingly homogenous population (e.g., CPS-involved families). Research on known risk factors of CPS entry and re-entry are well documented (i.e., single parent homes, substance use, family violence, poverty; Berger et al., 2010; Dubowitz et al., 2011; Palmer et al., 2022). Yet how these risks may differ relative to family structure remains unclear. Thus, use of LCA offers the ability to capture the heterogeneity within a sample (Roesch et al., 2010).

Naturally occurring patterns of experience are used to determine similarities between members in a sample rather than analyzing the independent contributions of individual experiences while ruling out other experiences (e.g., a variable-centered analytic approach).

This study adds to the literature base by examining how specific family structures (i.e., single fathers, single mothers, and married parents), in addition to other known predictors of CPS involvement, affect risk of re-report for separate classes of households following the completion of an investigation. Using nationally representative data of CPS-involved families, we first conducted a LCA to identify patterns of CPS risk factors, then used logistic regression to examine the links between these patterns of risk and re-report to CPS. The present analyses had two aims: to explore (1) the population-level patterns of child and caregiver risk factors among CPS involved families and (2) the association between different patterns of child and family risk factors and CPS re-report.

This study provides a contemporary look into the effects of family structure on repeated reporting to CPS, based on patterns of child and caregiver risks known to influence re-report.

2. Method

2.1. Data and analytic sample

Data are from the National Child Abuse and Neglect Data System (NCANDS) 2017–2019 Child Files. NCANDS is a child abuse and neglect reporting program based on state participation, including all 50 states as well as Washington D.C. and Puerto Rico. The NCANDS Child File provides child-specific records for each report of alleged child abuse and neglect that involved a CPS response resulting in an investigation disposition during the reporting federal fiscal year (National Data Archive on Child Abuse and Neglect [NDACAN], 2022).

NCANDS includes child demographic information, allegation type, perpetrator information, previous CPS investigations, post-investigation service types, and child and caregiver risk indicators. These risk indicators are asked by the caseworker conducting the CPS investigation and comprise child and caregiver characteristics or environments that may place the child at risk for maltreatment (NDACAN, 2022). Due to practice and policy differences in how each states obtains family information (Weigensberg et al., 2021), only 30 states collect information on child and caregiver risk indicators; however, some states only collect data on the caregivers or children, whereas other states collect data on only a specific set of risk variables (i.e., child behavioral health condition or financial concerns for caregivers). Because we were interested in both child and caregiver risk indicators our analytic sample was limited to 11 states/territories that collected data on most (i.e., at least 19 of the 21 risk indicators; described below) of the child and caregiver risk indicators. These included: Arkansas, Connecticut, Indiana, Michigan, Minnesota, Nebraska, New Jersey, Ohio, Oregon, Puerto Rico, and Utah.

In order to provide adequate time between the index investigation and subsequent re-report, all variables of interest were assessed at the time of the child's report in 2017 and children were followed for 24 months, where only substantiated reports were used for purposes of re-report. The 2017 Child File contained data for 795,956 unique children living with married or single parents; however, the data were limited to the states that collected information on at least 19 of the 21 risk indicators. This resulted in a final analytic sample of 249,026 children.

2.2. Measures

2.2.1. Dependent variable

Our dependent variable was a re-report of child maltreatment to CPS. Families were identified in the 2017 dataset and followed for up to 24 months to determine re-report rates. To identify re-reports, the Child Files for FY 2017–2019 were merged to allow for time between closure of the index investigation and a subsequent re-report. In the event there was more than one re-report, only the first re-report was used in analyses.

2.2.2. Independent variables

The independent variables included the child and caregiver risk indicators as well as known covariates. Some of the risk indicators, such as child disabilities, were very rare (e.g., present in <1 % of the CPS population). Additionally, due to the variation among states in data collection there was missing data on some of the indicators (up to 49 % for physical disabilities and visual/hearing impairments). As a result, several of the indicators were collapsed into a single variable.

2.2.2.1. Child risk indicators. Child risk indicators included alcohol abuse, drug abuse, intellectual disability, emotional disturbance, visual or hearing impairment, learning disability, physical disability, behavior problem, and other medical condition. The indicators were collapsed into four variables: child substance use (drug and alcohol abuse); child disabilities (intellectual and learning disabilities; physical disabilities and visual/hearing impairments); child behavioral health (encompassing emotional disturbance and behavior problem); and child medical condition, which reflected any medical condition not captured within the intellectual, visual, hearing, physical, or emotionally disturbed categories. All child risk indicators were coded dichotomously (yes/no).

2.2.2.2. Caregiver risk indicators. Aligned with prior research, risk indicators for caregivers included: alcohol abuse, drug abuse, intellectual disability, emotional disturbance (renamed mental health), visual or hearing impairment, learning disability, physical disability, other medical condition (defined similar to the child but also includes caregivers diagnosed with HIV/AIDS), domestic

violence in the home, inadequate housing, financial problems (defined as insufficient financial resources to meet minimum needs), and public assistance (defined as the family using public assistance). Similar to the child risk factors, some of these indicators were merged to account for small cell sizes and item-level missingness resulting in seven categories. Caregiver drug and alcohol abuse were collapsed into 'caregiver substance use.' The caregiver intellectual and learning disabilities, physical disabilities, and visual/hearing impairments were combined into 'caregiver disabilities.' Finally, financial problems and public assistance were collapsed into the 'financial stressors.' All caregiver risk indicators were coded dichotomously (yes/no) to indicate whether a caregiver was affected by each available indicator.

2.2.3. Covariates

2.2.3.1. Family structure. NCANDS determines family structure based on the child's living arrangement at the time of the alleged maltreatment. There are 12 types of parent or caregiver environments identified in NCANDS including: married two parent household with two biological/adoptive parents; married two parent household with one biological/adoptive and one stepparent; unmarried two parent household with two biological/adoptive parents; unmarried two parent household with one biological/adoptive parent and one cohabitating partner; two parent household, marital status unknown; single parent household, mother only; single parent household, father only; single parent household mother with other adult; single parent household father with other adult; nonparent relative caregiver household; nonrelative caregiver household; and group home or residential setting. For the purposes of this study, we focused on three family structures: married family (i.e., the two married parent options collapsed into a single category), single mother household, and single father household.

2.2.3.2. Maltreatment and CPS history. Additional covariates included maltreatment allegation type, and previous CPS substantiated investigation. Dichotomous variables were coded 0 = no, 1 = yes. Dummy variables were created for allegation type (neglect; physical abuse; sexual abuse; emotional abuse; multiple allegations) with neglect as the reference category.

2.2.3.2.1. Demographic characteristics. We included key demographic variables as recommended for running LCA models with covariates (Collins & Lanza, 2010); however, sociodemographic information is only available at the child level. These included child

Table 1
Descriptive characteristics of sample (N = 249,026).

	M	(*SD*)
Age	6.73	11.50
	N	%
Gender (female)	124,513	50.0
Previous investigation (yes)	48,713	19.8
Race and ethnicity		
White	133,478	53.6
Black	54,039	21.7
Latinx	33,618	13.5
Multi-racial	18,926	7.6
Allegation type		
Neglect	142,194	57.1
Physical abuse	39,844	16.0
Sexual abuse	13,696	5.5
Psychological abuse	4233	1.7
Combined allegation	32,124	12.9
Family type		
Married	87,408	35.1
Single mother	139,953	56.2
Single father	21,665	8.7
Child risks		
Substance use	3486	1.4
Disabilities	6226	2.5
Behavioral health	22,910	9.2
Other medical	7720	3.1
Caregiver risks		
Substance use	33,619	13.5
Emotional	20,171	8.1
Money	61,758	24.8
Disabilities	4482	1.8
Other medical	5413	2.2
Housing	8467	3.4
Domestic violence	25,401	10.2

Note: Demographic information is for the child only.

age, gender (male = 0, female = 1), and race/ethnicity were included as control variables. Categorial dummy variables were created for child race/ethnicity (e.g., White, non-Hispanic; Black, non-Hispanic; Hispanic; Multiple Races/Ethnicity) with White, non-Hispanic as the reference category.

2.3. Analytical plan

Descriptive analyses were conducted with SPSS version 28 (IBM Corporation, 2021) and LCA models were conducted using mixture modeling option in Mplus version 8.5 (Muthén & Muthén, 2017) which can handle missing values and observed variables that are binary or ordered categorical. In LCA, observations are classified into latent, unobserved, classes based on responses to a set of indicators. Our first aim was to identify the optimal number of classes of family and child risk indicators from our data. Classes were formed using the MLR estimator, based on full information maximum likelihood estimation (FIML) robust to non-normal observed variables. This means that all respondents with at least one valid response on the child and caregiver risk indicators were included in the identification of the latent classes.

To determine the optimal number of classes, we jointly considered statistical model fit and adequate class sizes, while prioritizing interpretability (Collins & Lanza, 2010; Masyn, 2013). Model selection was determined by the available information criteria: Aikake's (AIC), Bayesian (BIC), and sample-adjusted BIC where smaller values indicate a better fit; and the Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (VLMR-LRT) test which compares the current solution to the solution with one less class. We also considered entropy, which helps the model to accurately define classes. An entropy value close to 1 is ideal (Celeux & Soromenho, 1996); however, it has been noted that entropy performs less well in large sample sizes (Wang et al., 2017). As such, we opted to weigh other fit indicators, such as interpretability, more heavily in the selection of the best-fitting model.

Our second aim was to determine how the identified classes were associated to risk of a child maltreatment re-report to CPS. Following best practices, we used the Bolck–Croon–Hagenaars (BCH) stepwise procedure for LCA with an outcome variable (Asparouhov & Muthén, 2014). The BCH procedure provides significance tests of mean differences using the Wald test while holding class membership constant (Bakk et al., 2016). Pairwise comparisons were interpreted if the omnibus tests were significant ($p < .05$). We performed a logistic regression with latent class membership as a predictor variable and then explored class-specific differences with postestimation techniques.

3. Results

Sociodemographic characteristics for children in the analytic sample are presented in Table 1. The majority of children were White (53.6 %) and half were female (50.0 %). Of those that reported on ethnicity, 13.5 % identified as Latinx. The average age was 6.73 (*SD* = 11.5, range = 0 to 17). Finally, 19.8 % of families in this sample experienced a re-report.

3.1. Latent class analysis results

Using our final analytic sample ($N = 249{,}026$), we explored model fit beginning with a 2-class solution up to a 6-class solution (Table 2). The 5-class solution was selected based on numerous fit indices and prioritizing interpretability. Overall, there was a low prevalence for most of the risk indicators as noted on overall class counts (Table 3). Each of the classes were distinctly identified by types of risk indicators. Class 1 (*Financial stressors*) comprised approximately 25 % of the sample and was distinguished by the highest rates of isolated money issues (48 %). Families in this class also had low endorsement of other risk indicators (<10 % with a positive endorsement) with the exception of child behavioral risk, endorsed by 19 % of the class members. Class 2 (*Caregiver Substance Use*) representing 16 % of the sample, was characterized by the highest rate of substance use concerns (100 %), and had notably high (42 %) endorsement of the money issues indicator and a notable endorsement of domestic violence (24 %) and mental health concerns (14 %). Members of Class 2, endorsed <10 % of all other indicators. Class 3 (*Complex Household Stressors*), was made up of only 3 % of all families; 95 % of caregivers in Class 3 had money concerns, 88 % were dealing with substance use, 85 % had mental health concerns, 73 % had housing issues, and 54 % were reported as having domestic violence concerns. Members of Class 4 (*Disabilities*), comprising 4 % of the sample, are distinct with 100 % of all families indicating the presence of a child disability. Last, the class with the greatest membership, representing slightly more than half (53 %) of all families, fell into Class 5, (*Minimal Household Stressors*). Families belonging to Class 5 with the exception of having money concerns (19 %) possessed very few (<3 %) of all risk indicators indicating class membership.

Table 2
Model fit statistics for latent class models of two to six classes.

# Classes	AIC	Sample Size Adj. BIC	Entropy	VLMR LRT (kv k-1)	LMR adj LRT (kv k-1)	% total sample, by class
2	2,009,521.33	2,009,702.89	0.48	$p = .33$	$p = .33$	26, 74
3	1,990,258.17	1,990,534.44	0.60	$p < .0001$	$p < .0001$	74, 19, 7
4	1,985,441.91	1,984,659.71	0.62	$p < .0001$	$p < .0001$	69, 13, 12, 6
5	1,979,004.69	1,979,470.41	0.59	$p < .0001$	$p < .0001$	25, 16, 3, 4, 53
6	1,975,936.40	1,976,496.85	0.59	$p < .0001$	$p < .0001$	16, 2, 2, 7, 13, 60

Table 3
Parameter estimates for a five-class model (N = 249,026).

Indicators	Overall sample	Class 1: financial stressors	Class 2: caregiver substance use	Class 3: complex household stressors	Class 4: disabilities	Class 5: minimal household stressors
		(n = 61,759)	(n = 39,344)	(n = 6978)	(n = 9461)	(n = 131,484)
		Latent class membership probabilities				
		0.25	0.16	0.03	0.04	0.53
		Item response probabilities				
Child risk factors						
Substance use	0.03	0.03	0.09	0.18	0.03	0.01
Behavioral health	0.10	0.19	0.06	0.36	0.33	0.03
Disabilities	0.05	0.00	0.01	0.15	1.00	0.01
Medical condition	0.06	0.12	0.07	0.27	0.28	0.01
Caregiver risk factors						
Substance use	0.20	0.03	1.00	0.88	0.12	0.02
Mental health	0.09	0.14	0.14	0.85	0.14	0.01
Money	0.32	0.48	0.42	0.95	0.39	0.19
Disabilities	0.03	0.03	0.01	0.19	0.35	0.00
Medical condition	0.04	0.08	0.04	0.39	0.10	0.01
Inadequate housing	0.05	0.09	0.07	0.73	0.04	0.00
Domestic violence	0.13	0.12	0.24	0.54	0.11	0.10

Note. Latent class membership indicates the proportion of individuals in each latent class. Item-response probabilities indicate proportions of individuals in a particular class endorsing an item.

Table 4
Class-specific proportions of family risks and the outcome of re-report.

	Class 1: financial stressors	Class 2: caregiver substance use	Class 3: complex household stressors	Class 4: disabilities	Class 5: minimal household stressors
CPS re-report rate	51.5	34.3	37.9	46.5	33.0
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
Child age	**0.96 (0.96–0.97)**	**0.96 (0.96–0.98)**	**0.97 (0.96–0.99)**	**0.95 (0.94–0.96)**	1.00 (1.00–1.00)
Child gender	**0.93 (0.88–0.99)**	1.00 (0.96–1.04)	1.01 (0.88–1.16)	**0.90 (0.82–0.97)**	**0.97 (0.94–0.99)**
Race/ethnicity					
Black	**0.92 (0.86–0.99)**	**0.87 (0.83–0.93)**	**1.48 (1.24–1.76)**	**0.84 (0.75–0.94)**	**0.75 (0.73–0.78)**
Latinx	**0.74 (0.68–0.79)**	0.93 (0.87–1.02)	0.99 (0.73–1.37)	**0.55 (0.49–0.62)**	**0.65 (0.62–0.68)**
Multiracial	**1.13 (1.03–1.24)**	**1.18 (1.10–1.27)**	0.91 (0.72–1.15)	0.98 (0.84–1.15)	**0.95 (0.89–1.01)**
Type of report					
Physical abuse	**0.92 (0.85–0.99)**	**0.55 (0.52–0.59)**	**1.19 (1.01–1.43)**	**0.80 (0.72–0.89)**	**0.63 (0.60–0.66)**
Sexual abuse	**0.81 (0.72–0.91)**	0.84 (0.35–2.00)	0.95 (0.62–1.44)	**0.65 (0.54–0.78)**	**0.51 (0.48–0.54)**
Emotional abuse	**0.74 (0.63–0.8)**	**0.44 (0.32–0.59)**	1.21 (0.79–1.85)	**0.34 (0.25–0.48)**	**0.39 (0.32–0.48)**
Multiple types	**1.15 (1.04–1.26)**	1.00 (0.95–1.06)	1.15 (0.96–1.36)	**0.83 (0.74–0.93)**	1.00 (0.96–1.05)
Prior CPS report	**1.79 (1.67–1.91)**	**1.73 (1.65–1.82)**	**2.21 (1.88–2.59)**	**2.16 (1.98–2.35)**	1.00 (1.00–1.00)
Family structure					
Single mothers	**1.20 (1.12–1.28)**	**1.25 (1.19–1.31)**	0.97 (0.82–1.15)	**1.12 (1.03–1.22)**	**1.76 (1.71–1.82)**
Single fathers	**1.35 (1.21–1.51)**	**1.16 (1.08–1.25)**	1.00 (0.74–1.33)	1.11 (0.95–1.29)	**1.68 (1.59–1.77)**

Note. For CPS re-report rates, columns are statistically significantly from one another, $p \leq 0.001$.
OR = Odds ratio. The reference category for gender is male; for race it is White; for allegation type it is neglect; and for family structure the reference category is married couples. Bolded results are significant within column to $p \leq 0.001$.

3.1.1. Re-report outcomes

The different associations between re-report and class membership were found after controlling for family structure, child age, child gender, child race, allegation type, and prior reports (Table 4). There was a statistically significant difference between each of the classes with respect to rates of re-report within 24 months of the index investigation. The re-report rate (51.5 %, $p < .001$) was highest in Class 1 (*Financial Stressors*). Class 2 (*Caregiver Substance Use*) had a lower re-report rate (34.3 %, $p < .001$) as compared to Class 3 (*Complex Household Stressors*) and Class 4 but was higher than Classes 5. The re-report rate (46.5 %, $p < .001$) for Class 4 (*Disabilities*) was slightly lower than Class 5, and Class 5 (*Minimal Household Stressors*) had the lowest re-report rate (33 %, $p < .001$) among all the classes.

Adjusting for covariates, family structure was significant for re-report in Class 1, *Financial Stressors*. More specifically, single mother and single father homes had higher odds of re-report as compared to married couple homes. With respect to the other included covariates, all families in Class 1 had statistically significant odds of re-report on all predictors. Among families in the *Caregiver Substance Use* class (Class 2), the odds of re-report were higher for single mother homes ($OR = 1.25$) and single father homes ($OR = 1.16$) as compared to married couple homes. The odds of re-report were also higher for families with children who were multiracial ($OR = 1.18$) and had a previous substantiated investigation ($OR = 1.73$). The odds were lower for older children ($OR = 0.96$), children who identified as Black ($OR = 0.87$; as compared to White children), and families with physical ($OR = 0.55$) and emotional abuse ($OR = 0.44$; as compared to neglect). For families with *Complex Household Stressors* (Class 3), there were no significant differences between family structures. However, among families belonging to Class 3, the odds of re-report were higher for families who had children identified as Black ($OR = 1.48$) as well as families who had physical abuse allegations ($OR = 1.19$) and prior CPS involvement ($OR = 2.21$). In Class 4, *Disabilities*, all risks indicators were statistically significant for re-report except single father homes and those who had children identified as multiracial. Finally, though most families belonged to *Minimal Household Stressors* (Class 5), single mothers ($OR = 1.76$) and single fathers ($OR = 1.68$) had higher odds of re-report overall (as compared to married couples) The remaining significant indicators indicated lower odds of re-report: females ($OR = 0.97$), families who had children that identified as Black ($OR = 0.75$), Latinx ($OR = 0.65$), multiracial ($OR = 0.95$), physical abuse ($OR = 0.63$), sexual abuse ($OR = 0.51$), and emotional abuse ($OR = 0.39$).

4. Discussion

This study sought to identify patterns of risk indicators among a heterogenous group of parents and caregivers involved in the CPS system, with a specific goal of adding information about single parent homes to the literature. A 5-class model, *Minimal Household Stressors* (53 %), *Financial Stressors* (25 %), *Caregiver Substance Use* (16 %), *Disabilities* (4 %), and *Complex Household Stressors* (3 %), was selected. Despite there being a significant difference between groups in probability of child or caregiver risk factors conditional on class membership, it is possible the low membership (i.e., <5 %) could be considered spurious (Hipp & Bauer, 2006). One way to reduce this concern is to assess the stability of the class across multiple studies that use diverse samples. The risk factors for families entering (or re-entering) CPS are well documented (Daniel et al., 2010; White et al., 2015), but these relationships were not as clear when family structure was considered.

Our predictive model included family structure to determine the association with re-report in addition to other known predictors of re-report – child age, gender, race/ethnicity, allegation type, and previous CPS experience. Single family households in this sample were statistically different from married family homes on all classes except with Class 3 – *Complex Household Stressors*. Specific to Class 1, the odds of re-report were higher for single mothers and fathers as compared to married couples. This is somewhat contradictory to other general fatherhood research which has suggested single fathers have more in common with married families than single mothers (Coles, 2015). This is largely due to economic factors such as males earning more in salaries (Sussman & Hanson, 2014) and typically having other types of supports such as living with or near extended family (Coles, 2015). Thus, an explanation for this finding might lie more in how the child welfare system views fathers and the expectations placed upon them be in fiscally responsible for their children (Coles, 2017; Dumbrill, 2006).

For Class 2 – *Caregiver Substance Use* – both single mothers and fathers had statistically significant higher odds of re-report. Further analysis of family structure within Class 2 indicated married couples have lower odds of re-report ($OR = 0.86$) compared to single fathers but that single mothers had slightly higher odds of re-report ($OR = 1.08$). We posit that because having a two-parent home is considered more protective (Li et al., 2011) and because data do not indicate if one or both parents (in married couples) had the substance use issue, further exploration of the differences between family structures is necessary. Previous studies of single household types with a history of child welfare involvement have reported feeling judged as well as having to offer additional evidence of sobriety (Reich, 2012).

Within Class 4, *Disabilities*, only single mothers had statistically higher odds of re-report when compared to married families. It is surprising that only single mothers were significant given that difficult child behaviors are a consistently known risk factor among all CPS involved families. One explanation for this may be related more to the supports fathers have that single mothers do not, such as consistent child care though mothers, aunts, and sisters (Coles, 2015). It is possible that if a child is challenging, single fathers (and married parents) have another adult to assist whereas single mothers have less access to these types of supports, particularly when they are child welfare involved. Finally, single parents in Class 5, *Minimal Household Stressors*, had higher odds of re-report ($OR = 1.05$). One explanation for this may be related more to the supports available (i.e., more adults in the home and more financial resources) when there are two parents in the home.

With respect to the remaining covariates, the odds of re-report varied within class membership but remained relatively consistent across the classes. For example, in Classes 1–4 for each year increase in age, the odds of re-report decreased. This outcome is consistent in multiple studies of re-report (Palmer et al., 2023) which suggest that as children get older, they are less likely to return to the system.

In general, gender has mixed findings as it relates to subsequent CPS involvement (Thompson & Wiley, 2009). Our findings are not dissimilar in that Classes 1, 4, and 5 suggest lower odds of re-report for females as compared to males whereas the odds are non-significant in Classes 2 and 3. Finally, with respect to previous CPS experience, research has consistently suggested that families with a history of investigations are more likely to return to the system (Kahn & Schwalbe, 2010). Although the explanation for why this happens is limited (Drake et al., 2017), our findings show that apart from Class 5 (*Minimal Household Stressors*), the odds of re-report are higher for families with past CPS investigations across the remaining classes.

When considering race/ethnicity and allegation type, the findings remained statistically significant only with families whose children were identified as Black and those with a physical abuse allegation regardless of class membership. The findings for Black children were in line with current research (White et al., 2015); however, a recent LCA study that also focused on family risk factors and re-report (Waid et al., 2021) et al., 2021) did find that race influenced the likelihood that a family would return to the system. Yet in Class 1 (*Financial Stressors*), Class 2 (*Caregiver Substance Use*), Class 4 (*Disabilities*), and Class 5 (*Minimal Household Stressors*), the odds of re-report were lower for Black families than for White families. Only in Class 3, *Complex Household Stressors*, did Black children have higher odds of re-report. Given that this particular class had the highest rate of money issues and Black families are disproportionately in lower socioeconomic classes (Barth et al., 2020; Rivaux et al., 2008) it is possible this could have influenced the outcome. However, given the difficulty of fulling understand the relationship between race and child welfare outcomes (Dettlaff & Boyd, 2020; Drake et al., 2023), further inquiry into this relationship is necessary.

Among the allegation types, only families with physical abuse allegations consistently had statistically significant lower rates of re-report as compared to families with neglect allegations across 4 of the 5 classes. Similar to the race variable, only families in Class 3, *Complex Household Stressors*, had higher odds of re-report ($OR = 1.19$). This is likely due to the cumulative effect of risk (Merritt, 2020), meaning that once a family is in the downward cycle of risk each new occurrence cumulatively impacts their outcome.

4.1. Limitations and strengths

Given the dataset used and class membership probabilities, there are multiple limitations that must be discussed alongside interesting results. NCANDS is a dataset that offers aggregate child and caregiver information at the state level; however, there is wide variation in how states collect the risk indicators. Specifically, only 30 of the available 52 states and territories collect any data – child OR caregiver – on these risk indicators and only 11 states of these states collect both child and caregiver information. Even among these 11 states, only 4 collected data on all 21 indicators, 4 states collected data on 20 of 21 indicators, and 3 states collected 19 of the 21 indicators. The remaining states that collected any data collected fewer than 16 of the 21 indicators. As a result, the data used for this study cannot be considered nationally representative. It is likely that the low group membership probabilities observed were likely a product of this inconsistent data collection. An additional limitation is how the data were collected. NCANDS indicators are determined at the time of the investigation which relies on caseworkers to adequately and systematically determine what risk factors each family possesses. Some of this information may come from the hotline/intake report but some information may be determined via the investigation. Given the disparate practices between jurisdictions, there is no way of knowing if the risk factors entered appropriately represent each of the families. This is likely why some known risk indicators for CPS involvement, such as physical and intellectual disabilities are underrepresented. It is possible this information is determined once the investigation is closed (i.e., the child is removed and place into substitute care). We believe this study has some strong merits despite limitations. Research that isolates family structure in CPS is remarkably scant and when the focus is further reduced to specific structures, there are no known studies that have also included single fathers.

5. Conclusion

Class 1 (*Financial Stressors*) had the second largest membership (25 % of the sample), indicating the critical need to address financial and material hardships experienced among CPS involved families. Policy efforts to leverage Earned Income Tax Credit and Temporary Aid for Needy Families (TANF), both of which have been linked with child maltreatment prevention, and other measures (e.g., reinstate and make permanent Child Tax Credits rolled out during COVID-19) could help to reduce economic insecurity in vulnerable children and families (Maguire-Jack et al., 2022). Our third largest class (16 % of the sample), *Caregiver Substance Use*, continues to be an ongoing issue in child welfare. Indeed, the Family First Prevention Services Act of 2018 (P.L. 115-23) requires the use of evidence-based substance use programming (e.g., national Sobriety, Treatment, and Recovery Teams [START] model; Hall et al., 2023), thus bolstering opportunities for families to get the help they need. Finally, this is one of the first studies to also addresses the risk differences for single father homes. Although it appears the concerns in these homes are different from other household structures, more research is needed, including determining whether prevention interventions need augmenting to address the nuances of single father homes (Shipe et al., 2022). Equally beneficial would be an additional inquiry into whether federal and state policies directed at caregivers (i.e., TANF or SNAP) are inclusive of all family structures.

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S. Shipe: Conceptualization, Writing – original draft, Methodology, Data curation, Formal analysis. **K. Guastaferro**: Writing – original draft, Methodology, Data curation. **L. Ayer**: Writing – review & editing. **J. Lee**: Writing – review & editing. **C. Connell**: Conceptualization, Methodology, Writing – review & editing.

Declaration of competing interest

We declare that our work is original and constitutes details from our own study. This manuscript has not been published or submitted elsewhere. All of the contributions to this work were done by the named authors, and there are no conflicts of interest.

Data availability

Data will be made available on request.

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