Age-specific risk factors associated with placement instability among foster children

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A B S T R A C T

Placement instability places foster children at an increased risk of negative developmental outcomes. Previous research has yielded inconsistent results on risk factors for placement instability. Therefore, we investigated two research questions: (1) Which child attributes and case histories are associated with placement disruptions (moves indicative of child, agency or caregiver dissatisfaction with the existing placement)?; and (2) How do associations of child attributes and case histories with placement disruptions vary by developmental stage –early childhood (0–5 years), middle childhood (6–12 years), and adolescence (13 years or older)? Using a complete entry cohort of 23,765 foster children in Texas, our results demonstrated that the effects of different risk factors varied by placement end reason and across developmental stages. Of note, kinship placement, compared to non-relative foster care, and placement with all siblings were each associated with an increased risk of substandard care disruptions. Placements with females or Hispanic children were at an increased risk of child-initiated disruption, whereas placements with Black children were more likely to end due to placement mismatch or substandard care reasons. Finally, the adolescence age group was always associated with the greatest increase in risk regardless of disruption reason. These findings provide researchers, caseworkers, and policymakers important information on the risk factors for placement instability among children in foster care.

1. Introduction

Over 400,000 U.S. children are in foster care on any given day, and about 6% of all U.S. children will have been involved in foster care by age 18 (U.S. Department of Health & Human Services, 2017; Wildeman et al., 2014). Children usually become involved in foster care after experiencing abuse, neglect, or risks to their safety, and foster care is intended to provide a safe and stable temporary setting. Yet, state foster care systems have long struggled to provide stable placements (U.S. Department of Health & Human Services, 2012). This is in part due to system level issues, such as shortages of foster placements, limited caregiver training, and leniency towards kinship licensure. Placement instability is distressful for children (Unrau, Seita, & Putney, 2008) and may worsen behavior problems (Rubin, O'Reilly, Luan, & Localio, 2007).

To ensure foster care is a protective and stable environment, it is important to understand the risk factors for placement instability. Although prior research has linked some child and case attributes with risk of placement change (Oosterman, Schuengel, Slot, Bullens, & Doreleijers, 2007; Rock, Michelson, Thomson, & Day, 2013), most of this research focused on whether placement

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change occurred or not, rather than the reasons for the change. Yet placements end for a variety of reasons. Some placement changes serve desirable proactive goals such as moving children to be placed with their siblings, whereas other placement changes are reactive and suggestive of serious concerns about children's adjustment and welfare. We identify three types of placement changes that are indicative of serious concerns in the previous setting (hereafter, we term these *placement disruptions*): child-initiated (e.g., child ran away from placement), substandard care (e.g., violations of standards of care), and placement-mismatch (e.g., caregiver unable to handle child behavior problems). The current study investigated two research questions: (1) Which child attributes and case histories are associated with placement disruptions?; and (2) How do associations of child attributes and case histories with placement disruptions vary by developmental stage?

2. Prior research on placement instability

Children develop through interactions between their individual characteristics and the proximal environment (Bronfenbrenner & Morris, 2006) and a child's previous experiences shape their capabilities and interactions with new environments. Characteristics of the children and their proximal environments might increase the likelihood of a placement disruption within the foster care system (risk factors), whereas others might decrease the likelihood of a placement disruption (protective factors). One meta-analysis of 26 studies and a total of 20,650 foster children identified older age, externalizing behavior, previous residential care, and previous placements as risk factors for instability (Oosterman et al., 2007). Additional risk factors for placement instability identified in prior research include disability status, placement in emergency shelters, physical abuse as the maltreatment type, and separate placement from siblings (Connell et al., 2006; Authors; Koh, Rolock, Cross, & Eblen-Manning, 2014; Steen & Harlow, 2012). Both placement with kin and placement with siblings have been identified as protective against placement instability (Connell et al., 2006; Rock et al., 2013; Steen & Harlow, 2012). Previous research provides inconsistent findings regarding the links between children's race or gender and placement stability (Connell et al., 2006; Webster, Barth, & Needell, 2000), which may reflect differences in geography (Steen & Harlow, 2012) or study design. Yet, scientific evidence on risk and protective factors for placement instability is almost exclusively based on a monolithic construct indicating whether or not a placement change occurred in a given period of time, despite the various reasons for placement change. Indeed, the importance of why children move is recognized in the U.S. federal child and family services reviews, where the performance standard for placement stability excludes moves that further foster children's case goals or are considered in their best interests (U.S. Department of Health & Human Services, 2017). The exclusion of such moves sends a strong signal that there is no desire or intent to reduce or discourage such moves. When a child is moved to live with a relative or to be placed with siblings, such a move requires no antecedent harm or dissatisfaction with the prior placement and, because such arrangements are encouraged, there is no presumption of harm to the child. On the contrary, when a child moves because either they or the foster parent is unwilling to continue the arrangement, or because the arrangement provides inadequate or substandard care, both the structure of policy, practice, and common sense dictate that such disruptions have the potential to distress children. Thus, these types of placement disruptions are the focus of this study.

In addition, risk factors for specific placement disruptions depend on a child's developmental stage. At each stage of development, children have specific needs and vulnerabilities and face unique challenges associated with adjustment, bonding, child-caregiver interactions, and risk behaviors (Harden, 2004). The only study to our knowledge that examined risk factors for placement instability by developmental stage found that externalizing behavior problems were linked with increased risk of placement change in middle (ages 6–10), but not early (ages 1–5), childhood (O'Neill, Risley-Curtiss, Ayón, & Williams, 2012). Although that study provided important information on age-specific risk factors for instability, the small sample size and broad operationalization of placement instability limit the findings' generalizability. In the current study, we examined three developmental periods: early childhood (0–5 years), middle childhood (6–12 years), and adolescence (13–18 years).

3. Placement disruptions

Placement disruptions refer to placements that end for reasons associated with the suitability of an existing placement, rather than the desire to place a child in a more policy-preferred setting. In our prior research (Font, Sattler, & Gershoff, 2018), we identified three subtypes of placement disruptions. The first type was *child-initiated disruptions*, which include placements ending because the child ran away or refused to stay. The second type was *placement mismatch*, in which the child's needs exceed the caregivers' abilities or tolerance. Specifically, these are placements ending due to child behavior problems or increased level of care (i.e. an increase in the expertise and resources of a placement to meet a specific child's needs). The third type was associated with *substandard care*. Substandard care disruptions include placement endings that were initiated by child protective services if a placement was found to violate state standards of care or to put children at risk, such as unauthorized contact with the biological parent. Despite some research documenting the various types of placement change (Cross, Koh, Rolock, & Eblen-Manning, 2013; Font, 2015; James, 2004), there are very few studies that identify how child and case-related risk factors predict type of placement change. To prevent instability, it is essential to have a clear understanding of how and why a child is at risk of placement change.

3.1. Child-initiated disruptions

Children in foster care are not passive individuals in their placements and they may refuse to stay in their placement or run away. Of course, child-initiated disruptions are not generally relevant for children in the developmental stage of 0 to 5 years because they do not likely have the autonomy or ability to run away from placements. Although not widely studied in the context of placement

instability, the body of literature on runaways is instructive: child-level risk factors for running away include being older, female, or Black or Hispanic, and having a case history involving lack of supervision and parental substance abuse (Courtney & Zinn, 2009; Kim, Chenot, & Lee, 2015; Lin, 2012). Of children who ran away from foster care, placement in residential care is associated with increased risk of placement change, whereas being placed in kinship care is associated with decreased risk (Courtney & Zinn, 2009). We also may expect sibling placement to protect against child-initiated disruptions. In sibling groups, older children often are a source of support and comfort for younger children, and in abusive and neglectful families, sibling relationships may be of primary importance as a buffer against past trauma (Lamb & Sutton-Smith, 2014; Williams, Riggs, & Kaminski, 2016). Older children placed with their siblings may thus feel a responsibility to continue providing care and comfort for their younger siblings, therefore decreasing the likelihood that they will run away.

3.2. Placement mismatch disruptions

Federal law requires that foster children be placed in the least restrictive and most family-like environment that is suitable to their needs (Social Security Act, 2015). States have been actively trying to reduce their use of restrictive placements (U.S. Children's Bureau, 2015), and as a result, children with high levels of need may be placed in foster homes where caregivers have little specialized training. Thus, we expect children entering care with mental or behavioral issues to be at increased risk of mismatch disruptions, either through a need for more specialized care or caregivers' requesting the child be moved due to behavior problems. In one study of behavior-related placement changes (James, 2004), older age, externalizing behaviors, and emotional abuse were identified as risk factors and increased time in kinship care was found to be a protective factor. The study also found that those at highest risk for behavior-related moves experienced fewer "routine moves", meaning moves due to administrative reasons.

When a child changes placements due to a mismatch between their needs and the placement, this sometimes means they are moved into more restrictive settings (e.g. residential treatment centers). Risk factors for moving into restrictive settings include male gender, older age, behavior problems, and fewer previous placements, whereas Hispanic ethnicity and kinship care reduce risk (James et al., 2006; James, Landsverk, Leslie, Slymen, & Zhang, 2008).

3.3. Substandard care disruptions

Each state determines standards of care for foster children and has requirements that foster caregivers must follow; these standards are created with the intention of promoting child safety and wellbeing, and violations of these standards constitute *substandard care*. Substandard care includes child abuse or neglect as well as other behaviors not in the best interests of the child, such as the use of physical punishment, unauthorized contact between the child and biological parents, or other parenting behaviors that do not rise to the level of abuse or neglect but which are deemed by child protective services to threaten the child's health or welfare. Decades of research have demonstrated that physical punishment increases the risk for harm and behavior problems for all children (American Academy of Pediatrics, 2014; Gershoff & Grogan-Kaylor, 2016). Foster children, many of whom have previously experienced physical abuse or exposure to violence, may be particularly negatively affected by being hit. Accordingly, most states (including Texas, where our study was conducted: Child Protective Services (CPS)-Permanency Division (2017)), ban foster parents from using physical punishment on foster children. Other scenarios, such as unauthorized contact with birth parents, also rise to the level of substandard care. Visitation between foster children and their birth parents is often supervised to prevent additional abuse or neglect of the child; by knowingly violating the visitation orders, foster parents demonstrate an unwillingness to provide care in accordance with established standards. Notably, unauthorized contact between a child and birth parent is more likely to occur in kinship care where there is typically a pre-existing relationship between the birth parent and the kinship provider.

Because there is little prior research on substandard care disruptions, we turn to the large body of research on risk factors for maltreatment to provide insight into potential risk factors for substandard care disruptions. Maltreatment, like other caregiver-child interactions, is influenced by attributes of both the child and the caregiver (Belsky, 1984). Children with disabilities, especially emotional or behavioral disabilities, are at higher risk of maltreatment than children without disabilities, in part because they require additional care and supervision (Ammerman, Lubetsky, & Stubenbort, 2000; Hershkowitz, Lamb, & Horowitz, 2007). Children with prior exposure to abuse and neglect, even very young children, are also apt to exhibit behavioral and emotional response patterns that elicit negative responses from caregivers (Dozier, Higley, Albus, & Nutter, 2002); their behavior and emotional responses are oriented toward threat identification and they respond less strongly to familiar persons or enjoyable experiences (Fries, Ziegler, Kurian, Jacoris, & Pollak, 2005). Consequently, we anticipate that prior maltreatment and mental and behavioral health concerns will increase the risk of substandard care disruptions.

4. The current study

Using a complete entry cohort of children in the Texas foster care system who entered between 2008–2009, and data through 2016, this study addressed the lack of consistent data on risk factors for placement disruptions and the dearth of information on how these relationships vary by child age. Specifically, we investigated two research questions: (1) Which child attributes and case histories are associated with placement disruptions?; and (2) How do associations of child attributes and case histories with placement disruptions vary by developmental stage?

Table 1
Categorization and Prevalence of Placement disruption Types Based on Placement End Reason.

Prevalence Among Placement disruptions	
Child-Initiated	13%
Child ran away	
Child refused to stay in placement	
Mismatch	22%
Child difficult behavior	
Level of care raised	
Substandard Care	14%
CPS-initiated	
Facility under adverse action	
Removed due to risk of abuse	

Note. $N = 19,168$. All categorizations come from Texas DFPS administrative databases. CPS is child protective services. Facility under adverse action occurs when the home/facility violated the terms of its contract with the state. Not all placement disruptions are represented due to limited information on their cause, therefore the table does not add to 100%.

5. Method

5.1. Data

The data for this study was a complete two-year foster care entry cohort from the state of Texas, consisting of 26,113 children who experienced a combined 79,491 placements. De-identified and restricted data were provided by the Texas Department of Family and Protective Services (DFPS), whose staff extracted the data from their administrative databases. All children in our cohort entered foster care within the fiscal years 2008 and 2009 and were observed until they exited care, with the exception of 373 children who remained in care at the end of our observation period (May 2016). When children ran away, running away itself was included as a move, but the period of time in which the child was missing was not included as a new "placement". We excluded placements where the placement setting was not clearly identified resulting in a final sample of 23,765 children and 72,980 placements.

5.2. Measures

Our primary outcome measure was placement disruptions, meaning moves that occurred due to the insufficiency or inappropriateness of the child's prior placement or moves which were unnecessary or contrary to a child's case goals. We defined three types of placement disruptions based on administrative codes in the Texas DFPS system (see Table 1). A *child-initiated disruption* occurred when a child ran away or refused to remain in a placement. A *mismatch disruption* was a placement ending that was attributed to the incompatibility of the child and foster caregiver. A *substandard care disruption* was indicated when the documented reason for placement end was one of the following: CPS [Child Protective Services]-initiated, risk of abuse, or facility under investigation. We have been advised by DFPS that such moves typically occur for reasons of abuse or neglect, use of physical punishment, or unauthorized contact with birth parents, however these distinctions cannot be made in the data available to us. There may be other scenarios that rise to the level of requiring a change of placement, and the decision to require a placement change can be subjective; however, the codes included under substandard care minimally suggest that there were concerns about the quality of care.

We focused on four types of explanatory variables: child demographic characteristics, child risk factors, the child's case history, and placement characteristics. *Child demographic characteristics* were age at time of removal, gender, and race and ethnicity (White, Black, Latino, or other). *Child risk factors* were binary indicators of child-related disability and behavioral attributes recorded by the caseworker at the time of foster care entry: physical disability, mental health problem, cognitive or learning disability, and behavior problem or delinquency. *Case history* was represented by three variables. First was an indicator of the child's past child protective services involvement, with children assigned the highest level of involvement they experienced across all involvements: no prior involvement, unsubstantiated or substantiated case(s) not resulting in removal, and prior removal to foster care. Second was total time in care, which included children's total exposure to foster care and was grouped into three categories: under 1 year in care, 1–2 years in care, and over 2 years in care. We also included the reasons for which a child was placed in foster care. The reasons for foster care entry were coded as non-mutually exclusive dichotomous variables for caregiver unable to provide care or child is in need of services, physical neglect, sexual abuse, physical abuse, need of supervision/caregiver substance abuse or mental health problems (SAMH), and emotional abuse.

Placement characteristics were setting, sibling placement, and authorized level of care, all of which were time-varying. Setting was categorized as non-relative family, restrictive or congregate setting, emergency shelter, and kinship. Sibling placement was categorized as either child is placed away from one or more siblings, child is placed with all known siblings, or child has no siblings in

care. The authorized level of care variable reflects the evaluated level of need that the child has, which determines the type of placement in which the child can be placed and the amount of payment the home or facility receives. Levels of care are often not assigned for children with very short term stays or children in unlicensed settings. The levels of care were basic, not assigned, specialized/moderate, and intensive/psychiatric transition.

Age groups at the time of placement were early childhood, middle childhood, and adolescence were included as covariates or moderators because children's interactions with their caregivers and environment are likely to change across these stages (Harden, 2004). We used three age categories that are socially rather than biologically defined: early childhood (under 5 years), middle childhood (age 6 (primary school age) to 12 years old), and adolescence (13 years or older, the beginning of the "-teen" years).

5.3. Analytic approach

This study sought to identify the risk factors associated with specific types of placement disruptions. We selected survival analysis as the most appropriate method to answer our research questions. Survival analysis takes into account the length of time in which individuals were exposed to the risk of that event as well as the ways in which the risk of an event may change over time. Each survival model generates a hazard ratio (HR) which can be interpreted similarly to an odds ratio: a hazard ratio of 1 for a given variable x indicates equal hazards across all values of x, less than 1 indicates that increased values of x are associated with decreased hazard of a given type of placement move, and a hazard ratio greater than 1 indicates a positive association between x and the risk of a placement move. The reference group would be all placements that did not end due to the specified placement disruption.

In this study, children were in foster care for varying lengths of time, and children's experiences ranged from multiple short-term placements to a single long-term placement. In any given placement, a child could experience only a single move, but children could potentially experience a move in each of their multiple placements. Thus, both the duration of children's risk exposure and the number of risk exposures that they could potentially experience varied. In addition, both child and placement characteristics may affect placement disruptions. To address these complications, we used multi-level survival models, in which we organized our data at the placement level and included a child-level random intercept. This allows for the risk of a placement disruption to be modeled at the placement level, while still accounting for the probability that a child who disrupts in one placement is also more likely to disrupt from others. Children's placements ranged in duration from less than a month to multiple years and the median number of moves was 2 (range 0–51).

Because child welfare agencies are organized at the county level, there may be systematic differences across counties in the prevalence and types of placement moves foster children experienced. Thus, in addition to the child intercept, we also included a county-level intercept, resulting in a three-level nested model (placements within children within counties). Although children may be placed in different counties from which they originated, we only considered the original removal county because that county typically retains authority for the child.

We focused our analyses on placement disruptions occurring within two years of the start of the specific placement, irrespective of their total time in foster care. Placements lasting longer than two years were included in the sample but were censored after the end of the second year, such that any placement disruptions thereafter were not counted. This was done for two reasons. First, the vast majority of placements last less than two years because there is a strong policy emphasis on children exiting care quickly. Placements lasting longer than two years are most likely to be kinship care placements (due to legal differences in permanency guidelines for children in that setting), resulting in few observations after 2 years. Second, the risk of a placement disruption is highest in the first 3–6 months of a placement and decreases over time (Font, 2015; Wulczyn, Kogan, & Harden, 2003); thus, understanding what predicts placement disruptions within the first two years of a placement is important for practice and policy.

To address changes in the hazard of placement disruptions over time, we compared model distributions based on the BIC statistic and found that a Weibull distribution best fit our data. Weibull models include a shape parameter p where 1 indicates a constant hazard, and values higher or lower than 1 indicate increasing and decreasing hazards, respectively. For all models, we use the *mestreg* program in Stata 14. We present models of each type of placement disruption, and then subgroup models by child age. Any missing data was dropped from analyses (less than 4% of all placements).

6. Results

Because placements were nested within children (who were nested within counties), our results are at the placement level. Therefore, all results should be interpreted as the risk of placement ending due to different types of placement disruptions. Descriptive statistics of child and case characteristics based on placement end reason can be found in Table 2.

6.1. Child-initiated disruptions

6.1.1. Characteristics of child-initiated disruptions

Child-initiated disruptions typically involved older children and females (see Table 2). The largest percentage of child-initiated disruptions involved Hispanic children, followed by White children, Black children, and another race. Many child-initiated disruptions involved children with a child-related risk factor. About 23% of placements had children with no prior CPS involvement, but 13% had experienced a previous removal. The most common reasons for removal were caregiver unable to provide care/child in need of services and need of supervision or caregiver mental health/substance abuse issue. The most common setting was non-relative foster care, followed by an emergency shelter, a restrictive setting, or kinship care. Most child-initiated disruptions involved children

Table 2
Characteristics of Children by Placement End Reason.

	Child-initiated $N = 2,513$	Mismatch $N = 4,219$	Substandard care $N = 2,642$
Child demographic characteristics			
Age at time of removal	13.7 (1.93)	10.23 (3.99)	5.48 (4.38)
Age at time of placement			
Early childhood (0-5 years old)	0.00	0.09	0.51
Middle childhood (6-12 years old)	0.05	0.32	0.34
Adolescent (13+ years old)	0.95	0.59	0.15
Male	0.39	0.55	0.49
Race or ethnicity			
Black	0.26	0.31	0.27
White	0.29	0.33	0.25
Hispanic	0.42	0.31	0.42
Other race	0.03	0.05	0.06
Child risk factors			
Cognitive or learning disability	0.28	0.44	0.23
Physical disability	0.01	0.02	0.03
Mental health problem	0.37	0.31	0.11
Behavior problem or delinquency	0.64	0.49	0.20
Child's case history			
CPS history			
No prior involvement	0.23	0.21	0.38
Unsubstantiated/substantiated allegations	0.65	0.63	0.52
Prior removal	0.13	0.15	0.09
Total time in care: Under 1 year	0.13	0.14	0.32
1 to 2 years	0.10	0.13	0.26
Over 2 years	0.66	0.73	0.42
Reasons for initial removal			
Unable to provide care or child needs services	0.62	0.57	0.34
Physical neglect	0.22	0.30	0.35
Sexual abuse	0.12	0.11	0.08
Physical abuse	0.15	0.23	0.29
Need of supervision or caregiver substance abuse/mental health problems	0.62	0.64	0.85
Emotional abuse	0.05	0.05	0.03
Placement characteristics			
Placement setting: Non-relative	0.38	0.45	0.50
Shelter	0.26	0.17	0.04
Restrictive	0.24	0.30	0.09
Kinship	0.11	0.09	0.37
Siblings: Placed apart from 1 or more siblings	0.27	0.35	0.32
Placed with all known siblings	0.07	0.14	0.45
No observed siblings	0.66	0.51	0.23
Level of care: Basic	0.39	0.28	0.59
Unassigned	0..07	0.04	0.19
Specialized/moderate	0.53	0.62	0.22
Intense/psychiatric	0.01	0.05	0.01

Notes: This table is organized at the placement level and sample sizes are the number of placements that ended due to each type of placement disruption. Means and standard deviations or proportions are reported. Removal reasons are not mutually exclusive. CPS = child protective services.

in care for over 2 years, and children who did not have siblings. Child-initiated disruptions were most likely to involve children with a specialized/moderate level of care.

6.1.2. Predicting risk for child-initiated disruptions

Results of models predicting child-initiated disruptions are shown in Table 3. Many child and case characteristics were associated with child-initiated disruptions. Age was the most significant predictor: placements of children in the adolescent age group were more than 7 times more likely to end in a child-initiated disruption as compared with the youngest age group, and each additional year of age at removal increased the risk of a child-initiated disruption by 25%. Placements of Hispanic children were at 46% higher risk, whereas placements of boys had a 27% lower risk of a child-initiated disruption. Behavior problems had a 72% increased risk of a child-initiated disruption, but a physical disability or cognitive disability had a respective 67% and 20% decreased risk (Table 4).

In regard to case history variables, a prior removal or removal due to a need of supervision or caregiver substance abuse or mental health problems increased the risk of a child-initiated disruption by 33% and 27%, respectively. Placements of children in care for over two years were 1.65 times more likely to end in a child-initiated disruption. In contrast, removal due to sexual abuse had a 22% lower likelihood of child-initiated disruptions.

Several placement characteristics were associated with risk of a child-initiated disruption. Emergency shelter placements had 2.5 times higher risk of ending in a child-initiated disruption as compared with non-relative family foster care placements, whereas

Table 3

Child and Case Characteristics Associated with Each Type of Placement Disruption.

	Child-initiated HR(SE)	Mismatch HR(SE)	Substandard care HR(SE)
Child demographic characteristics			
Age at time of removal	1.25(0.02)***	0.98(0.01)	0.97(0.01)*
Age at time of placement			
Early childhood (0-5 years old)	[a]	1	1
Middle childhood (6-12 years old)	1	3.79(0.33)***	1.27(0.11)**
Adolescent (13+ years old)	7.64(1.01)***	7.23(0.84)***	1.45(0.22)*
Male	0.73(0.05)***	1.08(0.04)	0.94(0.04)
Race or ethnicity (Referent = Black)			
White	0.85(0.08)	0.76(0.04)***	0.71(0.05)***
Hispanic	1.46(0.13)***	0.75(0.04)***	0.84(0.05)**
Other race	0.79(0.14)	0.93(0.09)	0.81(0.08)*
Child risk factors			
Cognitive or learning disability	0.80(0.06)**	1.35(0.06)***	1.34(0.08)***
Physical disability	0.33(0.10)***	0.73(0.09)*	0.88(0.12)
Mental health problem	0.95(0.17)	1.09(0.06)	1.31(0.11)**
Behavior problem or delinquency	1.72(0.12)***	1.35(0.06)***	1.07(0.07)
Child's case history			
CPS history (Referent = no prior involvement)			
Unsubstantiated/substantiated allegations	1.09(0.08)	1.33(0.07)***	1.13(0.06)*
Prior removal	1.33(0.15)*	1.56(0.11)***	1.38(0.12)***
Total time in care (Referent = under 1 year)			
1 to 2 years	0.85(0.08)	0.85(0.06)*	0.71(0.04)***
Over 2 years	1.65(0.13)***	1.17(0.07)**	0.71(0.04)***
Reasons for initial removal			
Unable to provide care or child needs services	1.11(0.08)	1.16(0.05)***	0.87(0.04)**
Physical neglect	0.93(0.07)	1.06(0.05)	1.07(0.05)
Sexual abuse	0.78(0.08)*	0.95(0.06)	0.99(0.08)
Physical abuse	0.90(0.08)	1.01(0.05)	0.98(0.05)
Need of supervision or caregiver substance abuse/mental health problems	1.27(0.09)***	0.89(0.04)*	1.12(0.07)
Emotional abuse	0.94(0.14)	1.09(0.11)	1.24(0.16)
Placement characteristics			
Placement setting (Referent = non-relative)			
Shelter	2.50(0.16)***	3.41(0.18)***	1.01(0.12)
Restrictive	0.50(0.03)***	0.62(0.03)***	0.50(0.05)***
Kinship	0.63(0.06)***	0.56(0.04)***	1.18(0.07)**
Siblings (Reference = apart from siblings)			
Placed with all known siblings	0.53(0.06)***	0.79(0.04)***	1.13(0.06)*
No observed siblings	1.50(0.10)***	1.11(0.05)*	0.76(0.05)***
Level of care (Referent = basic)			
Unassigned	1.01(0.11)	0.66(0.07)***	0.79(0.06)**
Specialized/moderate	1.11(0.07)	2.11(0.10)***	1.21(0.08)**
Intense/psychiatric	0.55(0.10)**	2.69(0.24)***	1.48(0.34)

Notes: Exponentiated coefficients are presented. Reference categories for variables with more than 2 categories are marked with 1 s. CPS = child protective services. Reasons for removal are not mutually exclusive.
[a]We considered children under age 5 to be unable to initiate their own leave from care. *$p < .05$. **$p < 0.01$. ***$p < 0.001$.

restrictive placements and kinship placements were at 50% and 47% lower risk, respectively. Similarly, having an intense/psychiatric level of care was associated with 45% decreased risk. Compared with placements of children separated from their siblings, placements involving only children (no siblings) were at 50% higher risk of a child-initiated disruption whereas joint placement of siblings was associated with 47% decreased risk. The adolescent age group was associated with the largest increase in risk and a physical disability was related to the largest reduction in risk.

6.1.3. Developmental differences in child-initiated disruptions

There were many similarities between the overall model and the age-specific subgroup analyses of child-initiated disruptions, the adolescent age group having the highest overlap. In the middle childhood age group only, being in care between 1–2 years (versus less than 1 year) was associated with 58% reduced risk of a child-initiated disruption. Among the adolescent group, emergency shelter setting was associated with the largest increase in risk and a physical disability was associated with the largest decrease in risk. For the middle childhood group, age at removal was associated with the greatest increase, and restrictive placement with the greatest decrease, in risk.

Table 4
Risk of Child-Initiated Disruptions by Age Groups.

	Middle childhood HR(SE)	Adolescence HR(SE)
Child demographic characteristics		
Age at time of removal	2.01(0.15)***	1.19(0.02)***
Male	0.55(0.13)*	0.73(0.05)***
Race or ethnicity (Referent = Black)		
White	0.71(0.23)	0.85(0.08)
Hispanic	1.27(0.37)	1.47(0.13)***
Other race	0.21(0.22)	0.82(0.15)
Child risk factors		
Cognitive or learning disability	1.13(0.30)	0.76 (0.06)***
Physical disability	0.53(0.56)	0.35(0.11)***
Mental health problem	1.09(0.34)	0.93(0.07)
Behavior problem or delinquency	1.25(0.34)	1.78 (0.13)***
Child's case history		
CPS history (Referent = no prior involvement)		
Unsubstantiated/substantiated allegations	1.16(0.34)	1.07(0.08)
Prior removal	1.56(0.59)	1.26(0.14)*
Total time in care (Referent = under 1 year)		
1 to 2 years	0.42(0.14)**	0.91(0.09)
Over 2 years	0.76(0.21)	1.76 (0.14)***
Reasons for initial removal		
Unable to provide care or child needs services	0.79(0.20)	1.129(0.08)
Physical neglect	0.69(0.18)	0.95(0.07)
Sexual abuse	0.58(0.22)	0.78(0.08)*
Physical abuse	1.08(0.29)	0.85(0.08)
Need of supervision or caregiver substance abuse/mental health problems	0.90(0.25)	1.29(0.09)***
Emotional abuse	0.45(0.35)	0.97(0.14)
Placement characteristics		
Placement setting (Referent = non-relative)		
Shelter	1.73(0.59)	2.59(0.17)***
Restrictive	0.21(0.09)***	0.51(0.03)***
Kinship	0.48(0.20)	0.65(0.06)***
Siblings (Referent = placed apart from siblings)		
Placed with all known siblings	0.43(0.13)**	0.55 (0.06)
No observed siblings	1.25(0.35)	1.52 (0.11)
Level of care (Referent = basic)		
Unassigned	0.55(0.31)	1.05(0.12)
Specialized/moderate	1.46(0.40)	1.09(0.06)
Intense/psychiatric	1.47(1.63)	0.53 (0.10)***

Notes: *p < .05. **p < 0.01. ***p < 0.001. Exponentiated coefficients are presented.

6.2. Placement mismatch disruptions

6.2.1. Characteristics of mismatch moves

For placement mismatch disruptions, most involved children about 10 years old at removal, and boys (see Table 2). There were no race or ethnic differences in who experienced mismatch moves. Placements that ended due to placement mismatch were likely to involve a child with a risk factor and prior involvement with child protective services but not removal from the home. The most common reasons for removal were caregiver unable to provide care/child in need of services and need of supervision or caregiver mental health/substance abuse issue. Placement mismatch disruptions were most likely to happen in non-relative foster care or a restrictive placement. About 73% of placement mismatch disruptions involved children who were in foster care for 2 or more years. About 51% of placement mismatch disruptions involved children with no siblings. Most placements that ended due to placement mismatch had a specialized/moderate level of care.

6.2.2. Predicting risk for mismatch disruptions

Results of models predicting placement mismatch disruptions are found in Table 3. Once again, age emerged as a key predictor: as compared with the youngest age group, mismatch moves were more common among children in the middle childhood and adolescent age groups. Placements of White or Hispanic children had 23% and 25% lower risk of a placement mismatch disruption as compared with placements of Black children. Child behavior problems and cognitive disability were associated with a 35% increase, and physical disability with a 27% decrease, in the risk of a mismatch move.

CPS history and prior removal were associated with a respective 33% and 56% higher risk of a mismatch move. Those who had been in care 1–2 years, versus less than 1 year, had a 15% lower risk of a mismatch move, whereas those in care over 2 years had a 17% higher risk. Being removed due to a caregiver being unable to provide care/child in need of services was associated with a 1.16 times higher risk of a mismatch move, and removal due to need of supervision/caregiver SAMH was associated with 11% lower risk.

Table 5
Risk of Placement Mismatch Disruptions by Age Groups.

	Early childhood HR(SE)	Middle childhood HR(SE)	Adolescence HR(SE)
Child demographic characteristics			
Age at time of removal	1.31(0.05)***	1.01(0.01)	0.88(0.01)***
Male	1.29(0.16)*	1.02(0.07)	1.05(0.06)
Race or ethnicity (Referent = Black)			
White	0.85(0.14)	0.80(0.07)*	0.71(0.05)***
Hispanic	0.69(0.11)*	0.77(0.07)**	0.74(0.05)***
Other race	1.12(0.26)	0.84(0.13)	0.98(0.12)
Child risk factors			
Cognitive or learning disability	1.22(0.19)	1.62(0.12)***	1.08(0.06)
Physical disability	1.21(0.31)	0.69(0.16)	0.81(0.15)
Mental health problem	1.23(0.30)	1.11(0.10)	1.11(0.06)
Behavior problem or delinquency	2.33(0.37)***	1.20(0.09)*	1.32(0.08)***
Child's case history			
CPS history (Referent = no prior involvement)			
Unsubstantiated/substantiated allegations	1.32(0.18)*	1.23(0.10)*	1.09(0.07)
Prior removal	1.28(0.32)	1.45(0.16)***	1.23(0.11)*
Total time in care (Referent = under 1 year)			
1 to 2 years	0.76(0.12)	0.89(0.09)	0.85(0.09)
Over 2 years	1.14(0.17)	1.33(0.12)***	0.98(0.08)
Reasons for initial removal			
Unable to provide care or child needs services	1.19(0.15)	1.15(0.08)*	1.13*(0.07)*
Physical neglect	1.08 (0.13)	1.04(0.07)	1.03(0.06)
Sexual abuse	0.99(0.24)	0.82(0.09)	0.97(0.08)
Physical abuse	0.99(0.13)	1.12(0.08)	0.94(0.07)
Need of supervision or caregiver substance abuse/mental health problems	0.66(0.10)**	0.82(0.06)*	0.98(0.06)
Emotional abuse	0.87(0.37)	1.29(0.20)	1.00(0.12)
Placement characteristics			
Placement setting (Referent = non-relative)			
Shelter	1.45(0.39)	3.47(0.37)***	4.04(0.26)***
Restrictive	1.02(0.25)	0.50(0.04)***	0.71(0.04)***
Kinship	0.35(0.07)***	0.50(0.06)***	0.79(0.08)*
Siblings (Referent = placed apart from siblings)			
Placed with all known siblings	0.86(0.11)	.81(0.06)**	0.62(0.07)***
No observed siblings	0.78(0.13)	1.11(0.09)	1.29(0.08)***
Level of care (Referent = basic)			
Unassigned	0.59(0.18)	0.52(0.10)***	0.89(0.12)
Specialized/moderate	1.71(0.27)***	2.18(0.17)***	2.15(0.13)***
Intense/psychiatric	1.70(1.32)	2.82(0.54)***	2.84(0.31)***

Notes: *p < .05. **p < 0.01. ***p < 0.001. Exponentiated coefficients are presented.

Emergency shelter placements had a 3.41 times higher risk of a mismatch move, and restrictive or kinship placements had 38% and 44% lower risks, than non-relative family foster care. Compared with being placed apart from one or all siblings, having no siblings slightly increased the risk of a mismatch move, but being placed with all siblings decreased the risk. For levels of care, specialized/moderate or intense/psychiatric were associated with a 111% and 169% increased risk of a mismatch move than basic level of care, whereas an unassigned level of care was associated with 34% lower risk. Overall, adolescent age group was associated with the largest increase in risk of mismatch moves, and kinship care was associated with the largest reduction in risk.

6.2.3. Developmental differences in mismatch disruptions

Several differences emerged in the age-specific models (see Table 5). Among the early childhood age group, older age at removal and being male increased the risk of a mismatch move. For adolescents only, older age at removal lowered the risk of a mismatch move. In early childhood, behavior problems was associated with the largest increase in risk and kinship or restrictive placements were associated with the largest reduction in risk. For adolescents, emergency shelter was associated with the largest increase, and placement with all siblings with the largest decrease, in risk.

6.3. Substandard care disruptions

6.3.1. Characteristics of substandard care disruptions

Among substandard care disruptions, the average age at removal was 5 years old, about half were males, and racially diverse (see Table 2). The rates of child risk factors were lower. Over half of substandard care disruptions had children with prior unsubstantiated/substantiated CPS history. The most common removal reasons among children who experienced a substandard move in foster care were caregiver unable to provide care/child in need of services and physical neglect (35%). Substandard care disruptions most often involved non-relative foster care or kinship care placements. About 42% of substandard care disruptions involved children

Table 6

Risk of Substandard Care Disruptions by Age Groups.

	Early childhood HR(SE)	Middle childhood HR(SE)	Adolescence HR(SE)
Child demographic characteristics			
Age at time of removal	1.08(0.02)***	.95(0.02)**	.83(0.02)***
Male	1.05(0.07)	0.86(0.07)	.77(0.09)*
Race or ethnicity (Referent = Black)			
White	0.71(0.07)***	0.68(0.08)***	0.77(0.11)
Hispanic	0.85(0.08)	0.88(0.09)	0.76(0.11)
Other race	0.82(0.12)	0.86(0.15)	0.65(0.21)
Child risk factors			
Cognitive or learning disability	1.38(0.14)**	1.26(0.12)*	1.21(0.15)
Physical disability	0.97(0.17)	1.02(0.28)	1.48(0.49
Mental health problem	1.83(0.35)**	1.49(0.19)**	0.94(0.13)
Behavior problem or delinquency	1.23(0.15)	1.05(0.11)	0.93(0.12)
Child's case history			
CPS history (Referent = no prior involvement)			
Unsubstantiated/substantiated allegations	1.04(0.08)	0.91(0.08)	0.96(0.13)
Prior removal	1.28(0.20)	1.13(0.14)	1.06(0.20)
Total time in care (Referent = under 1 year)			
1 to 2 years	0.69(0.06)***	0.68(0.07)***	0.81(0.19)
Over 2 years	0.55(0.05)***	0.68(0.07)***	1.07(0.20)
Reasons for initial removal			
Unable to provide care or child needs services	0.92(0.07)	.85(0.07)*	.75(0.09)*
Physical neglect	1.05(0.07)	1.00(0.08)	1.25(0.15)
Sexual abuse	1.25(0.18)	0.95(0.12)	0.72(0.12)
Physical abuse	0.98 (0.07)	1.15(0.10)	0.90(0.13)
Need of supervision or caregiver substance abuse/mental health problems	1.12(0.12)	1.16(0.13)	1.09(0.14)
Emotional abuse	0.78(0.22)	1.27(0.24)	1.63(0.34)*
Placement characteristics			
Placement setting (Referent = non-relative)			
Shelter	0.22(0.09)***	0.58(0.15)*	2.66(0.46)***
Restrictive	0.42(0.11)**	0.54(0.08)***	0.48(0.07)***
Kinship	1.28(0.11)**	1.08(0.11)	1.26(0.22)
Siblings (Referent = placed apart from siblings)			
Placed with all known siblings	1.06(0.08)	1.11(0.09)	0.99(0.19)
No observed siblings	0.54(0.05)***	0.88(0.11)	1.52(0.20)**
Level of care (Referent = basic)			
Unassigned	0.74(0.08)**	0.67(0.09)**	1.26(0.27)
Specialized/moderate	1.04(0.14)	1.00(0.11)	1.28(0.17)
Intense/psychiatric	0.74(0.76)	1.66(0.58)	1.15(0.39)

Notes: *p < .05. **p < 0.01. ***p < 0.001. Exponentiated coefficients are presented.

in foster care over 2 years and 45% involved children placed with all siblings. Most substandard care disruptions had a basic level of care.

6.3.2. Predicting risk for substandard care disruptions

Child demographic characteristics that increased the risk of a substandard care disruption were the middle childhood or adolescent age groups compared to the early childhood group. In contrast, older age at removal was associated with a 3% reduced risk of a substandard care disruption. White or Hispanic or the other racial category, as compared with Black, all decreased the risk by 29%, 16%, and 19% respectively. Both mental health problems and a cognitive disability were associated with a 31% and 34% higher likelihood of a substandard care disruption. Case history factors that increased the risk of a substandard care disruption included any CPS history or prior removal compared to no prior involvement. Compared with being in care under a year, being in care for 1–2 years or over 2 years decreased the risk of a substandard care disruption by 29%. Removal due to a caregiver being unable to provide care/child in need of services was associated with reduced risk.

Kinship care was associated with a 18% higher risk of a substandard care disruption than non-relative foster care, whereas restrictive placement was associated with a 50% reduction in risk. Placements of complete sibling groups were associated with increased risk and having no siblings was associated with decreased risk of a substandard care disruption, as compared with placements of separated sibling groups. A specialized/moderate level of care (versus basic) was associated with a 7.64 times higher risk of a substandard care disruption, whereas an unassigned level of care decreased risk by 21%. The adolescent age group was associated with the largest increase in risk of a substandard care disruption.

6.3.3. Developmental differences in substandard care disruptions

The middle childhood group had the highest overlap with the overall substandard care models. There were several differences in predictors for substandard care disruptions across age subgroup analyses (see Table 6). Among the early childhood group, age at

removal no longer decreased the risk of a substandard care disruption, but rather increased the risk by 8%. For the adolescent group, being male decreased the risk of a substandard care disruption by 23%, whereas removals due to emotional abuse, emergency shelter placement, and no siblings compared to being placed with some or all siblings, all increase the risk. For the early childhood and middle childhood groups, having a mental health problem was associated with the greatest increased risk of a substandard care disruption, whereas emergency shelter was associated with the largest increased risk for the adolescent age group. In contrast, emergency shelter was associated with the greatest reduction in risk for the early childhood group, and restrictive placement was associated with the largest decrease in risk for the middle childhood and adolescent age groups.

7. Discussion

This study investigated how child and case characteristics were associated with three types of placement disruptions, namely child-initiated disruptions, placement-mismatch moves, and substandard care disruptions, among a cohort of foster children. In prior studies, there have been inconsistent findings about the role of some risk and protective factors for placement instability (Rock et al., 2013; Steen & Harlow, 2012) and we believe this is in part due to limited attention to why children are changing placements. Furthermore, we examined how these associations varied across three developmental stages (early childhood, middle childhood, and adolescence). Our models provided evidence that many child and case characteristics are significant predictors of placement change; these factors could be used a priori by child protective services agencies to identify subpopulations who are at high risk for a placement disruption and work to minimize the chance of a move by ensuring that initial placements are as well-matched to the child's characteristics and needs as possible.

Consistent with our expectations, associations between child and case characteristics and placement moves varied by type of move. We highlight three particularly noteworthy findings. First, kinship care placements, compared to non-relative family foster care placements, had a lower risk of a placement mismatch or child initiated move, but higher risk of a substandard care disruption. In other words, when compared with non-relative family foster care, kinship care placements were less likely to end due to child behavior problems or children running away, but more likely to end due to violations in care standards. This is particularly important given the expressed preference for kinship care in several federal laws (e.g. Indian Child Welfare Act 1978; Adoption and Safe Families Act of 1997; Fostering Connections to Success and Increasing Adoptions Act of 2008). Kinship caregivers are not required to be licensed (Child Welfare Information Gateway, 2016), which means that kinship caregivers do not need to meet state standards for non-relative foster caregivers for child placements. Without licensure, kinship caregivers receive lower financial support. The combination of lower standards and lower financial compensation may increase caregiving stressors that could contribute to the higher likelihood of a child being removed from a kin home due to substandard care. In addition, because kinship caregivers often have a pre-existing relationship with the child's birth parents, the risk of unauthorized contact between the child and birth parents is more likely in kinship care. Although kinship caregivers should be made aware of their responsibilities regarding contact with birth parents, better communication of the importance of abiding by visitation orders and clear warnings that failure to do so may result in the child being moved may help to prevent such occurrences. Our finding that non-relative foster care placements had a higher risk of a placement mismatch or child-initiated disruption than kinship placements may be partly attributable to the availability of foster homes suited to meet the diverse range of needs presented by foster children. To meet the needs of foster children, the foster care system must have a larger pool of placement options and skilled caregivers, which may require the development of new techniques and incentives for foster parent recruitment and training. Future research should explore how placement settings and foster caregiver attributes interact with child characteristics to predict different types of placement disruptions.

Second, sibling placements were protective against some types of moves but not others. In comparison to placements involving separated siblings, placements that have all siblings together had a lower risk of placement mismatch or child-initiated disruption. This finding supports our hypothesis and may reflect siblings' motivation to stay together. Yet, placement with all siblings increased risk of a substandard care disruption, relative to both sibling separation and having no siblings at all, and having no siblings was associated with lower risk than sibling separation. Caseworkers are legally required to pursue sibling placements or promote frequent visitation among siblings if placed apart unless it is "contrary to the safety or well-being of any of the siblings" (Social Security Act, 2014, 42§ 671(a) (31); Fostering Connections to Success and Increasing Adoptions Act, 2008; Child Welfare Information Gateway, 2013). This places a burden on caregivers to either foster the complete set of siblings or, if placed apart, to facilitate visits between their foster child and his or her siblings. The strain in resources and heightened caregiver burden involved with caring for sibling groups (whether together or apart) may explain their increased risk of a substandard care disruption.

Third, there were significant racial, ethnic, and gender disparities in disruptions. Our results demonstrated that placements of females and Hispanic children were more likely to result in child-initiated disruptions, which is supported by previous work on gender and ethnic differences in running away (Kim et al., 2015; Courtney & Zinn, 2009; Lin, 2012). Running away is an important outcome to consider because it places children at risk for other negative outcomes, such as substance abuse, sexual victimization, and criminal activity (Courtney & Zinn, 2009). In addition, placements of Black children were more likely than placements of White or Hispanic children to end due to placement mismatch or substandard care. Foster parents often become the adoptive parents of their foster children if the children cannot be reunified (Child Welfare Information Gateway, 2012) and placement instability due to placement mismatch or substandard care among Black children may result in fewer opportunities for adoption. We did not have information on the race or ethnicity of foster parents in our data, but the racial or ethnic match between children and their foster parents may play a role in placement instability. Although states are required to recruit a diverse set of foster parents for youth under the Multiethnic Placement Act (1994/1996), there is a longstanding concern about whether the cultural backgrounds of foster parents adequately reflect the children in need of care. States and agencies may need to develop new approaches for recruiting racial

and ethnic minority foster parents and incorporate cultural competencies into foster parent training requirements.

A notable similarity across models was that placements of adolescents (versus young children) were the strongest predictor of all types of moves. This finding is consistent with prior research that has identified older age as a risk factor for placement instability (e.g., Oosterman et al., 2007). Taken together, these findings support adolescence as a particularly vulnerable period for children in foster care and reinforce the need to take a developmental approach to future investigations on risk factors for placement instability. More targeted recruitment of foster placements specifically trained to meet the needs of adolescent foster children may be warranted.

Another important contribution of our study was the developmental approach to risk factors for placement instability, in which we found several age-specific differences. For example, age at removal was a risk factor among the early childhood group for both substandard care and placement mismatch disruptions. In contrast, age at removal decreased the likelihood of either substandard care disruptions or placement mismatch disruptions among the adolescent group. These findings only partially align with existing research, as older age is usually cited as a risk factor (Rock et al., 2013; Steen & Harlow, 2012). It is possible that, because children who are removed at older ages are likely to have greater exposure to trauma or abuse, there may be more careful efforts to place them in well-matched homes. In addition, older age at removal among placements with adolescents might have a lower likelihood of change due to limited time in care with closer proximity to "aging out". These findings reinforce the need for additional research on risk factors and protective factors using a developmental approach.

We note a few significant limitations. First, although our study used a large sample from a large and diverse state, due to significant variation in policy and practice across states and over time, our results may not be generalizable. However, these results might be suggestive of the future of foster care as the United States becomes more diversified. Second, we lacked detailed information on caregivers and children. Specifically, we had no information about foster parents in terms of demographic characteristics, experience, or training. Additionally, reports of disabilities or behavior problems are recorded by caseworkers based on available information at the time of the child's entry to care, which may include parent report, case records, or other documentation. This limitation is unchangeable due to the nature of our data, but future work should include detailed, longitudinal information on children and placements from multiple observers. Third, our study did not have developmental child outcomes; however, this study still captures lived experiences of children in foster care and provides information about changes in placements, which will affect children's development. Fourth, our categorization of moves types is based on previous work (e.g. Font et al., 2018) and captures only one way of measuring placement change. We were only able to use about 49% of placement disruptions (see Table 1) because the other 51% were coded as placements ending due to ambiguous reasons, such as "other" or a "gap in placements". Additionally, we used dichotomous variables to indicate different types of placement disruptions based on the placement end reason. Many factors and details go into caseworkers deciding to move a child, but due to the de-identified case administrative data used in our study we had to rely upon the entered reason and did not have access to case files. Future work could use a qualitative approach to understand the circumstances surrounding placements ending due to an ambiguous reason and how caseworkers prioritize the reason a placement ended. Additionally, using a mixed-methods approach could provide qualitative information on caseworkers in decisions surrounding placements and then quantitative methods could model how specific reasons for placement change are associated with children's outcomes.

In conclusion, previous research on placement instability has yielded inconsistent results on the effects of specific child and case characteristics among children in foster care. Our results demonstrated that the reason placements ended is an important factor when investigating placement instability. This study can be used as a model for future investigation on other state foster care systems, or even in international systems when administrative data is available. In addition, the effects of specific child and case characteristics varied based on developmental stage. These findings can benefit the child welfare system in creating a safe and stable environment for children in foster care by identifying placements at risk for instability.

Acknowledgements

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