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Investigating the Relationship between Trauma Symptoms and Placement Instability

Shelby L. Clark^{a,*}, Ashley N. Palmer^b, Becci A. Akin^a, Stacy Dunkerley^a, Jody Brook^a

^a University of Kansas, School of Social Welfare, Twente Hall, 1545 Lilac Lane Lawrence, Kansas, 66045, United States of America

^b University of Texas at Arlington, School of Social Work, 211 S. Cooper Street, Arlington, Texas, 76019, United States of America

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ABSTRACT

Background: Placement stability while in foster care has important implications for children's permanency and well-being. Though a majority of youth have adequate placement stability while in foster care, a substantial minority experience multiple moves during their time in care. Research on correlates of placement instability has demonstrated a relationship between externalizing behaviors and placement instability. Likewise, evidence suggests higher levels of trauma are associated with increased externalizing behaviors. However, few studies have examined the relationship between trauma symptoms and placement instability.

Objective: The purpose of this study was to investigate whether children with clinically significant trauma symptoms had higher odds of placement instability.

Participants and setting: Administrative data collected as a part of a summative evaluation for a federally-funded trauma III grant project were used. The sample included 1,668 children ages 5 and older who entered foster care during a 30-month period in a Midwestern state and completed a self-reported trauma screen within 120 days of entering care.

Methods: Hierarchical logistic regression was conducted to examine the contributions of trauma symptoms scores to placement instability, above and beyond demographic characteristics and case characteristics.

Results: Results from the final analytic model, which controlled for demographic and case characteristics, showed that children with clinically significant trauma symptoms (i.e., scores ≥ 19) had 46% higher odds of experiencing placement instability (OR = 1.46, 95% CIs [1.16, 1.82], $p = .001$). Findings support the need to screen for and treat trauma symptomology among youth in foster care.

1. Introduction

Research has found that placement instability among children in foster care has potential short and long-term effects on children's well-being and permanency outcomes (e.g., (Akin, 2011; Conradi, Wherry, & Kisiel, 2011; Rubin, O'Reilly, Luan, & Localio, 2007). Placement stability may improve psychosocial adjustment and is connected to fewer manifestations of problem behaviors over time (Barber & Delfabbro, 2003; Rubin, O'Reilly, Luan, & Localio, 2007). Further, one of the key child welfare outcomes tracked by the U.S. Children's Bureau is placement stability (Children's Bureau, 2019). According to the Children's Bureau (2019), adequate placement stability is defined as having two or fewer placements during a child's foster care episode. According to a recent federal report

* Corresponding author.

E-mail addresses: shelby.clark@ku.edu (S.L. Clark), ashley.palmer@uta.edu (A.N. Palmer), beccia@ku.edu (B.A. Akin), sdunkerley@ku.edu (S. Dunkerley), jbrook@ku.edu (J. Brook).

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of 50 states and the District of Columbia, the national median for adequate placement stability was 84.3% among children in foster care for fewer than 12 months (Children's Bureau, 2019); however, the national median performance on this outcome was 65.4% for those in care between 12 and 24 months and 39.3% for those in care 24 months or longer. These figures suggest that while many children may experience adequate placement stability, particularly those who are in care for less than one year, a substantial minority continue to experience multiple moves during their time in foster care.

While children experience placement moves for a variety of reasons, several studies have found that children's externalizing or problematic behaviors are associated with an increase in moves (Chamberlain et al., 2006; Christiansen, Havik, & Anderssen, 2010). Some research has focused on the relationship between trauma experiences and behavioral symptoms. Findings from those studies indicate that children who experience trauma are likely to demonstrate behavioral symptoms and have difficulty with self-regulation (Cloitre et al., 2009; Spilsbury et al., 2007). This makes the association between trauma symptoms and placement instability salient, because evidence suggests that children in foster care have higher rates of posttraumatic stress symptoms than the general population (Kolko et al., 2010).

Children placed in foster care are presumed to have experienced some form of child maltreatment necessitating their removal from their primary caregivers (Child & Family Services Review, 2007). Child maltreatment has been identified as a form of trauma and is associated with increased behavioral problems, which may be viewed as symptomatic of experiencing abuse or neglect (Briere, Kaltman, & Green, 2008; Kisiel, Fehrenbach, Small, & Lyons, 2009). Furthermore, it may be necessary to distinguish between trauma experiences and trauma symptoms because trauma experiences are indicated as a prior event and cannot be changed. In contrast, trauma symptoms may be measured in the present and change over time. A vast range of risk and protective factors may influence how an individual child responds to a traumatic event; thus, trauma symptoms provide for a more nuanced and individualized understanding of the child's experience. Comprehensive trauma screening and assessment is necessary to better understand a child's trauma experiences, trauma symptoms, and overall needs, and may assist in providing more adequate placement supports (Conradi et al., 2011; Greeson et al., 2011; Kisiel, Summersett-Ringgold, Weil, & McClelland, 2017; Rosner, Arnold, Groh, & Hagl, 2012). Consistent with recommendations from the National Child Traumatic Stress Network (Conradi et al., 2011), a growing number of states and agencies are administering trauma screens to children in foster care as part of routine child welfare practice (Lang et al., 2017). However, few studies have investigated the relationship between trauma screen scores and placement instability (Kisiel et al., 2014). Such an examination would further inform efforts to integrate trauma-informed care into child welfare settings.

1.1. Placement Stability and Well-being

Placement stability is associated with many positive outcomes while instability is associated with poor outcomes across multiple domains of well-being. (Akin, 2011) found that children who experienced two or fewer placements in the first 100 days of care had a higher probability of being reunified with their families. Children were also more likely to achieve adoption if they experienced early placement stability (Akin, 2011). One study found that behavioral problems increased by 22% for children who had stable placements as compared to 63% for children who had unstable placements (Rubin et al., 2004). Additionally, Barber and Delfabbro (2003) found that children who experienced one placement during an eight-month period showed improved psychosocial adjustment over time. Higher number of placements have also been associated with increased rates of attachment disorders and behavioral problems (Strijker, Knorth, & Knot-Dickscheit, 2008) and increased mental health costs (Rubin et al., 2004, 2007).

1.1.1. Correlates of placement instability

Considerable research has been conducted to examine correlates of placement instability. Cross, Koh, Rolock, and Eblen-Manning (2013) identified three key factors that put children at higher risk of placement instability: a child's behaviors, caregiver factors, and policy related moves. Correspondingly, studies have indicated the children most likely to have frequent disruptions are those who demonstrate higher behavioral needs (Chamberlain et al., 2006; Newton, Litrownik, & Landsverk, 2000). Additionally, children with clinical level emotional and behavioral disorders (EBD) have been found to be two and a half times more likely to experience four or more placements than children without EBD (Barth et al., 2007; James, Landsverk, & Slymen, 2004). Children with EBD who have siblings in care but are not placed with them also experience increased risk for placement disruptions (Barth et al., 2007). Further, some studies have linked multiple moves to policy-driven decisions such as moving children to be with a sibling(s) or to be with extended family in a kin or relative placement (James et al., 2004; Webster, Barth, & Needell, 2000).

Moreover, certain child characteristics have been associated with increased placement instability. Proximity to resources has been shown to impact placement changes of children in rural and suburban settings (Weiner, Leon, & Stiehl, 2011). Webster, Barth, and Needell (2000) found male children had significantly increased odds of placement instability compared to female children. Children identified as African American, Hispanic, or Other were significantly more likely than White children to experience placement instability with African American children experiencing the greatest risk (Webster et al., 2000). Infants are the least likely to experience placement disruptions, and the risk of changing placements increases with age (Connell et al., 2006; Vreeland et al., 2020; Webster et al., 2000). Additionally, whether a child has a disability has been included in few studies. Connell et al., (2006) found no statistically significant relationship between a child having a diagnosed disability and experiencing placement instability.

Case characteristics have also been examined in the literature on placement instability and have included various aspects of children's foster care case, such as reason for removal into care, sibling variables (e.g., whether child has siblings in care), whether the child has had prior episodes of child welfare involvement or foster care, and placement type. Reason for removal has been indicated as a risk for placement disruption with children who were removed due to neglect experiencing the highest risk of experiencing multiple placements (Connell et al., 2006). Being removed from primary caregivers due to sexual abuse and physical abuse

has also been indicative of increased number of placements (Webster et al., 2000). One study indicated that having a sibling in foster care increases placement instability (Osterling, D'Andrade, & Hines, 2009). A couple of studies have identified prior child welfare involvement (Rubin et al., 2007) or prior foster care episodes (Connell et al., 2006) as factors that increase the risk for placement changes. Finally, the studies on whether placements are with kin or non-kin have indicated mixed results. Webster and colleagues (2000) found that non-kin placements were associated with higher placement instability; however, Koh and Testa (2008) showed that this stability with kin did not last for children in care longer than one year.

1.1.2. Trauma experiences, trauma symptoms, and placement instability

Kisiel, Fegrenbach, Small, and Lyons (2009) found significant proportions of children in foster care had complex trauma exposure. Children with complex trauma exposure had higher rates of traumatic stress, increased mental health symptoms, risk behaviors, and difficulty with day-to-day functioning (Kisiel et al., 2009). Additionally, complex childhood trauma is associated with decreased strengths in children placed in foster care (Kisiel et al., 2009). Children who are placed in foster care are presumed to have experienced trauma as a result of being maltreated (Child & Family Services Review, 2007). Childhood experiences of abuse and neglect have been associated with increased symptoms of posttraumatic stress disorder (Briere et al., 2008; Hodges et al., 2013). Further, children in foster care have been shown to have high prevalence of trauma as a result of experiencing abuse and neglect (Salazar, Keller, Gowen, & Courtney, 2013). Yet, while trauma history is associated with internalizing and externalizing problems and increased mental health diagnosis and needs (Greeson et al., 2011; Kisiel et al., 2009), few studies have examined the relationship between trauma symptoms and placement instability.

A meta-analysis of 42 studies completed between 1990 and 2017 identified 10 factors found to be associated with placement instability (Konijn et al., 2019). While some of the identified factors were likely related to trauma (i.e., behavioral problems and history of maltreatment), the analysis did not indicate studies that specifically measured trauma symptoms and their relationship to placement instability. Kisiel et al. (2009), found children who experienced multiple and chronic caregiver trauma were twice as likely to have placement disruptions compared to children with single or non-caregiver trauma. However, not all studies have found a significant association between trauma symptoms and placement stability. For example, in a study of wraparound services and the influence of geographic predictors, researchers found that while trauma experiences were a significant predictor of placement instability, trauma symptoms were not significant predictors of placement instability (Weiner et al., 2011).

1.2. Current Study

Despite numerous studies showing a connection between trauma events, social-emotional well-being, and placement stability, few studies have examined the relationship between trauma symptoms and placement stability, particularly with a sample of youth early in their episode of foster care and comprising a wide age range. Thus, this study explored the relationship between trauma symptoms and placement stability. We sought to answer the following research question: Do children with clinically significant trauma symptoms have higher odds of placement instability? We hypothesized that children with clinically significant trauma symptoms would have higher odds of placement instability.

2. Methods

2.1. Project Background

The current study comprised one component of the summative evaluation for a federally-funded trauma III grant project, where trauma screens and functional assessments were integrated into the child welfare system in a Midwestern state. The project was conducted in collaboration with the public child welfare agency, the private child welfare agencies responsible for serving families of children in foster care statewide, and a university. Implementation of the project occurred as part of a staged roll-out. All study procedures were reviewed and approved by the [blinded] Institutional Review Board.

2.2. Data Sources and Sample

The data used for these analyses include administrative and agency data collected for a 30-month period (February 2017 and July 2019). As part of this project, child welfare workers were to administer screening tools that measured traumatic events and symptoms for each child upon entry into foster care and every six months thereafter while still in care. Caseworkers at private foster care agencies administered a self-report trauma symptom assessment with children, ages 5 and older. These assessment data from the private agencies were securely transferred to a web-based portal and then linked with administrative data provided by the state agency in the same portal. Child demographic and basic case data were obtained using the administrative data.

The sampling frame included 6,820 children and youth ages 5 and older who entered foster care during the study period (February 01, 2017 and July 31, 2019). Practice guidelines indicated that the trauma assessment was to occur by day 20 of the child's entry into foster care; however, many caseworkers were unable to accomplish the trauma assessment during this short time frame. After preliminary analyses and input from an advisory group of program directors, the time frame for including trauma screens in this study was adjusted to 120 days of entering foster care. In sum, the sample was defined as children and youth ages 5 and older who had a trauma symptom assessment completed within 120 days of entering foster care. This resulted in an analytic sample of 1,668 children.

2.3. Measures

2.3.1. Placement instability

According to the Children's Bureau, adequate placement stability is defined as having two or fewer placements during a single foster care episode (Children's Bureau, 2019). Accordingly, for this study placement instability was defined as having three or more placements during the foster care episode. The public child welfare administrative data included a variable with the total number of placements. That variable was used to create a binary variable with individuals who had three or more placements during the current foster care episode coded as 1 (i.e., inadequate placement stability) and those with two or fewer placements coded as 0.

2.3.2. Clinically significant trauma symptoms

For this project, the Child Report of Post-Traumatic Stress (CROPS) assessment was used to measure self-reported trauma symptoms experienced by the child. The clinical cut-off for the CROPS instrument is a score of 19 or higher (Greenwald & Rubin, 1999). This CROPS cut-off score also aligned with practice guidance, which suggested that youth may require referral for treatment with CROPS scores at or above the clinical cut-off. For the purpose of this study, clinically significant trauma scores were defined as being at or above that clinical cut-off (≥ 19). A binary variable was created using the total CROPS score, coding scores of 19 or higher coded as 1 (i.e., having clinically significant trauma scores) and scores of lower than 19 as 0.

2.3.3. Covariates

Based on prior research of placement stability, we have included several demographic and case variables as covariates. These include sex, race, disability status, age at entry into care, runaway episodes, and having been in foster care previously. Below are the definitions of each covariate, most of which follow federal reporting guidelines from the Adoption and Foster Care Analysis and Reporting System (AFCARS).

2.3.3.1. Sex. The original variable was collected as a binary measure coded as male = 1, female = 2. It was recoded as male = 1, female = 0 for analysis.

2.3.3.2. Race and Latino ethnicity. The original race variable included six race categories: American Indian/Alaskan Native, Asian, Black/African American, Native Hawaiian/Pacific Islander, White, and Other. Only 2% of the sample reported a race other than White or Black/African American. A binary variable was created to reflect White = 1 and Other races = 0 and a three-category variable was created and coded as 0 = White, 1 = Black/African American, and 2 = Other race reported. The Latino ethnicity variable was originally coded as 1 = yes and 2 = no. This variable was coded as 0 = not Latino and 1 = Latino.

2.3.3.3. Disability status. The disability status variable indicated whether any disability diagnosis had been given. The original variable was labeled as yes, no, or not yet determined. We recoded it to 0 = no disability or not yet determined, and 1 = yes disability.

2.3.3.4. Age at episode start. Age at start of foster care episode was a continuous variable created by subtracting each participant's date of birth from the foster care episode start date.

2.3.3.5. Number of siblings in out-of-home care. This was a continuous variable ranging from 0 to 10 siblings.

2.3.3.6. Geographic region. This variable was coded to reflect the state's four child welfare regions between July 2013 and July 2019. Each region was numbered, one through four.

2.3.3.7. Removal reason. Fifteen possible reasons for removal were included in the original data. Reasons for removal included neglect, parental alcohol abuse, parental drug abuse, parental incapacity, parental incarceration, physical abuse, sexual abuse, child's behavior problem, child's disability, child's drug abuse, child's alcohol abuse, inadequate housing, parent death, parent relinquishment, and abandonment. Each was a binary variable, recoded here as 0 = not removed for that reason and 1 = removed for that reason. Youth could have up to six reasons for removal.

2.3.3.8. Prior foster care episode. Prior foster care episode was coded as 0 if a child had no prior foster care episodes and 1 if they had one or more prior foster care episodes.

2.4. Analytic Approach

The analytic approach followed a process of moving from univariate to bivariate, then multi-variable analyses. First, we conducted univariate and bivariate analyses to describe the sample and explore associations between variables. After basic univariate analyses, bivariate (unadjusted) logistic regression models were conducted for each demographic and case characteristic that represented at least 5% of the sample run against the outcome of interest, placement instability. Then, we used hierarchical logistic regression modeling to examine conditional relationships with placement instability. This method, which introduces variables in theoretically constructed blocks, was used to observe gains in predictability and changes in relationships with placement instability

Table 1
Sample Characteristics.

Characteristic	n or <i>M</i>	% or <i>SD</i>
Male	772	46.3
Race		
White	1,355	81.2
Black or African American	287	17.2
Other race reported	26	1.6
Latino ethnicity	214	12.8
Any disability reported	669	40.1
Age at foster care episode start (<i>M</i>, <i>SD</i>)	12.5	3.4
Number of siblings out-of-home (<i>M</i>, <i>SD</i>)	0.94	1.32
0	892	54.2
1	337	20.5
2+	417	25.3
Geographic region		
Region One	342	20.5
Region Two	580	34.8
Region Three	391	23.4
Region Four	355	21.3
Prior foster care episodes		
One or more episodes	373	22.4
Removal reason		
Neglect	810	48.6
Parent alcohol abuse	77	4.6
Parent drug abuse	568	34.1
Parent incapacity	285	17.1
Parent incarceration	175	10.5
Physical abuse	371	22.2
Sexual abuse	156	9.4
Child behavior problem	489	29.3
Child disability	11	0.7
Child drug abuse	99	5.9
Child alcohol abuse	16	1.0
Inadequate housing	190	11.4
Parent death	13	0.8
Parent relinquishment	23	1.4
Abandonment	129	7.7
Clinically significant trauma score (> = 19)	833	49.9
Placement instability (≥ 3 placements)	923	55.3
First CROPS trauma symptoms score (<i>M</i>, <i>SD</i>)	19.3	10.8
Time to CROPS (<i>M</i>, <i>SD</i>)	19.8	27.4

Notes. Time to CROPS is the number of days from entering foster care to receiving first CROPS screen.

(Meyers, Gamst, & Guarino, 2013). The first model included demographic characteristics, the second model added case characteristics, and, the final model included three blocks of variables – demographic characteristics, case characteristics, and clinically significant trauma symptoms scores.

Robust standard errors were used to account for nested structures of children within families and potential autocorrelation among siblings (Guo & Wells, 2003). There were no missing data for any of the demographic variables provided by the public child welfare agency. Twenty-two youth had missing information on the number of siblings out-of-home variable in the administrative dataset. Listwise deletion was used to handle this missing data within the multi-variable logistic regression models. There was no missing data for the CROPS screen scores provided by the private child welfare agencies. All analyses were conducted in Stata 15.

3. Results

3.1. Sample Characteristics

Table 1 presents demographic and case characteristics of the study's sample. First, demographic data show the sample comprised slightly fewer males than females (46.3%). The majority of children's race was reported as White (81.2%) and about 13% as Latino ethnicity. About two-fifths (40.1%) of the children had at least one type of disability. The children's average age at the beginning of their foster care episodes was 12.5 years ($SD = 3.4$). Finally, over half (54.2%) of children had no siblings placed in out-of-home care, around one-fifth (20.5%) had 1 sibling in out-of-home care, and the remaining one-quarter (25.3%) had two or more siblings placed in out-of-home care.

Case characteristics are presented for the foster care episode of each child of the sample. Almost one-third of children were removed from region two (34.8%), close to a quarter were removed from region three (23.4%), and around one-fifth were removed from the region one (20.5%) and region four (21.3%). The three most common removal reasons were neglect (48.6%), parent drug

Table 2
Bivariate Logistic Regression Models for Placement Instability.

Demographic or Case Characteristic	Unadjusted Odds Ratio	<i>p</i>	95% CI	
			Lower	Upper
Trauma symptoms score				
Clinically significant (> = 19)	1.42	0.001	1.15	1.75
Gender				
Male	1.25	0.033	1.02	1.53
Age at foster care episode start	1.09	0.000	1.06	1.13
Number of siblings OOH	0.88	0.014	0.79	0.97
Race (Ref. White)				
Black/African American	1.66	0.002	1.20	2.31
Other race reported	2.42	0.041	1.04	5.63
Latino ethnicity				
Latino (Yes)	0.93	0.666	0.66	1.30
Disability status				
Any type of disability reported	1.55	0.000	1.24	1.93
Geographic region (Ref Region One)				
Region Two	0.81	0.226	0.58	1.14
Region Three	1.10	0.623	0.76	1.58
Region Four	0.78	0.182	0.55	1.12
Prior foster care episodes				
One or more episodes	1.50	0.004	1.14	1.99
Time to CROPS	1.00	0.076	0.99	1.00
Removal reasons				
Neglect	0.72	0.007	0.57	0.92
Parent alcohol abuse	0.56	0.072	0.30	1.05
Parent drug abuse	0.64	0.001	0.50	0.83
Parent incapacity	1.37	0.037	1.02	1.85
Parent incarceration	0.72	0.108	0.48	1.08
Physical abuse	0.90	0.487	0.68	1.20
Sexual abuse	1.11	0.572	0.77	1.60
Child behavior problem	2.81	0.000	2.18	3.63
Child disability	3.66	0.170	0.57	23.32
Child drug abuse	3.18	0.000	1.79	5.64
Inadequate housing	0.71	0.080	0.49	1.04
Abandonment	1.21	0.399	0.77	1.90

Notes. OR = Odds Ratio. CI = Confidence Interval. OOH = out-of-home. Removal reasons were not mutually exclusive, so youth may have multiple reasons. Time to CROPS is the number of days from entering foster care to receiving first CROPS screen.

abuse (34.1%), and child behavior problem (29.3%).

Half (49.9%) of the children had a CROPS score of 19 or greater ($M = 19.3$, $SD = 10.8$), indicating clinically significant trauma symptoms. On average, it took 19 days ($SD = 27.4$) from the child's entry into care for the first CROPS screen to be completed.

3.2. Bivariate Relationships with Placement Instability

Table 2 presents results from bivariate (unadjusted) logistic regression models, which were used to examine the demographic characteristics' and case characteristics' bivariate relationships with placement instability. Results from the bivariate logistic regression models showed that having a clinically significant trauma score was associated with placement instability ($Wald \chi^2 = 10.95$; $p < .001$). Youth who had clinically significant trauma symptoms had 42% higher odds of having placements instability as compared to youth with trauma scores below the clinical cutoff ($OR = 1.42$, 95% CIs [1.15, 1.75], $p = 0.001$).

Demographic characteristics associated with placement instability included being male ($OR = 1.25$, 95% CIs [1.02, 1.53], $p = .033$), being Black ($OR = 1.66$, 95% CIs [1.20, 2.31], $p = .002$) or another race other than White ($OR = 2.42$, 95% CIs [1.04, 5.63], $p = .041$), having any disability ($OR = 1.55$, 95% CIs [1.24, 1.93], $p < .001$), and age at episode start ($OR = 1.09$, 95% CIs [1.06, 1.13], $p < 0.001$). Case characteristics associated with placement instability included having at least one prior foster care episode ($OR = 1.50$, 95% CIs [1.14, 1.99], $p = .004$) and being removed due to neglect ($OR = 0.72$, 95% CIs [0.57, 0.92], $p = .007$), parental drug abuse ($OR = 0.64$, 95% CIs [0.50, 0.83], $p = .001$), parent incapacity ($OR = 1.37$, 95% CIs [1.02, 1.85], $p = .037$), child behavior ($OR = 2.81$, 95% CIs [2.18, 3.63], $p < .001$), and child drug abuse ($OR = 3.18$, 95% CIs [1.79, 5.64], $p < .001$). Finally, a bivariate logistic regression model was run that included number of days from entry to receiving the CROPS screen to control for the possibility that youth who had high symptomology but were screened later might have been more likely to have moved placements. This logistic regression model indicated that there was not a statistically significant relationship between time of trauma screening and placement instability ($OR = 1.00$, 95% CIs [0.99, 1.00], $p = .076$).

Table 3
Multi-variable Logistic Regression Models Examining Trauma Symptoms and Placement Instability.

Characteristic	Model 1				Model 2				Model 3			
	OR	p	95% CI		OR	p	95% CI		OR	p	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Age at episode start	1.09	0.000	1.05	1.12	1.03	0.129	0.99	1.07	1.03	0.140	0.99	1.07
Male	1.29	0.018	1.04	1.60	1.25	0.045	1.00	1.55	1.34	0.010	1.07	1.67
Race (Ref White)												
Black/African American	1.79	0.001	1.27	2.51	1.72	0.002	1.21	2.45	1.73	0.002	1.22	2.46
Other race reported	2.62	0.025	1.13	6.06	2.48	0.045	1.02	6.03	2.36	0.061	0.96	5.80
Any disability	1.54	0.000	1.22	1.93	1.36	0.014	1.06	1.74	1.32	0.026	1.03	1.69
Number of siblings OOH	-	-	-	-	0.97	0.585	0.87	1.08	0.97	0.561	0.87	1.08
Prior foster care episode	-	-	-	-	1.17	0.307	0.86	1.59	1.18	0.292	0.87	1.59
Removal reason												
Neglect	-	-	-	-	0.92	0.499	0.71	1.18	0.92	0.530	0.71	1.19
Parent drug abuse	-	-	-	-	0.87	0.325	0.65	1.15	0.89	0.404	0.67	1.18
Parent incapacity	-	-	-	-	1.26	0.173	0.90	1.76	1.28	0.152	0.91	1.78
Child behavior problem	-	-	-	-	2.01	0.000	1.48	2.72	2.00	0.000	1.47	2.71
Child drug abuse	-	-	-	-	2.13	0.017	1.15	3.96	2.24	0.011	1.20	4.19
Clinically significant trauma symptoms score	-	-	-	-	-	-	-	-	1.46	0.001	1.16	1.82
Model fit	-2*log-likelihood	df	p		-2*log-likelihood	df	p		-2*log-likelihood	df	p	
	-1091.29	5	0.000		-1061.59	7	0.000		-1055.30	1	0.000	

Notes. OR = Odds Ratio. CI = Confidence Interval. df = degrees of freedom. OOH = out-of-home. Twenty-two youth from the full sample had missing data for the number of siblings out-of-home. The multi-variable models included 1,646 youth with full data.

3.3. Multi-variable Relationships with Placement Instability

Following the bivariate logistic regression, hierarchical logistic regression models were conducted. Table 3 presents hierarchical regression results by model. In order to determine whether each additional block added to the model fit, log-likelihood ratio tests were conducted. The difference in the -2 log-likelihood values between models 1 and 2 and between models 2 and 3 were statistically significant, indicating that the predictors included in each block significantly contributed to model fitness.

Results indicated that the baseline model that included demographic characteristics was statistically significant ($Wald \chi^2(5) = 55.19; p < .001$). All demographic factors were positively associated with placement instability with the largest relationship observed for African American children ($OR = 1.79$, 95% CIs [1.27, 2.51], $p = .001$) and children whose race was reported as other race ($OR = 2.62$, 95% CIs [1.13, 6.06], $p = .025$).

Next, case characteristics that were statistically significant in bivariate logistic regressions were added to the multi-variable model. This second model was also statistically significant ($Wald \chi^2(12) = 91.84; p < .001$). When adding case characteristics to the model, age at foster care episode start was no longer significantly associated with placement stability ($OR = 1.03$, 95% CIs [0.99, 1.07], $p = 0.129$).

Clinically significant trauma symptoms scores were added to the final model, which was also statistically significant ($Wald \chi^2(13) = 99.80; p < .001$). When controlling for demographic and case characteristics, children with clinically significant trauma symptoms had 46% higher odds of experiencing placement instability ($OR = 1.46$, 95% CIs [1.16, 1.82], $p = .001$). In this final model, being a race other than White or Black/African American was no longer significantly related to placement instability ($OR = 2.36$, 95% CIs [0.96, 5.80], $p = 0.061$). Being male ($OR = 1.34$, 95% CIs [1.07, 1.67], $p = .010$), Black or African American ($OR = 1.73$, 95% CIs [1.22, 2.46], $p = .002$), having any disability ($OR = 1.32$, 95% CIs [1.03, 1.69], $p = .026$), and having a removal reason of child behavior problem ($OR = 2.00$, 95% CIs [1.47, 2.71], $p = .000$) and child drug abuse ($OR = 2.24$, 95% CIs [1.20, 4.19], $p = .011$) were related to higher odds of placement instability.

4. Discussion

This study examined whether clinically significant trauma symptoms were related to placement stability among youth in foster care. Results indicated that children who reported trauma symptoms above the clinical threshold experienced greater placement instability. This relationship was significant when observed in both bivariate analyses that assessed the role of trauma symptoms singularly on placement instability and multi-variable analyses that controlled for demographic and case characteristics. While prior studies have documented the prevalence and relevance of traumatic and adverse childhood events among children in foster care (Bramlett & Radcliff, 2014), few studies have explored the relationship between children's trauma symptoms and placement instability. Thus, this study offers new insights to the influence of trauma and how foster care services may require attention to promote

children's well-being, stability, and permanency.

Beyond findings that point to the relevance of trauma symptoms, this study also amplifies important information on the relationships between demographic characteristics and placement stability. When examining the first analytic model that included demographic characteristics only, all of the variables were statistically significantly associated with higher odds of placement stability, including being older at foster care entry, being male, being Black or another race other than White, and having any type of disability. These findings align with prior studies that have also found these demographic characteristics are associated with placement instability (Barth et al., 2007; Connell et al., 2006; Webster et al., 2000).

The second analytic model comprised demographic characteristics and case characteristics. Upon adding case characteristics into the analytic model, age at entry was no longer significantly related to placement instability, whereas being Black or another race other than White, and having any type of disability remained significant predictors of placement instability. Additionally, this model showed that removal due to child behavior problems and/or child drug abuse were also associated with higher odds of placement instability. These findings suggest that certain demographic characteristics remain important even when accounting for some case characteristics, and that some case characteristics may also influence placement instability while controlling for child's sex, age, and race. In reference to previous studies, the finding on child behavior problems is consistent with many other studies (e.g., Barth et al., 2007; Connell et al., 2006; Webster et al., 2000). The existing literature on the role of race and age is less consistent across studies. Specifically, some studies do not account for race (Vreeland et al., 2020), other studies find it is not a significant contributor to placement instability (e.g., Connell et al., 2006; Barth et al., 2007) and others find that it is significant (e.g., Webster et al., 2000). Regarding age, most other studies have found age to be significant (Barth et al., 2007; Vreeland et al., 2020; Webster et al., 2003); however, our study is consistent with those that see age as becoming not significant when other variables are added to the analytic model (Connell et al., 2006). Being removed for neglect was not associated with higher odds of placement instability, which conflicts with prior findings (Connell et al., 2006).

In the full analytic model, case characteristics related to the two removal reasons (child behavior problem and child drug abuse) had the strongest relationships with placement instability while accounting for demographic characteristics, case characteristics, and trauma symptoms. It is possible that these two removal reasons may proxy higher levels of externalizing behaviors, which have been found to be related to more frequent placement moves (Chamberlain et al., 2006; Newton et al., 2000; Vreeland et al., 2020). Other case characteristics, including number of siblings in foster care, neglect as a removal reason, and whether the child had prior episodes of foster care, were not significant in the full analytic model, which contradicts some prior studies (Connell et al., 2006).

While demonstrating smaller effect sizes, children who were male and children who had a disability of any kind also experienced higher odds of placement instability in the full model. Additionally, this model showed that Black/African American youth had a 73% higher odds of placement instability compared to White youth, even after controlling for other demographic, case, and clinically significant trauma symptoms. In light of other placement instability studies with similar findings on race (Webster et al., 2000), and numerous other reports on racial disproportionality and disparities in child welfare, this study's findings underscore the need to identify and eliminate the institutional and structural mechanisms of racism within the child welfare system. To date, too many studies have omitted race as a factor in their analyses and thereby limit the field's knowledge of how racism affects youths' experience of placement instability. As a first step, future research on placement instability and other foster care outcomes must include race and analyses that disaggregate by racial subgroups.

While our findings on demographic and case characteristics add to the existing research, a key finding from this study was that having a clinically significant trauma symptoms score was associated with placement instability even when accounting for demographic and case characteristics. This finding is particularly salient because it suggests that assessing trauma symptoms and initiating appropriate services may be crucial for supporting children's stability of placements in foster care. Importantly, studies have shown that placement stability is a relevant predictor of permanency Akin (2011) and thus has long-term consequences for youth in foster care. Scholars have begun to recognize that screening for the number of traumatic events alone that youth in foster care have experienced may not be adequate for identifying treatment needs due to varied response to trauma (Murphey & Bartlett, 2019). Rather, understanding youths' response to traumatic events vis-à-vis trauma symptomatology may help professionals determine the best combination of services. This line of research has recently been advanced by scholars who are combining assessment of trauma and strengths (Kisiel et al., 2017). In all, this study supports a line of research and practice models that seek to use assessments of trauma symptoms alongside assessments of resilience to promote child and family well-being in a more holistic and strengths-oriented approach.

4.1. Strengths and Limitations

This study adds to the growing body of literature examining trauma among youth in foster care, demonstrating why screening for trauma symptomatology may be an important component of foster care services. The study's strengths include the use of a longitudinal, statewide dataset that comprised demographic, case, and some clinical characteristics. The sample also adds to the empirical literature by investigating trauma symptoms early in the life of a foster care episode and including a wide age range of children. This study addresses a gap in the literature and contributes further knowledge about the association between trauma symptoms and placement instability.

However, some key study limitations should be noted when interpreting these results. First, potential selection bias in the sample should be considered. Our sample comprised all youth who received a trauma screen during the study period, but they represented only 26% of youth who were age-eligible and should have received a screen. Supplementary bivariate tests of association (available in supplementary material) indicated statistically significant differences in demographic and case characteristics between age-eligible

youth who did and did not receive a trauma screen. Further, our sample was restricted to youth whose trauma screen occurred within 120 days of entering foster care and the supplemental analyses found differences in some demographic and case characteristics. Given the possible selection bias of this sample, further research is necessary to determine whether the results remain true across other samples and across time. Further, given the modest uptake of trauma screening, this study may also point toward implications for practice reforms that aim to integrate trauma screening, assessment, and treatments within child welfare systems. Although the current data cannot speak directly to the challenges of implementing trauma screening, other studies have described them and suggested that they warrant more attention and examination (Conradi et al., 2011; Kramer, Sigel, Conners-Burrow, Savary, & Tempel, 2013). Thus, necessary is additional input from practitioners on how to improve the uptake of trauma screening and more research to examine the relationships between trauma symptoms and children's placement instability among additional samples.

A second major study limitation relates to the use of administrative data. This study is constrained by the variables that were available for analyses. Importantly, neither the public nor private agencies' data included information on referral or receipt of treatment. Having clinically significant symptoms might be related to placement instability in spite of youth receiving appropriate trauma-informed treatments, but it could also be associated with placement instability because youth are not receiving appropriate referrals and services after they are screened. Future research should investigate whether trauma symptoms predict placement instability when treatments are provided.

5. Conclusion

Despite the noted study limitations, this study provides initial evidence that trauma symptoms are predictive of placement instability even while controlling for demographic and case characteristics. Given the scarcity of studies to date that document and describe this relationship, these findings are an important step toward expanding the child welfare field's understanding of trauma and how it may influence children's trajectories in foster care. Our findings suggest that clinically significant trauma symptoms are associated with negative short-term outcomes while children are in foster care (i.e., placement instability). Importantly, placement stability relates to the longer-term outcome of permanency and, therefore, trauma symptoms could be early signals that present opportunities for intervening and promoting healing as well as short- and long-term outcomes. In addition to treatments for children, trauma-responsive approaches for use by caseworkers, courts, foster parents, birth parents, and other child welfare stakeholders may be warranted. Finally, while this study is only a beginning point and further research is needed to confirm these results and comprehensively consider the role of trauma and resilience among children in foster care, our findings support the ongoing use and study of trauma screening in foster care.

Declaration of Competing Interest

All authors claim none.

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