



Published in final edited form as:

*Child Youth Serv Rev.* 2020 November ; 118: . doi:10.1016/j.chilyouth.2020.105362.

## Concrete services usage on child placement stability: Propensity score matched effects

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### Abstract

**Background:** Experiencing poverty and financial difficulties are significant barriers to outcomes of permanency and placement stability. This is particularly true for children who are in out of home placements. The provision of concrete services is intended to meet concrete needs of families to address this barrier. However, little is known about how concrete services meet the needs of families in need of these services or if the use of concrete services is a viable treatment for children who are in out of home placements.

**Methods:** The present study examined differences between those who received and those who did not receive concrete services on factors of stability, child and caregiver traumatic stress, number of placements, and current out of home placement. Regression analysis examined the association between amount of concrete service spending and permanency. Then to test concrete services as an intervention for children in a current out of home placement, we used propensity score matching to match participants on characteristics that predicted whether they would receive concrete services. We then ran a hierarchical regression to test the treatment condition of concrete services with children who are in a current out of home placement.

**Results:** Participants who received concrete services were at a much higher level of need with significantly higher levels of traumatic stress and number of placements and lower levels of placement stability. The amount of money spent on concrete services was associated with increases in placement stability. And, children in a current out of home placement had an increase in placement stability when they received concrete services.

**Conclusions:** The present study is the first to evidence concrete service as a treatment for placement stability for children in current out of home placements. Spending on concrete services

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CRediT authorship contribution statement

**Drew E. Winters:** Conceptualization, Formal analysis, Methodology, Writing. **Barbara J. Pierce:** Conceptualization, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Writing, Writing - review and editing. **Teresa M. Imburgia:** Conceptualization, Data curation, Investigation, Project administration, Writing - review and editing.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The authors disclose this project has been funded through the Indiana Department of Children Services Title IV-E Waiver [A93-3-13-4F-C0-0981].

in addition to child welfare services improves a child's current placement stability. This is an important finding with implications for improving child welfare services' approach to those in their care with financial burdens.

## Keywords

Concrete services; Child welfare; Stability; Permanency; Propensity score matching

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## 1. Introduction

Permanency, along with safety and wellbeing, are the major outcomes for children in the child welfare system and were established in the Adoption and Safe Families Act of 1997 (ASFA) (DHHS, 1997). Permanency is defined as a safe and legally permanent home for all children who have been removed from their homes as part of a child welfare intervention to ensure the safety of the child (DHHS, 1997). A core component of permanency that is required prior to achieving permanency is stability. Placement stability is defined as a placement that has not had any disruptions and there is no foreseeable need to move from that placement for six months or more (DHHS, 1997). Despite years of working to improve these outcomes, states have had difficulty meeting the federal outcome thresholds.

The intention of focusing on placement stability is to put in place parameters for care such that children can attain a safe and loving family in as short a period of time as possible; thus, reducing the number of children who remain in the system for extended years. According to Petersen, Joseph, and Feit (2014), children with extended time in the child welfare system and greater housing instability are more likely to experience adverse outcomes such as trauma and poor educational attainment. On the other hand, children who are able to maintain stable placements are less likely to have adverse outcomes (Noonan, Rubin, Mekonnen, Zlotnik, & O'Reilly, 2009).

Without assistance, poverty is a consistent barrier to placement stability in child welfare cases and children in out of home placements have additional barriers. Akin, Bryson, McDonald, and Walker (2012) concluded poverty was the most significant barrier to placement stability in 90% of cases where permanency was not achieved. Barth, Wildfire, and Green (2006) revealed roughly a quarter of caregivers in child welfare cases have trouble paying for basic needs whereas 50% of caregivers of children in out-of-home placements have trouble paying for basic needs. This finding indicates children in out-of-home placements, in comparison to children with in-home placements, have greater rate of poverty related financial barriers. Poverty is not the only reason for poor outcomes, but it is a clear contributor especially in neglect cases (Barth et al., 2006). In agreement with the assertion made by Duva and Metzger (2010), child welfare services need to extend beyond addressing therapy, family issues, and skills development because of the clear need to address the financial needs of families – particularly children who are in out of home placements.

## 2. Concrete services

Paying for concrete services such as rent or utility bills is one way to potentially mitigate the circumstances leading to child welfare involvement in the system or to reunify more quickly those families from whom a child has been removed. There is little literature on the use of paying for such services as a remedy, but what is available suggest concrete services is a promising intervention worthy of further investigation. Rostad, Rogers, and Chaffin (2017) studied 1754 birth families and found that increasing concrete service support predicted service engagement, satisfaction, goal attainment, and lower recidivism. While Littell and Schuerman (2002) found that any services offered to birth families, including concrete services, reduced child maltreatment. Ryan, Garnier, Zyphur, and Zhai (2006) demonstrated that concrete monetary assistance to birth, foster, or adoptive parents decreased subsequent maltreatment of children from 3 states. Pierce, Jagers, and Hall (2017) revealed increased usage of concrete services during a Title IV-E Wavier Demonstration. They analyzed justifications for concrete service use across placement types by case managers to improve safety, permanency, and wellbeing for the children in their caseloads. Mixed results in the literature lead to questions regarding whether paying for concrete services influences child welfare outcomes related to placement.

Given that the few studies available suggest promising outcomes and the clear need to understand how to address barriers pertinent to children in current out of home placements, the present study examines concrete service use on the outcome of placement stability. First, we examine how the amount of concrete service spending influences the outcome of placement stability. Then we examine concrete services as a treatment for children in an out of home placement on the outcome of placement stability with those in an in-home placement as a comparison group. Children in an in-home placement typically fare better on placement stability and were thus used as a control group to examine how concrete service as an intervention associated with placement stability in children who are placed out of home.

## 3. Methods

### 3.1. Sample

This study derived from a Title IV-E Waiver Demonstration Project and the full project was approved by the University Institutional Review Board for Human Subjects protection. Data were collected between 2007 and 2017 from five iterations of quality service reviews (QSR) administered by a state child welfare agency in the Midwest. The peer-review process of randomly chosen samples of child welfare cases was aimed at improving services to children in each region of the state. Sampling was randomized by the child welfare agency within each region with the number of cases and assessments pulled based on population size of the region. Cases pulled within a region matched the demographic breakdown of each region by age of the child, type of placement, case type, and length of time in care. Additionally, only one case per caseworker was allowed due to the time involved preparing the case for review. A total of 2494 cases were used in the present analysis with concrete service data and measured outcomes of interest. Reviewed cases consisted of children who were predominantly white (74% and 26% non-white [17% Black, 8% Hispanic, 1% Asian]) and

had a mean age of 7.78 (SD = 4.86, range = 1–19) with the sample balanced between males and females (49% and 51% respectively). Caseworkers indicated whether each case received or did not receive concrete services in the child welfare agency administrative data (432 received, 2062 did not receive concrete services).

## 3.2. Measures

### 3.2.1. Dependent and independent variables

**3.2.1.1. Stability.:** The child welfare service outcome of placement stability focuses on consistent and uninterrupted placement for children. Stability refers to continuity and normal life-stage changes, and instability refers to disruptive changes of established relationships and familiar comforts, rhythms, and routines. Ratings for stability used a 12-month reference and 6-month forecast. Stability of the child's current placement were rated by caseworkers working with each case from 1 (immediate action needed) – 6 (optimal) scale. A lower score indicates a lower level of stability and a higher score indicates a higher level of stability. A priori intervention thresholds indicated a score between 1 and 3 required immediate action by the child welfare agency and a score between 4 and 6 as stable enough for maintaining the current placement.

**3.2.1.2. Concrete service spending.:** The independent variable of amount spent on concrete services was assessed via administrative billing data. Caseworkers reported to the administrative data system on the types of concrete services funds that were given, which included: general services, general products, material assistance, and personal allowance with total spending being a sum of all concrete service categories. General services comprise money spent on housing items, material assistance comprises spending on rent and utilities, general products comprises spending on beds and clothing, and personal allowance provides for activities such as school field trips. For each spend, the caseworker noted the appropriate category and the dollar amount. There were little restrictions on concrete service spending, bedding had a \$400 cap per child, but none of the other good/services were capped if an FCM had justification for the request. These funds were distributed in respect to the client's current placement; meaning if the child was in a current out of home placement the concrete service support went toward that placement. At the time of this collection, there were no manualized approach to distributing concrete services and the funds were distributed at the caseworker's discretion.

### 3.2.2. Control variables

**3.2.2.1. Child and caregiver stress.:** Both child and caregiver stress were rated by checking off items on a list of potentially traumatic or stressful events in either the child or caregivers' life. Caseworkers checked off items and the total number of events were added and used in the analysis indicating the potential level of trauma and stress. Child items consisted of events such as "history of sexual abuse"; and caregiver items consisted of events such as "abused/neglected as a child" (Table 1). A higher score indicates more exposure to traumatic stress. This measure was created for the policy evaluation specifically with items that are specific to caregivers and children in the child welfare system (see Table 1 for items)

**3.2.2.2. Number of placements.:** The number of placements is included as a control because it negatively affects both permanency and placement stability. Placements ranged from 0 to 20 with very few above five and thus could bias the analysis. To address this, placements were recoded into four categories 0 were recoded to 0, 1–2 were recoded to 1, 3–4 were recoded to 2, and 5 or more placements were recoded to 4. Higher number indicates a greater number of placements.

**3.2.2.3. Current out of home placement.:** The current placement was assessed by the reviewer as the current placement for the child at the time of data collection. This variable was a dichotomous variable with out of home coded as 1 and in home placement coded as 0.

**3.2.2.4. Future placement plan.:** The future placement plan was assessed by the reviewer as the current placement plan at the time data was collected for each case. Placement plans consisted of a parental plan (planned to be placed with parents), a relative plan (plans to be placed with a relative or kinship care), or an out of home placement (adoption or other out of home placement). The out of home placement plan was used as a reference category for the present analysis.

**3.2.2.5. Data collection round number.:** These data were collected over 10 years at five different rounds of collection (ranging from 1 to 5) with different children and caregivers at each collection. Each round of data collection occurred just under every two years. Effects of different time periods on participant outcomes were accounted for by including the round number as a control variable. A lower number indicates the earliest data collection and a higher number means the most recent data collection period. The data collected at each round include each variable indicated above and because of the span of time between each round they were for different children and families at each round.

### 3.3. Data analytic strategy

**3.3.1. Preliminary analyses—**Preliminary analyses consisted of examining differences between included participants who received concrete services versus those excluded, which relationships to test, and whether the data met assumptions prior to conducting analyses. T-tests for continuous or chi-square tests for categorical variables were run with control variables and outcome variables between cases who received concrete services and those who did not. Additionally, t-tests were conducted to examine if there were demographic differences between those included and excluded. To control for multiple comparisons, we used the false discovery rate (FDR) correction because it is not so conservative that it increases type II error but reduces type I error when using multiple predictors with a large dataset (Benjamini & Yekutieli, 2001). Correlations were conducted with all concrete service spending categories with outcome variables of stability and permanency. Because of the exploratory nature of these correlations that do not account for the control variables identified above that will be controlled for in regressions, significance for correlations were defined as  $p < .05$  to prevent missing important relationships for further testing with stricter controls for these comparisons (Feise, 2002; Rothman, 1990). Assumptions for all analyses

including distribution normality, linearity, multivariate normality, multicollinearity, autocorrelation, and homoscedasticity were checked for any violations.

**3.3.2. Multiple regression**—A multiple regression using ordinary least squares was fitted to examine the associations between concrete service spending and placement stability using base R statistical language (R Core Team, 2020). Using this approach allowed us to examine the association of concrete service spending on stability after filtering out effects for confounding factors. Model fit was determined using  $R^2$  to assess the linearity of model predictions and standardized residuals and sum of squared errors to examine how precise the models predictions are (de Souza & Junqueira, 2005). Post analysis test for residual outliers was conducted by calculating a Cook's D to examine and remove influential outliers using a threshold cutoff of  $D(i) > 4/n$  which were removed from reported results and corresponding figures (Cook & Weisberg, 1982) (Fig. 1).

**3.3.3. Propensity score matching**—s has been demonstrated with other observational studies (Black, 1996; Rosenbaum & Rubin, 1983), propensity score matching was used to improve statistical inferences of treatment effects by matching participants on characteristics that predicted the treatment of whether they received concrete services or not. In this way we can mimic a pretreatment condition for participants who received concrete services and compare the outcome of treatment effects. First, the variables identified to be significantly different (except stability) in the t-tests were included in a logit model (e.g. caregiver and child stress, number of placements, round number, out of home placement) to assess predictive probability of the model for propensity score matching. This model was tested for fit prior to calculating propensity scores by examining the chi-square and overall model significance. A propensity score was calculated for each participant using the above logit model using the cars package predict function (Fox & Weisberg, 2018). Then participants were matched using a nearest neighbor matching approach without replacement using the MatchIt package (Ho, Imai, King, & Stuart, 2011). This method uses the calculated propensity score to identify and match participant characteristics between treatment and non-treatment conditions (Rassen et al., 2012), which allows us to simulate a randomized control trial to improve inferences on treatment effects. T-tests were conducted on the propensity score matched data to examine if statistically significant differences between treatment groups still existed on matched variables.

**3.3.4. Hierarchical multiple regression**—Hierarchical multiple regression was used to examine the associations between concrete service spending and the outcome of stability. Using this approach allowed us to examine the interaction between concrete service spending and being in an out of home placement on stability after filtering out effects for confounding factors. The first model predicted stability with control variables, the second added current out of home placement and whether they received concrete services, and the third included an interaction between the two predictors of interest concrete services and current out of home placement. This interaction was used to examine how the intervention of concrete services associated with placement stability outcomes of children placed in out-of-home placements in comparison to children of in-home placements. An F test was used to



examine whether the inclusion of predictors of interest and interaction of interest was statistically significant ( $p < .05$ ) over the previous model.

## 4. Results

### 4.1. Preliminary analyses

**4.1.1. T-tests and chi-square**—Participants who received concrete services showed statistically lower levels on measures of stability than those who did not receive services, and they were much higher on child and caregiver stress, current out of home placement, and number of placements (Table 2). Consistent with previous research, these differences indicate a much higher level of need for children who received concrete services, which may prompt the need for concrete services. The two groups were not different demographically for child age, gender, or race (Table 2).

**4.1.2. Correlations**—Total concrete service spending positively associated with the outcome of stability ( $r = 0.11$ ,  $p = .023$ ) and no individual spending categories had a significant association. Scatterplots were examined for curvilinear relationships, but none were detected. Given the evidence for linearity, this relationship was determined to be appropriate for further testing in regression analyses.

**4.1.3. Assumption testing**—Mahalanobis distance was calculated following accepted guidelines and no multivariate outliers were detected (Aguinis, Gottfredson, & Joo, 2013). Autocorrelation by calculating tolerance (0.785–0.987) and multicollinearity calculating the Durbin Watson statistic (2.03,  $p = .764$ ) did not suggest any violation of regression assumptions. Heteroscedasticity was assessed by visually inspecting a residual by a fitted values plot which was deemed appropriate for analysis. Finally, Cook's D was calculated to examine and remove influential outliers using a threshold cutoff of  $D(i) > 4/n$  and a total of 17 outliers were removed from corresponding figures (Cook & Weisberg, 1982).

### 4.2. Regression

Because we were interested in seeing if higher spending on concrete services was associated with improvements in stability and because children who did not receive concrete services were significantly higher in the outcome of placement stability (Table 2), this regression only used the sample that received concrete services ( $n = 432$ ) so that we could examine. For child's placement stability (Table 3), the overall model was significant ( $f(7,424) 12.36$ ,  $p < .001$ ) with a moderate practical significance that accounted for 16.9% of the variance in stability ( $R^2 = 0.169$ ). Residual error for this model were low (0.9505) evidencing the model fit for the data well. When holding all control variables constant, total concrete service spending had a positive association with increases in placement stability ( $b = 0.00036$ ,  $p = .0025$ ). After filtering away effects of control variables selected in children who requires concrete services, this suggests that for every dollar spent in overall concrete services we expect an increase in stability of 0.0004. Meaning if a participant received \$1000 in concrete services (over the course of their case by the time data was collected) then we would expect an increase of about a half a point in stability, which may raise a child and family's stability beyond the threshold necessary for immediate intervention.

### 4.3. Propensity score matching

First, we ran a logit model to assess which variables improved the predicted probability of those who received and did not receive concrete services to determine which variables to use for propensity score matching. The logit model indicated caregiver stress, number of placements, round number, and out of home placement significantly increased the odds ratio of receiving concrete services. Child stress was not significant and did not improve the odds ratio for predicting concrete service use. The model fit between the model with and without child stress were compared using the chi-square statistic to determine the best model for matching. The fit of the model without child stress was significantly better than a null model and was better than the model with child stress indicated by a lower chi-square so it was used for propensity score matching (with child stress  $X^2(5) = 483.08$ ,  $p < .001$ ; without child stress  $X^2(4) = 482.95$ ,  $p < .001$ ).

Before matching there were  $n = 432$  participants who received concrete services and  $n = 1713$  who did not receive concrete services. Propensity score matched total of 864 participants (1277 were unmatched and 353 were discarded due to missingness) with  $n = 432$  that received concrete services and  $n = 432$  who did not receive concrete services. A summary of the balanced data for treatment and controls can be found on Table 4. All outcome and matching variables no longer had statistical difference between treatment groups except round number ( $t(862) = -4.106$ ,  $p < .001$ ) and out of home ( $t(862) = -2.98$ ,  $p = .002$ ). This matched dataset was used to test interactions effects of concrete service treatment with children in a current out of home placement.

### 4.4. Hierarchical regression with propensity score matched data

The hierarchical regression demonstrated that all three models were significant overall and when comparing models with each other the model that included the interaction term was significant over the control model and the model without the interaction term (Table 5). In the model with the interaction term, concrete services and out of home placement were not significant by themselves; however, the interaction term was significant after controlling for multiple comparisons indicating that those who are in current out of home placements that received concrete services would expect a half point increase over children not in out of home placements who did not receive concrete services ( $p = 0.432$ , FDR corrected  $p = .0355$ ).

## 5. Discussion

The present study examined the association between concrete service spending and placement stability as well as comparing payment for concrete services as a treatment condition between those who are currently placed in home or out of home. Propensity score matching allowed us to mimic a control and treatment group with concrete services being the intervention. The comparison of children placed in and out of home was necessary to examine how children placed out of home fared for the outcome of placement stability with concrete services as an intervention in relation to a control sample who traditionally do better without concrete services.



This study also found the participants who require concrete service support have less placement stability and more barriers including higher levels of traumatic stress for caregivers and children as well as higher number of placements possibly demonstrating the effect of the barrier of poverty on placement permanency; thus, lending support to findings by Akin et al. (2012). Overall, concrete service spending was associated with improvements in placement stability.

After filtering away variance of controls, regression analyses suggest that increases in concrete service spending were associated with increased placement stability. Individual categories of concrete service spending (general products, general services, material assistance, or personal allowance) were not associated with placement stability, which suggests the need for multiple spending types to address complex concrete needs in order for stability to be maintained. As expected, traumatic stress for caregivers and children as well as the number of placements and placement plans all had negative associations as controls in both models. Because concrete services can plausibly remove barriers for placement stability, the results of this study could be interpreted that concrete service spending influenced outcomes of permanency and stability.

Propensity score matching simulated a randomized control trial that allowed us to examine concrete service use as an intervention in children who are in an out of home placement. Analyses with these matched data suggested that those who received concrete services and were in a current out of home placement had a significant increase in placement stability. This is the first evidence of concrete services as a treatment for placement stability, a necessary condition for permanency, for children who are currently in an out of home placement. The addition of concrete services to the array of services for children who are in a higher level of need and currently in an out of home placement is important for improving placement stability.

### 5.1. Limitations

The present study must be interpreted with some limitations. First, the QSR data were collected from only internal reviewers who were, to be clear, experienced and trained case managers from other areas of the state, with measures based on subjective perception. Even though the case managers are experienced and trained to do the reviews, this may overemphasize the subjective perceptions of caseworkers rather than the experiences of the participants. On one hand this may reduce social desirability bias but also not reflect the current state by the one experiencing it.

Second, because of the cross-sectional nature of this data, we cannot determine causal directionality of the relationships tested. However, strong theoretical support suggests concrete service spending would precede the outcomes and the present evidence suggests a relationship between concrete service spending and outcomes of stability worthy of longitudinal investigation to determine causal relationships. Additionally, the method of analysis captures the best fit of the data on average, meaning, there are likely a few cases that do not have the same outcome as the average in the conclusions of this study. The present results did not suggest there were a significant amount of those contrary to the results to modify our analysis approach or impact the conclusions of the analysis; However,

this may be important to examine the cases that do not support the conclusions of the present study.

Because of the preliminary nature of this work, there was no manualized way to distribute funding and concrete services were provided at the caseworker's discretion. As we learn more about how concrete services assist children and families in child welfare, some form of guidelines around distribution of funds may maximize their effectiveness as an intervention. Finally, we were unable to determine if the funds went directly to caregiver or the child. Case workers who reported the use of concrete services only specified the category it fell into not who directly received it. The current study conceptualized concrete service use as in support of child outcomes of stability regardless of who received it. However, future studies should examine if funds spent on child versus caregiver have implications on outcomes.

## 5.2. Implications

Despite the study limitations, the present analysis suggests practice implications for children receiving child welfare services. First, families who require additional concrete support have a higher level of need than families who do not require that additional support due to lack of financial support to meet their own basic needs. It is important to consider an inability to meet basic financial needs and other basic needs as indicators of higher level of care necessary for families, and that service needs may include payment for concrete service needs, to improve child welfare outcomes.

Second, the overall findings suggest that spending in concrete services was associated with improvements in placement stability – a necessary condition for placement permanency. Although longitudinal studies are necessary to make causal inferences, it is plausible that spending on basic needs of families can provide them the means necessary to address issues associated with the reason they were referred into services; thus, improving outcomes of stability and permanency. The amount spent on concrete services in addition to other child welfare services bolsters placement stability for those at a higher level of need.

Third, when comparing those who are in an in home placement as a control group against those who are currently in an out of home placement, receiving concrete services improves outcome for children who are in an out of home placement versus those who do not receive concrete services. This evidences concrete service as an intervention for children in out of home placements. Adding concrete service spending to other treatment approaches or the service array used in child welfare services improves placement stability in children who are in a current out of home placement, which is a necessary condition for permanency.

This study does not suggest that concrete services should be provided as an alternative to other child welfare services. Rather, recognizing the impact of poverty and other basic needs as barriers, this study supports that there is a positive relationship between concrete services and placement stability (the necessary condition for permanency), which may be an additional support for treatment as usual within the child welfare system. The present study provides needed information about the utility of concrete service spending for families in the child welfare system and further studies are warranted to test the longitudinal effects on the type of spending on placement stability and permanency.

### 5.3. Conclusion

The present study provides the first evidence that concrete services may be an important intervention to improve placement stability for children who are in out of home placements. Moreover, children who receive concrete services are, on average, at much higher need for services than those who do not and the amount of spending associates with improvements in stability over all children who receive concrete services. These are important components of providing services to children and families who are involved in child welfare services. This study evidences the importance of concrete service as an intervention for children in out of home placements.

### Acknowledgments

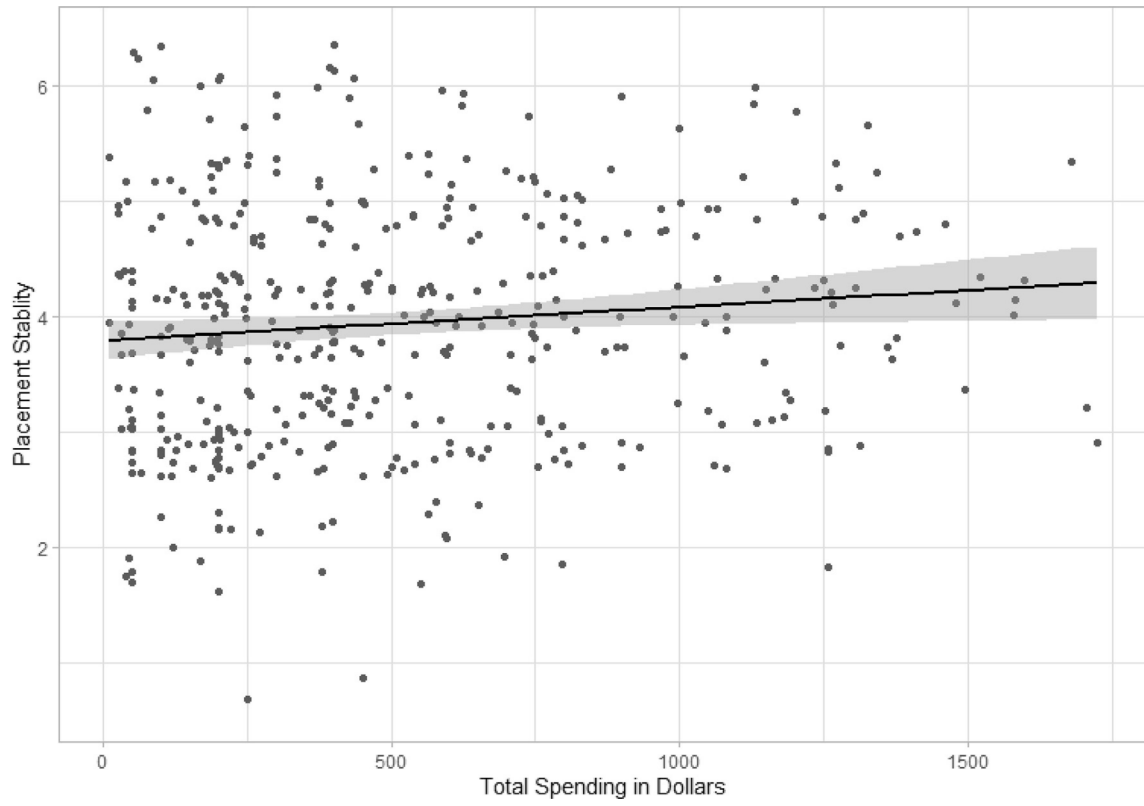
#### Funding

This work was funding by the Indiana Department of Children Services Title IV-E Waiver [A93-3-13-4F-C0-0981].

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**Fig. 1.** Scatterplot of predicted values of stability as a function of Total Concrete Service Spending after filtering away control variables.

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**Table 1**

Items on measures.

Child stress	Caregiver stress	Stability	
ADHD	Abused/neglected as a child	Needs action	= 1–3
Battered child	Alcoholism	Refine/maintain	= 4–6
Behavior problems	Authoritarian discipline method		
Born drug positive	Drug use/addiction		
Chronic illness	Emotionally disturbed		
Domestic violence	Family/marital discord		
Drug use/addiction	Heavy childcare responsibility		
Emotional disturbance	Inadequate housing		
Failure to thrive	Incarceration		
Fetal alcohol syndrome	Insufficient income		
Sexual abuse	Intellectual disability		
Intellectual disability	Job related problems		
Juvenile justice system	Leal problems		
Learning disability	Mental health problems		
Meth amphetamine related	Other medical condition		
Multiple birth	Physical disability		
Other medical condition	Physical health problems		
Physical disability	New Pregnancy		
Pregnancy	Recent relocation		
Premature birth	Social isolation		
School problems	Spouse abuse/family violence		
Visual/hearing impaired	Unstable living conditions		
	Visual/hearing impaired		

*For child and caregiver stress:* each item represents items that caseworkers could check of indicating higher traumatically stressful events in the child and caregiver's life. The more items checked indicate higher levels of traumatic stress. *For stability and permanency:* Items were rated by the caseworker on a 1–6 scale with lower numbers (1–3) indicating a need for action and higher numbers indicate maintenance or refinement.



**Table 2**

Results of t-test or chi-square tests of group differences.

Variable	No CCS (n = 1,713)		CCS (n = 432)		d	T or $\chi^2$
	M or n	SD or %	M or n	SD or %		
Stability	4.01	1.13	3.89	1.05	0.025, 0.228	3.01 2.45*
Child stress	1.03	1.31	1.28	1.39	-0.299, -0.053	0.612 -2.82*
Caregiver stress	5.16	3.39	5.87	3.37	-1.02, -0.401	1.49 -4.49*
Number of placements	1.13	1.3	1.67	1.44	-0.665, -0.418	0.726 -8.61*
Child age	7.69	5.22	7.93	4.99	-0.734, 0.248	2.04 -0.970
Out of home						
In home	n = 548	25.5%	n = 92	4.2%		9.63*
Out of home	n = 941	43.8%	n = 565	26.3%		
Race						
Non-white	n = 363	16.2%	n = 177	7.9%		1.44
White	n = 1221	54.5%	n = 478	21.3%		
Gender						
Female	n = 767	35.7%	n = 333	15.5%		0.094
Male	n = 722	33.6%	n = 324	15.1%		

CCS = concrete services.

\* FDR corrected p value < 0.05.

**Table 3**

Regression of stability on total concrete service spending (17 outliers removed).

Variable	b	se b	95% CI	t
Total Spending	0.0004	0.0001	0.00015, 0.00062	3.274*
Child Stress	-0.0741	0.0351	-0.1432, -0.0051	-2.110*
Caregiver Stress	-0.0456	0.0139	-0.0731, -0.0181	-3.264*
Placements	-0.3658	0.0787	-0.5207, -0.2109	-4.643*
Out of home placement	0.1677	0.1711	0.1686, 0.5042	0.980
Relative plan	-0.1824	0.2645	-0.7025, 0.3376	-0.690
Parent plan	-0.8025	0.1179	-1.034, -0.576	-6.801*
Round Number	-0.0483	0.0614	-0.1692, 0.0724	-0.787

Note: R2 = 0.171, adj. R2 = 0.156, F = 10.84\*, df = 8, 424; n = 432.

\* FDR corrected p value &lt; 0.05.

**Table 4**

Characteristics of propensity score matched data (n = 864).

	<b>Treated n = 432</b>	<b>Untreated n = 432</b>	<b>Mean difference</b>	<b>% balance improvement</b>
Distance	0.425	0.393	0.032	88.46%
Caregiver stress	5.833	5.717	0.115	77.35%
Placements	1.648	1.236	0.412	13.44%
Round number	4.074	4.138	-0.648	96.92%
Out of home	0.898	0.821	0.076	71.73%

Note: Reprinted with permission from federal report Indiana Department of Child Services (2020).

**Table 5**

Hierarchical regression results (n = 864).

	Model 1 $\beta$	Model 2 $\beta$	Model 3 $\beta$
Child stress	-0.135 *	-0.134 *	-0.136 *
Caregiver stress	-0.047 *	-0.046 *	-0.046 *
Placements	-0.368 *	-0.346 *	-0.350 *
Relative plan	-0.338	-0.329	-0.321
Parent plan	-0.958 *	-0.963 *	-0.952 *
Round number	-0.025	-0.019	-0.033
Concrete services		0.035	-0.340
Currently placed out of home		-0.116	-0.276
Interaction: Concrete services & out of home			0.432 *
F		0.667	4.33 *
F	29.61 *	22.35 *	20.44 *
Residual error	1.00	1.00	1.00
Adj R <sup>2</sup>	0.165	0.165	0.168

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\* FDR corrected p &lt; .05.

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