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Study Title: Respite to Enable Permanent Placement for Children with Reactive Attachment (manuscript titled “Effect of Repeat Foster Placement Disruptions on Duration of Future Placements and Implications for Children with Reactive Attachment Disorder”)

Term of IRB Approval: November 29, 2011 – November 1, 2013

Study Completed: Never started (notified by PI in May 2014)

Summary or Abstract:

Analyzing client data obtained from the Virginia Department of Social Services, the investigator examined the start and stop dates of each foster care placement for approximately 27,000 children who were in foster care in Virginia. The objective was to determine the effect that a history of multiple foster care placements, especially disrupted placements, has on future foster care placements and placement duration in foster homes (including non-finalized adoptions). (Note: Placements in emergency shelters, group homes, residential and psychiatric facilities, and crisis placements were excluded from the analysis.) The hypothesis is that children who have disrupted multiple foster placements may disrupt future placements at even earlier intervals than they have in the past. Performing multiple regression analyses, the investigator examined the child’s sex, age, and time in care as predictors of number of future placements and placement duration. The investigator also examined number of previous disruptions, testing the hypothesis that children with two or more prior disruptions (a possible indicator of reactive attachment disorder, or attachment anxiety) have more future disrupted placements and shorter mean duration of placements. Findings indicate that the mean duration of future foster care placements significantly declined with each additional prior placement. Age and sex of the child were not significant predictors. Although reactive attachment disorder was not directly measured in this study, the study has implications for how reactive attachment disorder affects subsequent foster care placements. Placements in multiple foster homes may be a mechanism of reinforcing attachment trauma in and of itself for children in the foster care system. Without stable and long-term foster home placement, adaptive attachment is unlikely, which can have lasting effects on a child’s future relationships and social behavior. It would be important to investigate ways to prevent disruptions in this group of children.

See unpublished manuscript “Effect of Repeat Foster Placement Disruptions on Duration of Future Placements and Implications for Children with Reactive Attachment Disorder” (Bahraini, Kilgus, and Shen) on next page

**Effect of Repeat Foster Placement Disruptions on Duration of Future Placements
and Implications for Children with Reactive Attachment Disorder**

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Introduction

When a child in the foster care system disrupts a foster placement, the Department of Social Services makes every effort to find the child a new home that may be a better fit. Despite this, many clinicians suspect that children with multiple prior placement disruptions appear to disrupt at earlier intervals with each subsequent placement. The objectives of this study are to explore the hypothesis that children disrupt foster placements at increasingly earlier intervals with each additional placement disruption they have had in the past and explore possible reasons for this trend.

Predictors for placement disruption have been studied extensively. Older age, prior trauma, number of prior placement disruptions, emotional and behavioral problems, female sex and poor quality of relationships with foster and biological families are all known predictors for placement disruption (Smith et al. 2001, Zinn et al. 2006). It is likely that the most prevalent stressor among foster children, however, is chronic placement disruption. This factor has been shown to exacerbate internalizing and externalizing behavioral patterns in children (Newton et al. 2000), thereby creating a vicious cycle of problematic behavior and placement disruption. Specifically, children who regularly display greater than six types of problem behaviors are at increased risk of placement disruption within the subsequent year (Chamberlain et al 2006).

Normal Attachment

To appreciate the impact of early pathogenic care one must be familiar with normal attachment, an ongoing process that starts early in life and can have lasting consequences if not achieved within an early developmental window. This early window is appreciated in the foster care system, where children who are adopted prior to 12 months of age display secure attachment comparable to that of their non-adopted peers, while children adopted after this age show less secure attachment (van den Dries et al. 2009). Attachment is an enduring emotional closeness shared with caregivers and family that prepares a child for future independence and adulthood (Rees 2005). The ongoing process of developing attachment starts in infancy and involves a series of exchanges between caregiver and child from which a child learns the value of their caregiver's attention, and in turn, the value of their own needs. Through these exchanges, the child learns how to illicit desired responses in the caregiver and learns how to regulate his or her own responses (Stern 1977). These exchanges construct the caregiver-child relationship and also influence the neurological development of the child (Minagawa-Kawai 2009). Early attachments create what attachment pioneer John Bowlby described as 'internal working

models' for the reliability and closeness of a child's relationships with others (Bowlby 1969). Secure attachments to caregivers build a safe base from which young children may explore and interact with the world around them.

As demonstrated by the Strange Situation protocol, where toddlers' behaviors were observed in the presence, absence, and on reunion with their mothers, different attachment patterns can be observed very early in life (Ainsworth et al 1978). A mother's attachment style can also influence the kind of attachment style her child will develop. For example, maternal avoidant attachment has a significant negative relationship with the development of secure mother-infant attachment (Hoseini 2012). However, maternal sensitivity and responsiveness also have significant, positive impacts on the security of infant attachment, independent of maternal attachment style (Raval et al 2002). All of the intricacies of the caregiver-child relationship take time and consistency to build, so when there is no consistent primary caregiver, no attachment can develop.

Impact of Institutional and Foster Care

The other contributing factor to maladaptive early development that cannot be ignored in foster children is the impact of being separated from one's primary caregiver. Repeated change in caregivers is a common theme for foster children, as many end up in foster care to escape their neglectful or abusive original guardians. Foster children are known to be at greater risk for behavioral problems (Lawrence, Carlson & Egeland 2006) and academic delays (Zima et al 2000), mostly postulated to be a result of early abuse or neglect, but the focus of existing studies is not on the impact of chronic placement disruption and trends.

According to Bowlby, grief, anger and distress resulting from the loss of a child's existing attachment figure can only be resolved by properly developing an attachment to his or her alternate caregiver (Bowlby 1969; Bowlby 1973; Bowlby 1980). However, a new attachment to an alternate caregiver can be difficult to accomplish if a child keeps facing an increasing number of foster placement disruptions (Oosterman et al 2007), or resides in institutionalized care, where caregivers are often spread too thin over multiple children and work in shifts (Smyke et al 2012). The rate of foster care disruptions in these children is highest in the first few months of placement (Smith 2001) and continues to deteriorate with age (Oosterman et al 2007).

Among children with behavioral problems, the foster care disruption rate is significantly higher in the first 6 months of placement (17.8%) than the second 6 months (9.2%), with a combined

overall disruption rate of 25.5% in the first year of placement (Smith 2001). The majority of disrupted placements are brief; over 70% of disruptions occur during the first 6 months. The impact of frequent caregiver changes associated with foster care is traumatic (Garrison 2006), outside the realm of typical childhood experience, and can put even more stress on an already emotionally and behaviorally vulnerable child population.

Even once a foster child is placed in a suitable foster home, his or her ability to form new caregiver attachments continues to struggle, as a significant risk factor for placement disruption is older age at placement (Oosterman et al 2007, Smith 2001). A meta-analysis of 15 studies on over 13,000 children demonstrated that the effect of older age on placement breakdown was small but significant ($r=0.12$, $p < 0.05$) (Oosterman et al 2007). Among behaviorally disordered children, age was an independent risk factor for placement disruption, even when number of prior placements and several other factors were controlled for, with children 13 and older experiencing significantly more placement disruptions than children 12 and under (Smith 2001). Of note, while this meta-analytical study evaluated placement history as a factor in placement disruption, it was inconclusive about what independent role a child's number of prior placements plays in placement disruption.

Not only do repeated foster disruptions delay the healing process after a child's primary insult of pathogenic care, but being in a constant nomadic state may also affect the continuity of much-needed mental healthcare (Garrison 2006), creating a vicious cycle of worsening behavioral problems, older age, and increasing placement disruptions.

Even after children find their way into a stable foster placement, the beneficial effects of foster care are still largely mediated by a child's ability to attach to their caregivers (McLaughlin et al 2012). Successful foster care prevents internalizing psychiatric disorders that children in institutionalized care would otherwise be predisposed to (McLaughlin et al 2012; Smyke et al 2012). Thus, there is a second vicious cycle concerning attachment-impaired children in the foster care system: that of repeatedly returning to counter-therapeutic institutionalized care after disruptions.

Much of the above literature would imply that children with multiple prior placement disruptions would experience increasingly short future placements because their risk factors for disruption are compounded with each home they leave behind. This study seeks to confirm a trend that is widely feared but has yet to be formally demonstrated: that children who have disrupted multiple

foster placements may disrupt future placements at even earlier intervals than they have in the past.

Methods

Data was collected from the Virginia Department of Social Services on the start and stop dates of all living arrangements for 26,704 children. Because the data set also contained information on the children's ages and sexes, both of which are known risk factors for disruption, a multiple regression model was used to determine the contribution of each of these other risk factors on placement duration, in addition to the number of previous disruptions for each child. Multiple regression models that regressed mean placement duration against age, sex, total time spent in the DSS system and number of prior placements were created to investigate a possible trend of decreasing durations for future foster placements. A separate regression was performed for each additional placement disruption to determine if there was a point where number of prior disruptions no longer significantly contributed to the duration of the next placement. We were particularly interested in children with at least two disrupted placements as these are the children most likely to have attachment anxiety.

Durations of placements in emergency shelters, group homes, residential facilities, psychiatric facilities and crisis placements were excluded from review, as these are all temporary placements by definition and thus not considered opportunities for an attached relationship. Only durations of foster placements (including non-finalized adoptions) were considered when evaluating for the trend, as these are placements with permanent potential that are designed to foster attachment between the caregivers and children.

Age, sex and total time spent in the DSS system were factored into the model because, as mentioned in the literature, these are all factors that may affect placement duration. There is of course an obvious correlation between time spent in DSS custody and duration of foster placements, so this factor in particular needed to be controlled for.

Results

For each regression analysis regardless of placement number, the mean duration of all future foster placements was shown to consistently and significantly decline with each additional

placement disruption ($p < 0.0001$). The mean duration of future placements ranged from 314 days (for children with at least one prior placement) to only 159 days (for children with at least 10 prior placements). On average, each additional placement disruption shortened the mean duration of all future placements by as few as 12 days (for children with at least 10 prior placements) to as many as 178 days (for children with at least one prior placement).

Interestingly, contrary to what has been seen in prior studies, increased age and female sex did not significantly contribute to explaining the decreased future placement duration.

Note that for each regression performed, the following regression model was applied:

$$\text{Mean duration of future placements} = \text{sum} + \text{age} + \text{sex} + \text{count}$$

Variable	Definition
Sum	total time spent in DSS care
Age	age of child
Sex	female sex of child (when applicable)
Count	number of prior placement disruptions

The variance accounted for by each of the above mentioned variables is shown below in Figures 1-8. Note that only Sum and Count are consistently identified as major contributors to the model R-squared for every regression. Age and sex are only mentioned for some models because these were not consistently identified as major contributors to the variance of every model.

Figure 1 - Placements ≥ 3 (n=6654)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.7718	0.7718	22492.0	<.0001
2	count	0.1430	0.9147	11151.4	<.0001
3	Age	0.0001	0.9149	9.76	0.0018

Figure 2 - Placements ≥ 4 (n=3370)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.8076	0.8076	14140.5	<.0001
2	count	0.1272	0.9348	6571.94	<.0001
3	Age	0.0001	0.9349	4.64	0.0312

Figure 3 - Placements ≥ 5 (n=1706)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.8360	0.8360	8686.94	<.0001
2	count	0.1113	0.9473	3600.49	<.0001
3	Age	0.0002	0.9476	7.47	0.0063

Figure 4 - Placements ≥ 6 (n=926)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.8600	0.8600	5677.69	<.0001
2	count	0.0981	0.9581	2161.35	<.0001
3	Age	0.0002	0.9583	3.95	0.0471

Figure 5 - Placements ≥ 7 (n=504)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
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Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.8819	0.8819	3749.73	<.0001
2	count	0.0835	0.9654	1211.00	<.0001

Figure 6 - Placements \geq 8 (n=293)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.8935	0.8935	2442.04	<.0001
2	count	0.0772	0.9707	763.31	<.0001
3	sex	0.0003	0.9709	2.56	0.1109

Figure 7 - Placements \geq 9 (n=162)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.9048	0.9048	1521.20	<.0001
2	count	0.0716	0.9764	481.73	<.0001

Figure 8 - Placements \geq 10 (n=99)

Step	Variable Entered	Partial R-Square	Model R-Square	F Value	Pr > F
1	sum	0.9237	0.9237	1174.40	<.0001
2	count	0.0568	0.9805	280.47	<.0001

Note definitions for the above charted terms:

Term	Definition
Step	reflective of the order that the variables were entered into each regression model
Partial R-Square	The portion of variance in the duration trend that each individual variable accounts for
Model R-Square	the portion of the observable foster duration trend that the total model accounts for after the addition of each aforementioned variable
F value	the critical value that the Partial R-Square for each variable must exceed to reject the null hypothesis (that said variable is not explaining the observed trend in foster durations in a statistically significant fashion)
Pr>F	The p-value for the likelihood that Pr > F (and thus the null hypothesis can be rejected)

Discussion

The trend of decreasing mean duration of future foster placements with increased additional number of prior placement disruptions reinforces the findings in the meta-analysis by Oosterman et al (2007) and further clarifies the relationship by controlling for age, sex and total time spent in the DSS system in a multivariate analysis. The observed effects of age and sex variables were trivial and not always statistically significant, which is consistent with many of the studies that Oosterman et al included in their meta-analysis.

Greater Applications: Reactive Attachment Disorder

This discussion is of particular clinical significance in studying children with Reactive Attachment Disorder, because it is a generally poorly understood illness associated with both early pathogenic care and a variety of maladaptive behavioral patterns akin to those of conduct and anti-social personality disorders. An example of RAD-related pathogenic care listed in the DSM-V is repeated change in one's primary caregiver, like that seen in multiple foster placements. Due to their maladaptive behavior, RAD children are especially vulnerable to placement disruption, but if repeat disruptions are shown to lead to earlier future disruptions, a reverse relationship between the two factors may also be implied.

There is much in the literature that details the effect of Reactive Attachment on behavioral patterns, what impact these patterns have on their sufferer's relationships with others. Early pathogenic care alone may have a lasting impact on behavior and attachment, and the effects begin early on. Up to 80% of children who have endured pathogenic care show signs of Reactive Attachment Disorder (Reber 1996), and estimates of the prevalence of RAD range from less than 1% in the general population (Richters and Volkmar 1994) to 1.4% in a deprived population (Minnis et al 2013). However, when focusing on children entering foster care, the estimated prevalence of RAD climbs to 38% (Zeanah and Emde 1994), so the disease becomes an important addition to the discussion of traumatic experiences in foster care. RAD is marked by inappropriate social interactions in most contexts and severe behavioral problems. Disrupted attachment to a child's primary caregiver may predispose the child to emotional problems later in life (Bowlby 1973), as seen in RAD children. Extended separations from a child's primary caregiver are seen as traumatic events that can predispose the child to developing psychopathology in adulthood (Young et al 1973). Adoptive parents of adolescents who had experienced pathogenic care as infants report higher rates of adolescent problem behaviors than those of adolescents who did not receive pathogenic care as infants (Howe 1997). Furthermore, the aberrant attachment patterns displayed by young adults can reflect the types of abuse they experienced in childhood. Secure attachment has a significant negative relationship with emotional abuse, while preoccupied and fearful attachment styles have positive significant relationships with physical abuse, and dismissive attachment has a positive significant relationship with emotional abuse (Karakus 2012).

Another distressing finding in RAD research is that children affected with this disorder often do not recognize the severity of their pathologic behavior. RAD children tend to lack remorse for or regret harmful behaviors (Magid & McKelvey 1987; Reber 1996). This may be due, in part, to an inability to appreciate the detrimental results of their actions. They also tend to display less empathy than other children (Hall & Geher 2003). In addition, RAD children have been shown to systematically rate their personality traits more positively than their caregivers; a sign that they are not fully grasping the level of distress that they cause to those around them (Hall & Geher 2003).

Apart from lacking insight into their pathology, RAD children may also display generally lower cognitive abilities (Smyke et al 2012; Richters & Volkmar 1994). A recent study comparing RAD children ages five to eight with normal IQs to children with Autism Spectrum Disorder showed that they may be just as socially and linguistically impaired as children with ASD, particularly in

the domains of developing contexts for social language and building rapport with others (Sadiq et al 2012). RAD children have difficulties understanding social cues (Green & Goldwyn 2002) and may not grasp the concept of social hierarchy (Bennett et al 2009). All of these impairments together can make RAD children difficult to discipline, or even to like, contributing to the difficulty these children face in finding a suitable home.

Limitations & Alternate Explanations

While most of the children in the data set used for this paper met the RAD criterion of early pathogenic care, information that could clinically confirm a diagnosis of RAD or Disinhibited Social Engagement Disorder for each child were not available, which makes the results of this study difficult to definitively apply to children with these disorders. The specific reasons for each child's placement disruptions were also unknown— not all disruptions were due to child behavior, and the results of this study would likely be strengthened by inclusion of this information. In general, however, one of the most frequently cited reasons for failed placements is uncontrollable behavioral problems (Brown and Bednar 2006, Holland and Gorey 2004). While many studies have already demonstrated the detrimental effects of behavioral problems on foster placement stability, it has not yet been explored whether these detrimental effects are augmented with each disrupted placement. It could be that behavioral problems are the primary driving force behind both the multiplicity of placement disruptions as well as their progressively earlier occurrences with each subsequent placement.

Despite the study's limitations, the hypothesized trend was observed and found to be consistently significant, with a significant observed effect size for multiple prior placements while controlling for age, sex and time spent in DSS custody. The high R-square for each regression model, particularly when number of prior placements is taken into account, implies that the combination of the current variables explain the vast majority of the variance observed in the placement duration trend. It is unfortunate but remarkable that subsequent placements become increasingly shorter in duration considering the effort that DSS places in improving goodness of fit with each subsequent placement.

It also cannot be ignored the financial impact that repeated placement disruptions have on the already struggling foster care system. Particularly when compared to other states, the Virginia foster care system struggles significantly. In a 2007 comparison of foster care reimbursements by Virginia and its peers, Virginia reimbursed foster parents with the lowest monthly payments for children age 2 and 9 (\$368 and \$431, respectively), and the second lowest for 16-year-old

teens (\$546) (vaperforms). In the 2007 study, “Hitting the M.A.R.C.: Establishing Foster Care Minimum Adequate Rates for Children,” it was also determined that Virginia’s monthly reimbursement rates were on average 55% lower than recommended minimum reimbursement rates.

Poor reimbursement may result in sub-optimal care in Virginia foster homes, which may also be contributing to the low success rates of Virginia foster children in finding a home. Approximately 32 percent of foster children in the state never find a permanent placement and ultimately age out of the system—a rate higher than any other state in the country. This outstanding struggle to find children permanent homes is also reflected in the fact that Virginia ranks second to last in its average wait time between the termination of rights for children’s original guardians and finalization of adoption: 18.1 months (vaperforms).

Future Directions

From the standpoint of statistical analysis there are multiple directions in which to take future studies. One way is to obtain information for the circumstances of placement disruptions amongst the children for whom the trend of declining placement durations held true. It would be revealing to know if the disruptions were primarily behavioral or due to some other cause and if the reasons for their disruptions were similar to the reasons for disruptions amongst children with no observable trend of declining placement duration. A future study, perhaps with a more information-rich data set, could also investigate how many, and specifically what type, of behavioral problems were present in the children for whom this trend held true, and track their severity as the number of placement disruptions increased.

Further exploration is also warranted into the phenomenon of the current study wherein the partial R square for number of prior placements continued to decline as number of prior placements increased, and significant declines in placement durations were no longer observed beyond ten placement disruptions. Most likely this is the result of reaching such short duration of placement that there is no longer enough variability to explain. Alternatively, the psychological damage that results from chronic placement volatility peaks by ten placement disruptions, or perhaps placement number ten tends to occur around a certain older age range beyond which attachment patterns and certain maladaptive behaviors have cemented and do not worsen. The results of the current study cannot adequately explain the source of this phenomenon.

If further studies find that children who follow the pattern of decreasing foster placement durations are disrupting placements for primarily behavioral reasons, it would be important to investigate new measures to avoid disruption. Certainly, without stable and long-term foster home placement, adaptive attachment is unlikely, which can have lasting effects on a child's future relationships and social behavior.

Conclusion

Independently of age, sex and total time spent in the DSS system, the mean duration of future foster placements is significantly shortened with each additional prior foster placement disruption. The most feared and direct explanation of this phenomenon is that placements in multiple foster homes may be a mechanism of reinforcing attachment trauma in and of itself for children in the foster care system, which stresses the importance of investigation into interventions that will delay or avoid foster placement disruptions.

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