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# Predictors of placement disruptions in foster care

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## Abstract

**Background:** Many children who are removed from a dangerous or neglectful home and placed in state custody subsequently experience additional disruptions while in custody, which can compound the effects of ongoing stress and instability. As such, placement stability has been identified as a critical objective and a key indicator of success for children residing in substitutive care.

**Objective:** To examine the utility of child protective services data in identifying predictors of placement disruption.

**Participants and setting:** The current study examined data from youth in Tennessee state custody who had been assessed using the Child and Adolescent Needs and Strengths (CANS) assessment within 30-days of their first, out-of-home placement. The sample included 8,853 youth ages 5–19 years old ($M$ = 13.1; $SD$ = 4.0; 44.8 % female).

**Methods:** Demographics, placement information, and the CANS assessment were collected by the Tennessee Department of Children's Services for all child welfare episodes for children as part of the system's usual standard of care. Bivariate correlation and linear regression models were conducted.

**Results:** Multiple risk indices from the CANS appeared to significantly increase risk of placement disruption, including child internalizing and externalizing symptoms, school difficulties, youth affect dysregulation, and child age.

**Conclusions:** The current findings suggest that data collected as part of standard practice by child welfare workers such as the CANS is both feasible and has utility for identifying sources of risk for placement disruptions and to inform possible targets of intervention to enhance placement stability.

### Keywords

Placement disruption; Foster care; Externalizing problems

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## 1. Introduction

Child welfare systems have identified placement stability as a critical objective and a key indicator of success in care for the over 442,995 children residing in foster care in the United States (AFCARS, 2016). With an increased focus on placement stability comes the challenge of how best to identify children and adolescents at risk for placement disruption and in greatest need of support. Funding for additional services to identify these youth is an overarching problem as personnel are faced with high caseloads and often lack the time needed to conduct comprehensive needs assessments, identify necessary resources, and make referrals. Given these challenges, identifying optimal ways to utilize data collected as part of standard practice by child welfare workers for the purposes of driving placement decisions is a high priority.

The Child and Adolescent Needs and Strengths (CANS) assessment tool (Lyons, 2009) is used in a number of states in the U.S. to evaluate youths' needs and areas of strength for treatment and services and may be one method that can be further utilized to enhance stability in foster care. A study from the Tennessee Department of Children Services showed that placements that are consistent with an assessment-based decision support algorithm based on the CANS are more stable than algorithm-inconsistent placements (Epstein, Schlueter, Gracey, Chandrasekhar, & Cull, 2015). Results from this study support the use of the CANS to improve decision-making and improve system performance. Nonetheless, studies utilizing the CANS have not explored specific risk factors that can be identified to predict and ultimately prevent placement disruption. The goal of the present study was to examine the utility of the CANS assessment tool to identify factors that could assist child welfare systems in effectively targeting and tailoring support to children at greatest risk of placement disruption.

Disruptions in placement occur frequently within the foster care system, are associated with a variety of maladaptive outcomes, and pose significant risks to foster children's immediate and long-term well-being. In contrast, when children are placed in stable environments and into stable relationships with caregivers, they are less likely to engage in delinquent behavior (Ryan & Testa, 2005), less likely to display disruptive behavior (Rubin, O'Reilly, Luan, & Localio, 2007), less prone to illness (Harden, 2004), and more likely to succeed in school (Zima et al., 2000). Nonetheless, disruption in foster or kinship placement remains a pervasive challenge for children placed in state custody. The percentage of children in Tennessee state custody less than 12 months who experience three or more placement changes is significantly greater than the national percentage (28.8 % and 16 % respectively; U.S Department of Health & Human Services [DHHS], Administration for Children & Families, 2016). Indeed, between 25 % and 50 % of foster children experience a disruption in placement and must transition to new families at some point during their time in state custody (Connell, Katz, Saunders, & Tebes, 2006; Helton, 2011). In a study of 419 children, Strijker, Knorth, and Knot-Dickscheit (2008) found placement disruption rates as high as 85 % over a period of 1–5 years. Similarly, success in placement stability for children in foster care decreases as length of stay in state custody increases. Compared to children in foster care for shorter periods of time, the percentage of children in foster care for 12 months or longer who experience three or more placement changes increases both in Tennessee (48 %)

and nationally (48 %; U.S Department of Health & Human Services [DHHS], Administration for Children & Families, 2016). Placement change typically involves moving to a new neighborhood, and a foster child's social, educational, and familial experiences are disrupted with each move. Thus, repeatedly displaced foster children may experience an increased sense of rejection and impermanence as well as difficulty forming attachments or trusting adults and children (Bederian-Gardner et al., 2018; Stovall & Dozier, 2000). With better prediction of placements at risk for disruption, child welfare systems may be better able to deliver services to reduce the frequency of future disruptions.

Thus, identifying risk factors associated with placement disruption is an important research priority. Research in the field of foster care has explored several factors associated with placement disruption including elements related to children's background and features of foster placement. In a comprehensive review of 26 studies of children in foster care, Oosterman, Schuengel, Slot, Bullens, and Doreleijers (2007) identified older child age at placement, prior history of residential care or placements, and child behavior problems as significant correlates of placement breakdown. Specifically, youth emotional or behavioral problems have been found to be associated with greater risk of placement disruption in virtually all studies, and are regarded as the most robust predictor of placement breakdown (e.g., Aarons et al., 2010; Barth et al., 2007; Rolock, Koh, Cross, & Eblen Manning, 2009; see Oosterman et al., 2007, for review). For example, in a study of 415 children in California, Newton, Litrownik, and Landsverk (2000) found consistently high rates of emotional and behavioral problems among children in foster care using the Child Behavior Checklist (Achenbach & Rescorla, 2001), with children's externalizing behaviors serving as the strongest predictor of placement changes. In addition, placement disruption may be more likely for children with social skill deficits, poor skills to cope with stress, and educational challenges (Goemans, van Geel, Wilderjans, van Ginkel, & Vedder, 2018). While extensive research has been completed on risk factors for placement disruption, fewer studies have examined factors associated with placement disruption in multivariate models to determine the most robust predictors.

In most states, child protective services have access to or obtain extensive data on placement stability and disruption, including a variety of potential factors implicated in placement disruption. Despite the vast amount of archival data available on risk factors of placement disruptions, utilization of this data to identify predictors of placement disruptions is limited. In a recent exception, Jedwab, Xu, Keyser, and Shaw (2019) examined data obtained from the State Automated Child Welfare Information System (SACWIS), and found that placement stability differed for children in different types of placements (residential treatment centers, kinship care, foster care homes, and group homes). Analyses also indicated that age of child, behavioral problems, parental substance abuse, and cases in which parents voluntarily gave up their parental rights also significantly increased the likelihood of placement disruption. Similarly, Chamberlain et al. (2006) reported on a large-scale randomized trial of the Keeping Foster Parents Trained and Supported (KEEP) intervention, a foster-parent training intervention aimed at strengthening the parenting skills of foster and kinship parents. Analyses using the foster Parent Daily Report Checklist (PDR; Chamberlain & Reid, 1987) of child behavioral difficulties obtained moderate specificity and sensitivity for predicting negative placement disruptions, suggesting that the PDR could

contribute to assessing risk for placement disruption (Chamberlain et al., 2006). In a replication study, Hurlburt, Chamberlain, DeGarmo, Zhang, and Price (2010) confirmed the utility of the PDR as a predictor of negative placement change. Although these studies provide important information about improving predictions of placement disruption, they administered the PDR by telephone to foster parents weekly for 16 weeks. Access to such rigorous, longitudinal screening programs may be limited, and it is not yet clear whether the cost and effort associated with gathering such information is feasible or would be associated with additional benefits as compared with briefer more cost-effective assessment methods. Thus, it is important to examine the utility and feasibility of less time-intensive, more efficient, lower-cost approaches to identify placements at risk of disruption.

The CANS assessment tool (Lyons, 2009) is one possible cost-effective approach currently utilized by the Tennessee Department of Children Services for every child in custody to create a common language and source of data across the system, identify children's needs, and link resources. Further leveraging the CANS to identify children most at risk for a disruption would aid in effectively targeting and tailoring support to children and families most in need. Trained users (i.e., case workers, clinicians) within the child welfare and mental health settings both in the US and internationally use the CANS to assess the child and family needs and strengths. Users gather information from multiple domains including child and caregiver interviews, report tools, review of case records and clinical judgment. The CANS is administered every six months and at key decision points (e.g., new placements) and takes approximately 10−15 min to complete (Anderson, Lyons, Giles, Price, & Estle, 2003).

Utilizing the CANS to identify specific risk factors may be helpful in improving placement selection or in identifying children at greatest risk for placement disruption. Although multiple risk factors may explain placement disruption, factors associated with the child may serve as targets of change in interventions (Chamberlain, Price, Reid, & Landsverk, 2008; Hutchings et al., 2007). Therefore, the current study examined the utility of the CANS to identify specific child characteristics associated with placement disruption. We hypothesized that the CANS would identify children at risk of placement disruption as indicated by increased child problem behaviors (e.g., externalizing and internalizing problems, school difficulties, affect dysregulation, child relationship problems). In addition, consistent with previous research, we hypothesized that child age would be positively associated with number of placements. In multivariate analyses, we examined child characteristics and their association with duration of first placement and number of lifetime placements. In light of the findings reported by Oosterman et al. (2007), we expected that child externalizing problems would present as the most robust predictor of placement disruption, but specific patterns of other child factors (e.g., internalizing problems, school difficulties, affect dysregulation, and child relationship problems) were also examined as possible predictors. Further, we used multivariate regression analyses to examine variables together to identify those that uniquely predicted placement disruption. Finally, we examined whether child age would moderate the effects of externalizing problems on indicators of placement disruption (i.e., duration of placement, number of placements).

## 2. Method

This study utilized existing assessment data from youth who entered Tennessee state custody between July 2012 and June 2017. Administrative and assessment information from the Tennessee Department of Children's Services (TDCS) was collected for all child welfare episodes for children as part of the system's usual standard of care.

### 2.1. Participants

Data were collected from 20,701 youth ages 5–19 years old ($M$ = 13.2, $SD$ = 4.0, 41.9 % female) in Tennessee state custody between July 2012 and July 2017 who had a CANS assessment completed within 30-days of an initial or new out-of-home placement. We selected a subsample of these youth who were in their first out-of-home placement ($N$ = 12,747). Within this sample, some children were still at their final observed placement, meaning that we were unable to determine how long they would have been at that placement before disruption. Due to this right-censoring, we restricted our sample only to children who were no longer in state custody at the end of data collection; supplementary analyses using the full sample are included in footnotes. Our final sample included 8,853 youth ages 5–19 years old ($M$ = 13.1, $SD$ = 4.0, 44.8 % female) in Tennessee state custody between July 2012 and June 2017 who had a CANS assessment completed within 30-days of their first, out-of-home placement. This subsample was comparable to the full sample on all variables of interest. Children's race included 66.6 % White, 23.7 % Black/African American, 3.0 % Multi-Racial, and < 1 % Asian, American Indian/Alaska Native, or Native Hawaiian/Other Pacific Islander. Within Tennessee, there are three main paths to state custody: a child is found to be neglected or abused, a child is found to be delinquent, or a child is unruly. Children in this sample were admitted to state custody due to child behavioral problems (24.0 %), parental drug abuse (9.4 %), neglect (12.7 %), abandonment (4.6 %), physical abuse (4.7 %), sexual abuse (3.1 %), truancy (2.9 %), multiple custody reasons (24.5 %), and other reasons (14.1 %). The most common permanency plan in this sample was reunification with parent/caregiver (51.7 %), and other plans included exiting custody with a relative or guardian.

### 2.2. Procedure

Demographic data and placement information were collected using the Mega Report, an Excel spreadsheet generated weekly from Tennessee Family and Child Tracking System (TFACTS). The Mega Report is a standardized report of relevant permanency information for each child who either (a) is in TDCS custody as of the date of the Mega Report or (b) has exited TDCS custody at any time between the first day of the preceding month and the date of the Mega Report (a period of between one and two months depending on the date of the Mega Report). Information includes level of care, start and end dates of placements, age, gender, race, and custody reason.

### 2.3. Measures

The *Child and Adolescents Needs and Strengths Comprehensive Multisystem Assessment – Tennessee Version* (CANS, Lyons 2004) is a multi-purpose tool that provides a comprehensive assessment of child and caregiver problems, issues, and strengths. The

CANS has been utilized to support efficient decision making and appropriate service recommendations (Lyons, 2009). The CANS is administered by trained users (e.g., child welfare case workers) who collect information from multiple sources and directly link it to the development of an individualized service plan for children. Previous research has demonstrated adequate inter-rater reliability and validity (Anderson et al., 2003; Lyons, Shallcross, & Sokol, 1998; Weiner, Abraham, & Lyons, 2001). It is recommended that the CANS be administered at key decision points (e.g., entrance into custody, placement disruption).

**2.3.1. Child characteristics—**The Tennessee Version of the CANS used in this study includes 64-items scored on a 4-point scale, ranging from 0 to 3, based on two criteria, (1) the degree of strength or impairment and (2) the degree of urgency for intervention. More specifically, for the variables encompassing risk behaviors and behavioral/emotional needs (e.g., internalizing problems, externalizing problems, affect dysregulation), 0 indicates no evidence of impairment; 1 indicates a mild degree of difficulty and a need that requires monitoring, watchful waiting, or preventive activities; 2 indicates a moderate level of difficulty and the need for action to address the specific need or risk behavior; and 3 indicates a severe level of difficulty and an immediate or intensive need. Categories focusing on life functioning domains (e.g., school difficulties) follow a similar structure with 0 indicating a domain in which the child is doing well; 1 indicates the child is functioning adequately in the domain; 2 indicates the child exhibits a moderate level of problems and assistance is needed to improve functioning in the domain; and 3 indicates the child is having significant or severe problems and where intensive or immediate help is needed. Finally, for variables assessing child strengths or deficits (e.g., child relationship problems), 0 indicates a domain where well-developed strengths exist and can be utilized in a strength-based plan; 1 indicates a good level of skill or ability in the domain area that may need support to be leveraged in a plan; 2 indicates presence of or limited ability in the domain area that requires effort to develop; and 3 indicates a domain in which strengths have not been demonstrated. Thus, higher scores indicate more problems or greater impairment.

In addition to scores at the item level, composite scores were created by summing together individual items from the CANS assessment. Five composites were created to capture a range of emotional, behavioral, and developmental needs and strengths. Modeled after the internalizing and externalizing problems scales from the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), the *Internalizing Problems* composite included depression, suicide risk, self-mutilation, other self-harm behaviors, anxiety, attachment, trauma experiences, and medical and physical health variables ($\alpha$ = .72; possible range 0–27), whereas the *Externalizing Problems* composite included impulsivity/hyperactivity, oppositional, runaway, sanction seeking behaviors, delinquency, substance use, fire-setting, conduct, sexually reactive and sexually aggressive variables ($\alpha$ = .80; possible range 0–27). The *School Difficulties* composite was composed of school attendance (e.g., truancy), school behavior (e.g., inappropriate school behavior), and school achievement (e.g., problems with academic achievement) variables ($\alpha$ = .75; possible range 0–9). The *Child Relationship Problems* composite contained interpersonal peer (e.g., inability to form peer relationships) variables and interpersonal adult (e.g., inability to form positive relationships

with adults), assessing deficits in a youth's social and relationship skills (α = .86; possible range 0–6). The *Affect Dysregulation* composite incorporated the anger control (e.g., problems with anger control including physical fighting) and emotional control variables (e.g., inability to regulate emotions; α = .85; possible range 0–6). Higher scores on all composites indicated greater impairment. All composites were normally distributed (i.e., skewness < 2).

**2.3.2. Indicators of placement disruption—**Placement disruption, our outcome variable, was defined using two indicators of placement breakdown. Our first indicator was duration of first placement. Because we were also interested in the repeated disruption of the child-caregiver relationship, we include number of lifetime placements (i.e., total number of placements a child experiences while in custody) as our second indicator of placement disruption.

### 2.4. Data analytic approach

Descriptive analyses examined ranges, means, standard deviations, and skewness for placement disruption and composite variables. Results of the analyses indicated that both the number of placements and placement duration variables were non-normal (i.e., skewness > 2), which is a violation of the assumption of the normality of the distribution of the measure (Tabachnick & Fidell, 2013). Therefore, both indicators of placement disruption were log transformed (Preacher, 2015). Log transformation corrected non-normality for both number of lifetime placements (skewness = .24) and length of first placement (skewness = −.45). Log transformed variables were used in data analyses; however, untransformed means and standard deviations are presented in the current manuscript to facilitate in interpreting the data.

Pearson's correlations were calculated to determine significant bivariate associations between placement disruption variables and child variables using SPSS (25$^{th}$ edition). Linear multiple regression analyses were conducted to examine whether the composites of child factors (i.e., internalizing problems, externalizing problems, school difficulties, child relationship problems, and affect dysregulation) predicted each type of placement disruption (i.e., duration of first placement, number of placements). Because older age at placement has been shown to be related to placement breakdown (Oosterman et al., 2007), we included age as a covariate in the present study analyses. To evaluate whether child age moderated the link between child externalizing symptoms and placement disruption, mean-centered age and child externalizing problems variables and their product terms were entered into the multiple regression analyses.

## 3. Results

### 3.1. Descriptive statistics

Ranges, means, and standard deviations of child variables, placement length, and number of lifetime out-of-home placements are presented in Table 1. Duration of the child's first lifetime placement ranged from 1 day to 1448 days ($M$ = 131.72, $SD$ = 167.40). A majority of children had one (21 %), two (29 %), or three (22 %) placements. Children, on average,

had two to three placements following their first placement in state custody ($M$ = 2.11, $SD$ = 2.33). The composite variables represented the sum of each participant's score across the individual items of the CANS, with Internalizing Problems scores ranging from 0 to 19 ($M$ = 3.19, $SD$ = 3.03), Externalizing Problems scores ranging from 0 to 21 ($M$ = 4.73, $SD$ = 4.63), School Difficulties scores ranging from 0 to 9 ($M$ = 2.51, $SD$ = 2.62), Child Relationship Problems scores ranging from 0 to 6 ($M$ = 2.37, $SD$ = 1.80), and Affect Dysregulation scores ranging from 0 to 6 ($M$ = 1.43, $SD$ = 1.59).

### 3.2. Bivariate correlations

As hypothesized, length of first placement was significantly negatively correlated with internalizing problems ($r$ = −.09, $p$ < .001), externalizing problems ($r$ = −.20, $p$ < .001), school difficulties ($r$ = −.15, $p$ < .001), child relationship problems ($r$ = −.11, $p$ < .001), and affect dysregulation ($r$ = −.14, $p$ < .001), such that youth displaying greater levels of problems had a shorter length of first placement (Table 2). Number of lifetime placements (i.e., total number of placements a child experiences while in custody) was associated positively and significantly with internalizing problems ($r$ = .14, $p$ < .001), externalizing problems ($r$ = .30, $p$ < .001), school difficulties ($r$ = .20, $p$ < .001), child relationship problems ($r$ = .16, $p$ < .001), and affect dysregulation ($r$ = .24, $p$ < .001), such that greater youth problems were associated with more lifetime placements. Child age was also significantly associated with placement disruption such that older age was associated with shorter length of first placement ($r$ = −.24, $p$ < .001) and greater number of lifetime placements ($r$ = .15, $p$ < .001). Factors associated with the child were all significantly intercorrelated in the expected, positive direction ($r$ = .16 to .70, $p$s < .01), indicating that presenting with difficulties in one area of functioning was associated with greater problems in other areas.[1]

### 3.3. Multiple aregression analyses

A series of multiple linear regression analyses were performed to analyze the multivariate associations between factors associated with the child and each predictor of placement disruption when controlling for age. To test our hypothesis that greater difficulties in various child domains would predict placement disruption, two regression models were tested (see Table 3). First, child externalizing problems ($\beta$ = .30, $p$ < .001), school difficulties ($\beta$ = .03, $p$ < .001), affect dysregulation ($\beta$ = .03, $p$ < .05), and child age ($\beta$ = −.05, $p$ < .001) were significant independent predictors of number of lifetime placements. That is, higher levels of externalizing problems, school difficulties, greater affect dysregulation, and younger age predicted greater number of placements. When length of first placement was used as the dependent variable, internalizing problems ($\beta$ = .05, $p$ < .001), externalizing problems, ($\beta$ = −.13, $p$ < .001), school difficulties ($\beta$ = −.04, $p$ < .001), and child age ($\beta$ = −.14, $p$ < .001) were significant independent predictors of length of the first placement. As expected, higher rates of externalizing problems and school difficulties were related to shorter duration of the first placement. Further, older age of child predicted shorter duration of the first placement.

[1]Correlation analyses for the full sample ($N$ = 20,701) were of similar magnitude, direction, and significance as reported for the subsample.

In contrast, higher levels of internalizing problems predicted longer duration of the first placement.

In order to examine the interaction of child externalizing problems and age, an interaction term was included in Step 2 of the regression model. Child externalizing problems × age was a significant predictor of both number of lifetime placements ($\beta = -.11$, $p < .001$) and placement duration ($\beta = -.08$, $p < .001$). When the interaction term was included in the model, all independent variables that were significant in Step 1 remained significant in Step 2. In order to examine the significant interaction effects for both number of lifetime placements and length of first placement, Model 1 of PROCESS macro for SPSS was used (Hayes, 2013). The current analyses were conducted with a 95 % confidence interval and the number of bootstrap resamples was set to 5000. The macro estimates an Ordinary Least Squares regression, with each term yielding its own significance value. To portray the interactions, we calculated simple slope plots at −1 *SD* (younger children) and +1 *SD* (older children). For young children, externalizing problems were positively and significantly related to duration of first placement ($\beta = .04$, $p < .001$), such that more externalizing problems were related to longer duration of the first placement. In contrast, for older children, externalizing problems were negatively and significantly related to length of the first placement ($\beta = -.14$, $p < .001$), such that more externalizing problems were related to shorter duration of placement. Upon examining cut-offs using the Johnson-Neyman technique, for children 7.5-years-old and below, externalizing problems and the duration of the first placement were positively related. In contrast, for children 13.2-years-old and above, externalizing problems and duration of first placement were significantly negatively related (Fig. 1).

A different pattern was present when number of lifetime placements was entered as the dependent variable. Externalizing problems were related to more placements for both younger children ($\beta = .62$, $p < .001$) as well as older children ($\beta = .23$, $p < .001$) (Fig. 2). However, post-hoc probing confirmed that the simple slopes were significantly different from each other ($p < .05$), indicating that the association between externalizing problems and number of lifetime placements was stronger for younger children than for older children.[2]

## 4. Discussion

The goal of this study was to examine the utility of using state archival data from a standardized assessment tool, the CANS (Lyons, Weiner, & Lyons, 2004), to elucidate specific child factors that are associated with placement disruption for children in foster care. This information has the potential to be useful for the efficient implementation of effective and sensitive supportive interventions. A subset of children in foster care are at risk for placement disruption and identifying specific factors associated with placement breakdown may be helpful in identifying which children are most at risk. By making use of procedural data, there is the potential to aid the field in better identifying which children are most at risk. Though it is well documented that changes in placement pose significant risks

[2]Linear regression analyses for the full sample ($N = 20{,}701$) were of similar magnitude, direction, and significance as reported for the subsample.

to foster children's well-being, few studies have rigorously examined the feasibility and utility of using data collected by state agencies to identify the potential independent or cumulative association of specific child variables with placement outcomes among children in foster care.

The current examination of placement patterns indicated that children experienced a high degree of disruption. This was expected given the high disruption rates previously reported in literature (e.g., Strijker et al., 2008). The actual number of total lifetime placements for children in this sample ranged from 1 to 26 with a mean of 3.11 placements and median of 3, with the length of first placement ranging from 1 to 1,448 days with a mean of 132 days and a median of 80 days (interquartile range 29–160). A majority of the sample (51.3 %) had at least one follow-up placement. This is consistent with previous literature reporting high rates of placement disruption. Bivariate correlations found that child externalizing problems, internalizing problems, school difficulties, relationship problems, and older child age were associated with shorter length of first placement and greater number of lifetime placements; affect dysregulation was related to number of lifetime placements but not duration of first placement in the correlation analyses. Further, the measures of child difficulties were all significantly correlated with one another.

There was support for the value of using the CANS to identify indicators of placement disruption. In linear regressions, multiple factors were significantly associated with placement disruption for children in state custody. Externalizing problems, school difficulties, and child age were significantly associated with both number of lifetime placements and length of first placement. In contrast, affect dysregulation was associated with number of lifetime placements but not duration of first placement, whereas internalizing problems were associated with duration of first placement but not number of lifetime placements. Child relationship problems were no longer significantly associated with either number of lifetime placements or first placement duration when examined in the multivariate models, suggesting the associations were better accounted for by other child characteristics.

Consistent with previous research identifying externalizing problems as a robust predictor of placement breakdown (Oosterman et al., 2007), child externalizing problems had the strongest association with the number of lifetime placements and a strong predictor of the duration of first placement. Specifically, externalizing problems were related to a greater number of lifetime placements and shorter duration of the first placement. This suggests that disruptive behavior problems may present a challenge to caregivers in managing children's behavior and that these problems can be identified using the CANS assessment tool. Providing training in the use of effective behavior management techniques for caregivers may be an important target for intervention to decrease placement disruptions for children in foster care.

Child age was the strongest predictor of first placement duration and also a strong predictor of the number of lifetime placements such that older child age was related to a shorter length of first placement but fewer lifetime placements. When the interaction of age and externalizing problems was entered into the regression models, externalizing problems was

no longer a significant predictor of first placement duration. These findings suggest that the effects of externalizing problems are best understood when examined in combination with age. Taking a closer look into the interaction between age and externalizing problems interaction, analyses suggest that older children have significantly *shorter first placements* when exhibiting high levels of externalizing problem behaviors compared to young children. It is possible that externalizing symptoms are less tolerated in older children, leading to quicker placement termination. In contrast, younger children with high externalizing problems experienced significantly *more lifetime placements* than older children. It is likely that this finding is indicating that young children have a greater opportunity for placement changes (i.e., more potential years to be in state custody before aging out).

School difficulties were predictive of shorter duration of first placement and greater number of lifetime placements. Recent research has shown that a positive school climate is protective for children living in difficult family situations and structures (O'Malley, Voight, Renshaw, & Eklund, 2014). Foster youth have been found to score lower on state achievement tests, have lower graduation rates, are more likely to repeat a grade, and are more likely to be enrolled in special education (Burley & Halpern, 2001). School difficulties may be associated with placement disruption in part because when a child is disruptive or getting in trouble at school, foster parents may be contacted by the school to intervene or the child may be suspended from school, all of which may lead to conflict and chaos in the family which contribute to a greater likelihood of a placement disruption. However, it is noteworthy that in the current analyses, school difficulties remained a significant predictor of placement disruptions even after controlling for child externalizing problems. Thus, children in foster care are among those in greatest need of supportive school environments and schools may be one intervention target to protect against placement disruption.

Affect dysregulation was a significant predictor of number of lifetime placements but not duration of the first placement. It has been hypothesized that multiple placement disruptions harm children's regulatory system, exhibited by deficits across neural, physiological, emotional, and behavioral domains (Fisher, Mannering, Van Scoyoc, & Graham, 2013). Findings from this study suggest that this may be a cyclic relationship as a child's inability to effectively cope leads to greater number of lifetime placements.

The finding that internalizing problems were related to longer length of first placement was unexpected and in contrast with previous studies yielding nonsignificant findings for internalizing problems predicting placement (e.g., James, 2004). It is possible that children's internalizing problems may be a proxy for more compliant behavior associated with higher levels of anxiety and this may offset levels of externalizing problems to some degree. Previous studies have found that internalizing symptoms lowered the net risk for externalizing problems and demonstrated little negative cascades to academic achievement, possibly serving as a protective factor against placement disruption (Masten et al., 2005). It is noteworthy, however, that the effect in the current sample was small in magnitude and warrants greater attention in future research.

In summary, the pattern of current findings suggests that data collected as part of standard practice by child welfare workers such as the CANS is both feasible and has utility for

identifying sources of risk for placement disruptions and to inform possible targets of intervention to enhance placement stability. Indeed, a number of interventions have been developed for children and adolescents that offer promise for foster care youth (Leve et al., 2013). The Middle School Success (MSS) intervention is one such promising intervention. In a randomized control trial, 100 girls in foster care in the Pacific Northwest and their caregivers were randomly assigned either to intervention or a regular foster care control. Girls in the intervention condition exhibited decreased internalizing and externalizing problems, and fewer placement changes at the 12-month follow up compared to girls in the control condition (Kim & Leve, 2011). Additionally, efficacious parent training programs are available to assist families at risk for disruption (Gavita, David, Bujoreanu, Tiba, & Ionutiu, 2012; Price et al., 2008). Identifying which children are most at risk of placement breakdown, will assist the field in effectively targeting and tailoring support to the children most in need.

The current study has a number of strengths. First state archival data were utilized, which presents a potentially cost-effective solution to the need to identify predictors of placement disruption in foster care youth. The current study also expanded on previous literature in important ways. The use of the CANS assessment utilized an already widely implemented measure to identify children at greatest risk of placement disruption. Thus, this study has the potential to be replicated using archival data from other child welfare systems that use the CANS assessment tool. Further, the study examined multiple indicators of child behavior problems (e.g., school difficulties, affect dysregulation), whereas previous literature has focused on children's background and externalizing problems (Oosterman et al., 2007).

One important limitation is that the analyses used in this study depend upon linearity. While the use of log-transformation resulted in normally distributed dependent variables, it is possible that the relationship between our variables are non-linear. Future studies should examine the potential non-linear predictors of placement disruption. In addition, analyses reported significant findings, though findings were relatively small in magnitude. Further, many of the significant effects were small in magnitude and explained relatively small portions of the variance in place duration and disruptions. Thus, effects should be interpreted cautiously and future studies should replicate these findings using different statistical models. Finally, as the goal of this study was to examine the utility of the CANS, some possible confounding variables were omitted. Next steps should address this limitation by including additional variables collected through child welfare systems.

Taken together, research suggests that disruptions in placement may compound and worsen already existing problems in children. The capacity to identify children at risk of disruption and implement effective interventions is critical. This current study demonstrates that the CANS assessment tool can be used to identify multiple indices of child problem behaviors in order to predict placement disruptions (e.g., externalizing problems, school difficulties, affect dysregulation). Using the identification of risk factors among foster children can assist in implementing effective interventions and target the mechanisms that lead to adaptive versus maladaptive outcomes and the underlying resilience-based processes.

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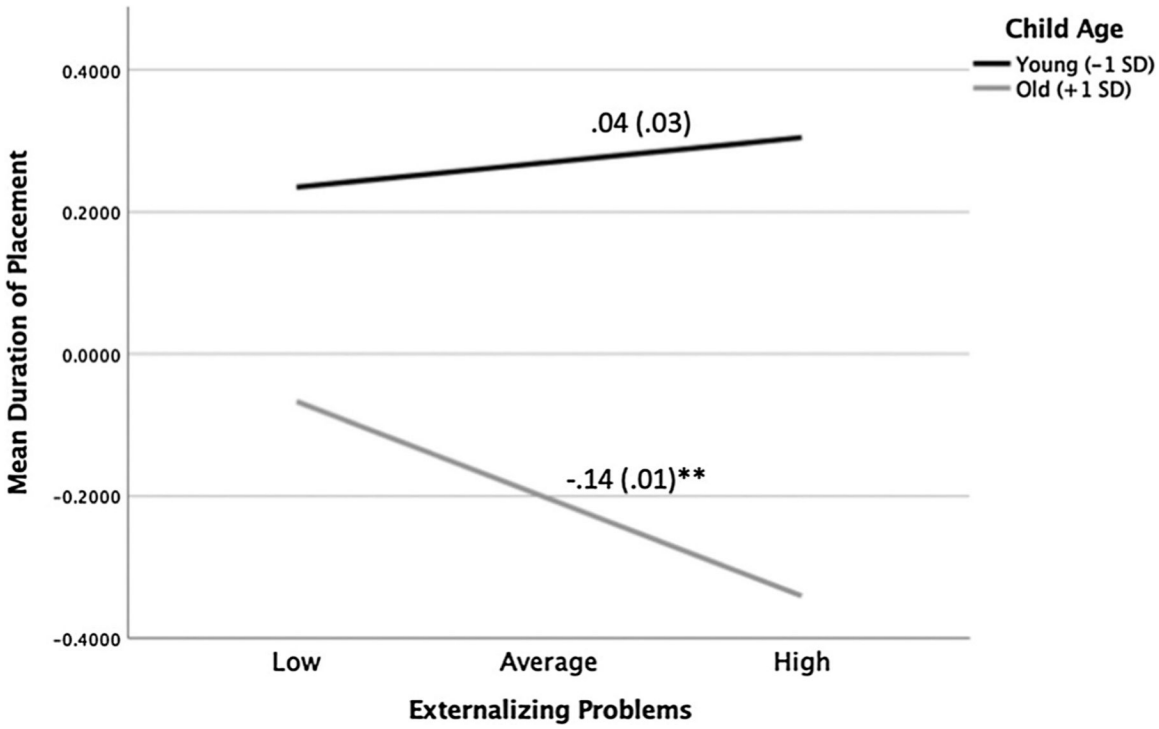


**Fig. 1.**

Moderation model's interaction of child externalizing symptoms and age in predicting duration of first placement. Simple slopes at values 1 *SD* above the mean (high), and 1 *SD* below the mean (low). Values depicted are standardized regression coefficients (i.e., β; standard errors are in parentheses) (**p* < .05, ***p* < .001).

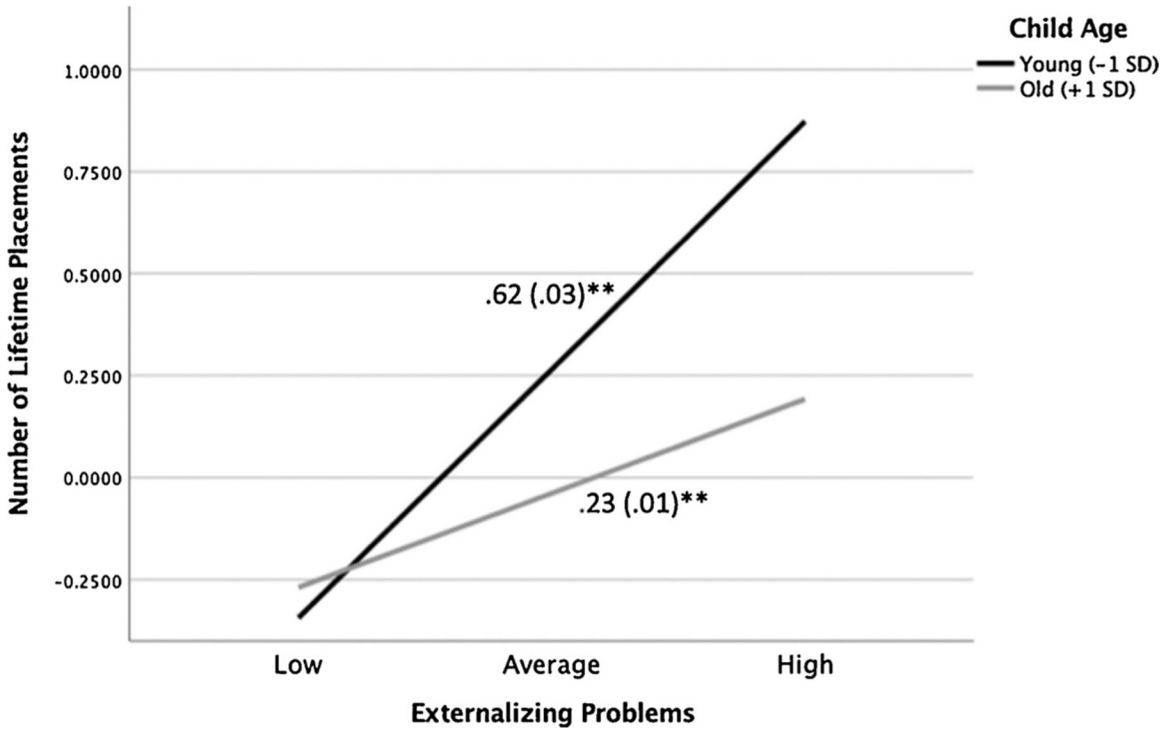


**Fig. 2.**

Moderation model's interaction of child externalizing symptoms and age in predicting number of lifetime placements. Simple slopes at values 1 *SD* above the mean (high), and 1 *SD* below the mean (low). Values depicted are standardized regression coefficients (i.e., β; standard errors are in parentheses) (** $p < .001$).

**Table 1**

Means, Standard Deviations, and Ranges of Placement Indicators.

| | ***M* (*SD*)** | **Range** |
|---|---|---|
| Duration of first placement | 131.72 (167.4) | 1–1448 |
| Lifetime number of placements | 3.11 (2.3) | 1–26 |
| Internalizing Problems | 3.19 (3.0) | 0–19 |
| Externalizing Problems | 4.73 (4.6) | 0–21 |
| School Difficulties | 2.51 (2.6) | 0–9 |
| Child Relationship Problems | 2.37 (1.8) | 0–6 |
| Affect Dysregulation | 1.43 (1.6) | 0–6 |

**Table 2**

Bivariate Correlations Among Measures of Placement Disruption and Child Composites.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1. Duration of first placement | – | | | | | | | |
| 2. Number of lifetime placements | −.18* | – | | | | | | |
| 3. Internalizing Problems | −.09* | .14* | – | | | | | |
| 4. Externalizing Problems | −.20* | .30* | .47* | – | | | | |
| 5. School Difficulties | −.15* | .20* | .29* | .58* | – | | | |
| 6. Child Relationship Problems | −.11* | .16* | .31* | .49* | .40* | – | | |
| 7. Affect Dysregulation | −.14 | .24* | .53* | .70* | .46* | .45* | – | |
| 8. Child Age | −.24* | .15* | .35* | .60* | .42* | .26* | .42* | – |

*Correlation is significant at the .001 level (2-tailed).

## Table 3

Summary of Linear Multiple Regression Analyses for Variables Predicting Placement Disruption.

| | Number of Lifetime Placements | | | | Duration of First Placement | | | |
|---|---|---|---|---|---|---|---|---|
| | ***b*** | **SE *b*** | ***β*** | ***R*²** | **B** | **SE *b*** | ***β*** | ***R*²** |
| *Step 1* | | | | .11 | | | | .06 |
| Internalizing Problems | .00 | .00 | −.01 | | .01 | .00 | .05** | |
| Externalizing Problems | .02 | .00 | .30** | | −.02 | .00 | −.13** | |
| School Difficulties | .00 | .00 | .03* | | −.01 | .00 | −.04** | |
| Child Relationship Problems | .00 | .00 | .02 | | −.01 | .00 | −.02 | |
| Affect Dysregulation | .01 | .00 | .03* | | .00 | .01 | .01 | |
| Child Age | .00 | .00 | −.05** | | .02 | .00 | −.14** | |
| Step 2 | | | | .11 | | | | .06 |
| Internalizing Problems | .00 | .00 | −.01 | | .01 | .00 | .04** | |
| Externalizing Problems | .02 | .00 | .38** | | −.01 | .00 | −.07** | |
| School Difficulties | .00 | .00 | .04** | | .01 | .00 | −.04** | |
| Child Relationship Problems | .00 | .00 | .02 | | −.01 | .00 | −.02 | |
| Affect Dysregulation | .00 | .00 | .01 | | .00 | .01 | .00 | |
| Child Age | −.01 | .00 | −.14** | | −.03 | .00 | −.21** | |
| Externalizing × Age | .00 | .00 | −.11** | | .00 | .00 | −.08** | |

*Note*: Internalizing problems, number of lifetime placements and duration of first placement were log transferred due to the assumption of normal distribution. $\beta$ = standardized beta, *SE b* standard error of *b*.

* $p < .05$.

** $p < .001$.