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SAN DIEGO STATE UNIVERSITY

Participant Engagement in a Foster Parent Training Intervention

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy

in

Clinical Psychology

by

Natalia Escobar Walsh

Committee in charge:

San Diego State University

Professor Joseph M. Price, Chair
Professor Scott C. Roesch
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University of California, San Diego

Professor Lauren Brookman-Frazee
Professor Steven R. Thorp

2016

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The Dissertation of Natalia Escobar Walsh is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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Chair

University of California, San Diego

San Diego State University

2016

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Chapter 1 is currently being prepared for submission for publication of the material. Walsh, N. E., Price, J. M., & Roesch, S. The dissertation author was the principal investigator and author of this material.

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ABSTRACT OF DISSERTATION

Participant Engagement in a Foster Parent Training Intervention

by

Natalia Escobar Walsh

Doctor of Philosophy in Clinical Psychology

University of California, San Diego, 2016
San Diego State University, 2016

Professor Joseph M. Price, Chair

The Keeping Foster Parents Trained and Supported intervention (KEEP) is one of the few evidence-based programs that has been shown to be effective in reducing behavior problems and failed foster care placements in foster children. During the KEEP intervention's implementation trial, process-oriented participant engagement (evaluating factors such as participant homework completion, openness to ideas, and level of participation in the group process) was identified as an important moderator of intervention outcomes. However, this evaluation of the relation between engagement and child behavior problems was limited to post-intervention behavior change, limiting the ability to determine at what point(s) during the intervention engagement may be most relevant. In light of these limitations, the present study had two aims: 1) evaluate the relation between the contemporaneous trajectories of process-oriented foster caregiver

engagement and child behavior problems using data from each of the 15 content-focused weeks of the KEEP intervention and 2) to determine which pre-intervention factors were most associated with foster caregiver engagement at different time points during the intervention. To address these aims, this dissertation used data from the intervention group (n = 164) from a larger study (KEEP Reaching; N = 354) examining the overall effects of the KEEP intervention. Using piecewise growth curve modeling analyses, the first aim of this study identified a significant *upward* trajectory for process-oriented engagement and a significant *downward* trajectory for child behavior problems during the eleventh through fifteenth weeks of the KEEP intervention. Statistical limitations inhibited the planned evaluation of the association between these contemporaneous trajectories. As a result, analyses for the second aim were not supported. Supplementary analyses were conducted in order to determine whether there was an overall association between process-oriented engagement and child behavior problems. When aggregated across all 15 weeks of the intervention, higher levels of process-oriented engagement were associated with fewer child behavior problems. Despite being unable to draw conclusions about the relation between the concurrent trajectories of engagement and child behavior problems, this study was able to demonstrate that there *is* a relation between these constructs and that they may share a parallel process, which supports continued research in this area.

CHAPTER 1:

INTRODUCTION

Recent national child welfare statistics estimate that there are approximately 415,129 children in foster care in the United States (Child Welfare Information Gateway, 2016). Unfortunately, there is overwhelming agreement that the experiences that result in children being placed in foster care, along with "status quo" foster care itself, can result in myriad negative outcomes for foster children (Cicchetti & Valentino, 2006; Taussig, Clyman, & Landsverk, 2001). These problems include higher rates of mental health and behavioral issues that can affect foster parents' ability to parent effectively (Landsverk, Garland, & Leslie, 2002). Although federal law requires foster parents to receive parent training, very little is known about the efficacy of the most commonly used curricula (Grimm, 2003). As a result, there is a great need for effective evidence-based interventions that can improve outcomes for this population. At the same time, current shifts in health care policy are increasingly requiring researchers to move beyond basic science and efficacy research and begin to evaluate the ways in which the outcomes of evidence-based interventions can be maximized in real-world settings (APA Presidential Task Force on Evidence-Based Practice, 2005). The present study aimed to address this challenge by evaluating a specific factor, process-oriented participant engagement, that has been shown to moderate the target outcomes of an evidence-based parent training intervention aimed at addressing externalizing behaviors in foster children (DeGarmo, Chamberlain, Leve, & Price, 2009).

The KEEP Foster Parent Training Program

Frequent foster home placement changes are a significant impediment to foster children's mental health, as these often result in increased behavioral problems, which may, in turn, lead to even more subsequent placement changes (Chamberlain et al., 2006; Newton, Litrownik, & Landsverk, 2000). The KEEP (Keeping Foster Parents Trained and Supported; KEEP) intervention is one of the few evidence-based programs that have been shown to address behavior problems in foster children. KEEP accomplishes this through a foster parent training program based on Parent Management Training (PMT; Kazdin, 1997). KEEP is a 16-week program presented in a group format consisting of a trained facilitator and 5 to 8 foster parents. Each week, during 90-minute sessions, the facilitator integrates the manualized curriculum into group discussions of the behavioral challenges parents face with the children in their care. Parents are provided with home-practice assignments at the end of each session. In addition, during the week following each session, parents are contacted by phone to assess the level of child behavior problems during the past 24 hours and to discuss application of the session material.

In previous research, the KEEP intervention has been found to be effective in decreasing child behavior problems (Chamberlain, Price, Reid, & Landsverk, 2008), in increasing positive exits from the placement (e.g., returning to biological parents, adoption), and in mitigating the negative effects of prior placements on placement disruptions/negative exits (e.g., moving to another foster home or moving to a higher level of care; Price et al., 2008). In addition, using a historical comparison group design,

the KEEP intervention has been found to be effective in decreasing child behavior problems when the intervention was delivered by a community provider (Price, Roesch, & Walsh, 2012).

The most recent KEEP intervention study, entitled "KEEP Reaching," evaluated the generalizability of the effects of the KEEP parent training on other children in the home using a randomized design while also being delivered by a community provider. The results of this study revealed that the intervention was effective in reducing the behavior problems of the focal child (i.e., child chosen by parent to focus on during training) and the focal sibling (i.e., the child closet in age to the focal child). In addition, the intervention was found to be effective in reducing parent stress levels associated with child behavior problems (Price, Roesch, & Walsh, 2015). In addition to assessing a variety of outcomes (e.g., child behavior change, placement disruptions), a measure of participant engagement was included in the assessment protocol of the KEEP Reaching intervention study. However, the original aims of the KEEP Reaching intervention study did not include examining the weekly changes in participant engagement, weekly changes in child behavior problems, or the correspondence between the changes in these two variables. In the current study, the measure of participant engagement included in KEEP Reaching was utilized to evaluate how the trajectory of process-oriented participant engagement was related to the concurrent trajectory of behavior problems in foster children. Another goal was to determine what factors most influence participant engagement in the KEEP intervention. Evaluating the concurrent trajectories of

engagement and behavior problems allows for a better understanding of when engagement may be most important during the intervention. Additionally, identifying the factors that most influence engagement has implications for developing tailored strategies for improving engagement in the KEEP intervention. In the sections that follow, the relevant literature on the role of parent engagement in the broader child mental health treatment literature is reviewed. This is followed by an overview of the factors that have been found to be associated with engagement. Finally, based on this literature, the specific aims of the study are outlined.

Importance of Evaluating Participant Engagement

Participant engagement is a factor potentially affecting dissemination and implementation of evidence-based interventions that has been receiving increasing attention in the child and family mental health treatment literature (Becker et al., 2013; Gopalan et al., 2010; Ingoldsby, 2010; Kim, Munson, & McKay 2012; Lindsey et al., 2013). In a review of the current engagement literature as it relates to caregivers of at-risk children, Staudt (2007) discusses the importance of evaluating the behavioral and attitudinal aspects of engagement in order to better understand the underlying mechanisms of engagement. The attitudinal component of engagement refers to constructs such as motivation, expectancies about treatment, and knowledge about therapy (Staudt, 2007). The behavioral component largely refers to whether clients participate actively in an intervention, both in interactions with providers and by following through with treatment recommendations outside of sessions (Nock & Ferriter,

2005; Staudt, 2007). This behavioral component of engagement is referred to as *process-oriented engagement* in the present study.

Researchers have been attempting to evaluate the role of participant engagement in evidence-based interventions for some time, although the majority of this research has focused on *attendance* as opposed to process-oriented engagement (e.g., Kazdin & Mazurick, 1994; Prado, Pantin, Schwartz, Lupei, & Szapocznik, 2006; Gorman-Smith et al., 2002; Spoth & Redmond, 1992, 1995). While using attendance as a proxy for engagement is a relatively objective and efficient way of evaluating participation in an intervention, it likely does not capture the more active and process-oriented aspects of client involvement. DiClemente and Hughes (1990) put it best with a reminder that "not everyone who arrives for treatment actually shows up" (p. 218). In an attempt to address this gap in the engagement literature, there has been increasing attention towards evaluating the relation between various elements of process-oriented engagement and outcomes in the child and family mental health treatment literature (e.g., Garvey, Julion, Fogg, Kratovil, & Gross, 2006; Nix, Bierman, & McMahon, 2009; DeGarmo, et al., 2009).

One of the challenges to developing a cohesive understanding of the process-oriented participant engagement literature is the lack of a specific guiding definition across research studies. Even the terminology used to refer to process-oriented engagement varies extensively, with terms such as adherence, compliance, and participation also often used to refer to this concept (Haine-Schlagel & Walsh, 2015;

Littell, Alexander, & Reynolds, 2001). Despite these limitations, it is clear that researchers are attempting to understand the role that the degree of client involvement in a therapeutic intervention, beyond attendance, plays in affecting target treatment outcomes.

Relation Between Engagement and Treatment Outcomes

Although there may not be common agreement regarding how to refer to process-oriented engagement, this construct as a whole has received increasing attention in the child and family mental health literature. Kendall (1994) evaluated the role of "parental involvement" in a cognitive-behavior therapy (CBT) based intervention for children with anxiety disorders and found that greater parental involvement in the intervention was associated with improvement in child self-report of symptom improvement as well as parent-report of child symptom improvement. Engagement was evaluated through therapist ratings of parent involvement that were scored at the completion of the intervention. In a study of CBT for anxiety in youth (Podell & Kendall, 2011), higher parent engagement ratings were associated with fewer child internalizing symptoms. Engagement in this study was determined via therapist ratings of parents' willingness to participate in the session as well as parents' observable interest in session (e.g., talking, eye contact, contributing suggestions). Similarly, in a study evaluating "parent resistance" during a parent training intervention, Chamberlain, Patterson, Reid, Kavanagh, & Forgatch (1984) found that children whose parents were less "resistant" at the end of treatment had more successful treatment outcomes according to post-treatment

therapist ratings. In this study, engagement was evaluated through an observational coding system that rated the frequency of resistant comments and behaviors during treatment sessions.

There is also some evidence to suggest, however, that there may be no association between engagement and treatment outcomes (Clark et al, 2013; Stoolmiller, Duncan, Bank, & Patterson, 1993). For example, Noser and Bickman (2000) evaluated the role of parental involvement in affecting treatment outcomes for families receiving usual care services through the "Fort Brag Demonstration Project" and found that there was no association between parental involvement and child symptom improvement. Parent involvement was evaluated through a two-item scale that asked parents to indicate how involved they were in their child's treatment planning and ongoing treatment. In a study evaluating "parental involvement" during a CBT intervention for children with anxiety (Kendall et al., 1997), there was no association found between parental involvement and target treatment outcomes (e.g., reduction of anxiety symptoms) at a one-year follow-up. Engagement in this study was evaluated using post-intervention therapist ratings of parental involvement.

These inconsistent findings might be due to several reasons. First, the studies presented here all used different methods for evaluating process-oriented engagement, which makes cross-study comparisons challenging. Additionally, some studies that have found no association (e.g., Noser & Bickman, 2000) examined engagement in the context of usual care settings, where the lack of association may be due to ineffective treatments

rather than a true lack of association. Regardless, there appears to be sufficient evidence to, at minimum, support continued research on process-oriented engagement in order to better understand the nature of this construct.

Engagement and Treatment Outcomes in Parent-Mediated Group Treatment. It should also be noted that the preceding studies all focused on process-oriented engagement in the context of individual child and adolescent interventions (some with parent-mediated components), but this context may differ from parent engagement offered in parent-mediated *group-based* interventions, which is the focus of the current study. For example, the nature of group therapy may allow clients to become more passive participants in their treatment because the "spotlight" isn't on them in the same way that it might be in individual therapy. As a result, it is possible that elements such as verbal and overall participation might play a larger role and may be more predictive of outcomes than they would be in individual treatment where participation may not require as much effort from a client because this is facilitated by greater individual attention from the therapist. That is to say, greater participation in the context of group treatment might be more indicative of clients who are more consistently applying or using the skills targeted by an intervention and, thereby, have more to contribute or inquire about once they arrive in group sessions, whereas participation in individual treatment may simply be a function of the therapist posing direct inquiries that the client feels obligated to respond to, regardless of whether or not they are using the skills targeted in treatment. The research evaluating process-oriented engagement in

parent-mediated group interventions is comparatively limited, but there is growing evidence to suggest that engagement in these treatment settings is associated with improved treatment outcomes (Garvey et al., 2006; Nix et al., 2009). Of particular relevance to the current study, DeGarmo and colleagues (2009) used a therapist rated measure that evaluated factors such as homework completion, level of participation in the parenting group, and openness to ideas to evaluate the role of process-oriented engagement in affecting child behavior change in the KEEP intervention. This study found that process-oriented engagement had a moderating effect on foster child behavior change. The current study used this same measure of engagement to evaluate this construct during the most recent iteration of the KEEP intervention as it was being implemented by a community service provider.

Relation Between Engagement and Concurrent Child Behavior Change. Although there is evidence to suggest that process-oriented engagement can have an impact on intervention outcomes, there is a paucity of research on how session-by-session changes in participant engagement are related to concurrent changes in primary outcomes. Within the engagement literature, there appears to be a consensus that engagement in an intervention is not constant, but rather changes over time (Chamberlain et al., 1984; McKay & Bannon, 2004; McKay et al., 1998). The majority of studies in which it has been determined that engagement varies over the course of an intervention and that this, in turn, results in differential treatment outcomes, have utilized attendance as a measure of engagement (e.g., Kazdin & Mazurick, 1994). Again, although

participant attendance is of practical importance in a psychosocial intervention, attendance alone may not fully capture the more nuanced aspects of engagement that are necessary to obtain the full benefits of an intervention (Staudt, 2007).

In addition, part of the challenge in fully understanding the role of process-oriented engagement is that the temporal precedence of this construct has not yet been established. As a result, it is difficult to determine whether engagement is driving target elements of change or vice versa. The engagement research conducted to date largely assumes (even if not explicitly stated) that engagement precedes change in the skills targeted by an intervention, which, in turn, leads to change in outcomes. It is also possible, however, that clients who are applying the skills targeted in treatment begin to see improvement, resulting in greater satisfaction and "buy in" to the treatment. This, in turn, may motivate clients to appear more engaged in treatment by participating at greater levels and completing more between session practice assignments. If this is the case, the primary rationale for investigating engagement (i.e., to ultimately increase engagement in order to improve outcomes) becomes somewhat less valuable, as engagement may largely be an ancillary benefit of the target element of change. Although the engagement research appears promising, neglecting this issue of temporal precedence does appear to be a fundamental flaw in this area of research. The current study attempted to address this gap in the literature by evaluating the concurrent week-by-week *trajectories* of process-oriented engagement and KEEP's target outcome, child behavior problems, rather than only examining overall engagement or engagement at termination, which has been the

most common method of evaluating process-oriented engagement thus far (Kendall, 1994; Garvey et al, 2006; Podell & Kendall, 2011).

As discussed previously, the current study used a process-oriented engagement measure first presented by DeGarmo and colleagues (2009) that evaluates factors such as participant homework completion and level of participation in the group process. By using a more process-oriented measure of engagement rather than focusing on attendance, it is possible to examine whether participants are obtaining the intended "dosage" of KEEP by being active versus passive in the intervention. Through an evaluation of the trajectory of process-oriented foster caregiver engagement and its relation to the trajectory of concurrent behavior problems in foster children, it may be possible to determine at what point(s) during the course of the intervention process-oriented participant engagement is most likely to affect the intervention outcomes. Based on this rationale, the first aim of the current study was to evaluate the relation between the respective trajectories of process-oriented caregiver engagement and child behavior problems over the course of the intervention.

Identifying Predictors of Engagement

Based on the potential link between participant engagement and intervention outcomes, increased attention in research has been given to the pre-intervention participant characteristics that may be associated with participant engagement. Findings from this research indicate that participant characteristics such as higher parent age, lower child age, higher parent education level, higher family income, and smaller family

size are among the most common socio-demographic characteristics associated with increased participation in an intervention (Coatsworth, Duncan, Pantin, & Szapocznik, 2006; Garland, Haine-Schlagel, Accurso, Baker-Ericzen, & Brookman-Frazee, 2012; Gaskin, Kouzis, & Richard, 2008; Miller, Southam-Gerow, & Allin, 2008). Clinical characteristics such as greater severity of child symptoms and parent/home environment stress have also been related to greater participation (Brookman-Frazee, Haine, Gabayan, & Garland, 2008; Andra & Thomas, 1998). As is the case with much of the engagement literature, in the majority of these studies, attendance has been the primary indicator of engagement (e.g., Prado et al., 2006, Gorman-Smith et al., 2002; Spoth & Redmond, 1992,1995).

Recently, there has been more attention placed on predictors of process-oriented engagement rather than attendance, although this research is much more limited as compared to the attendance literature. There is some overlap with the findings from the attendance literature, but there are also several inconsistencies. In the process-oriented engagement literature, parent/family level factors such as younger parent age, higher education level, and higher income have been associated with greater engagement (Dumas & Albin, 1986; Hansen, & Warner, 1994; Podell & Kendall, 2011; Jensen & Grimes, 2010). Other studies have found no association between engagement and parent education and family size (Dumas & Albin, 1986). Child level factors have received somewhat less attention, and these findings suggest that while child ethnicity may be associated with engagement (i.e., lower engagement for families of Spanish-speaking

Hispanic children; Dumas & Albin, 1986), other factors such as gender and age are not (Dumas & Albin, 1986). While these findings do paint a marginally better picture of the factors that may be associated with process-oriented engagement, they are quite limited and they still do not allow for an understanding of when during an intervention these factors may be most relevant. In addition, the inconsistencies across findings and the lack of information regarding additional characteristics that may be relevant to foster families in particular (e.g., length of time a foster child has been in their current foster home) also provides support for additional research evaluating predictors of process-oriented engagement in the context of the child welfare system.

The principal investigator of the current study examined process-oriented engagement in the first and second halves ("early" versus "late") of the KEEP intervention during its implementation trial in an attempt to address this issue (Walsh & Price, Under Review). Regression analyses revealed that the number of baseline foster child behavior problems was significantly and positively associated with *early* foster parent engagement, degree of foster parent distress at baseline was significantly and positively associated with *late* foster parent engagement, and that number of children in the home was significantly and negatively associated with *late* foster parent engagement.

Based on this prior research, the second aim of this study was to identify and evaluate the factors that predict process-oriented foster parent engagement during the KEEP intervention. The second aim of the current study expands on these prior findings through 1) the use of data from the current implementation trial of the KEEP intervention

which may allow for broader generalizability of findings, 2) an evaluation of the additional potential pre-intervention factors (e.g., number of prior foster care placements) that may be associated with engagement that were not available during the Walsh & Price study (Under Review), and 3) analysis of this data within a piecewise growth curve modeling framework, which differs from the Walsh & Price (Under Review) study in that it allows for a more thorough evaluation of the associations between these factors and engagement at each week of the intervention, as opposed to only examining early and late engagement. Potential predictors of engagement have been selected based on both the child and family mental health systems attendance *and* process-oriented engagement literature. It should also be noted that the majority of the prior research on engagement was conducted almost exclusively with biological parents of children, while the current study focuses on foster and kinship parents. While there is likely substantial overlap between biological parents and foster parents, there are some clear differences between these types of caregivers that may be prudent to take into account. As a result, foster care specific predictors including length of time as a foster parent, length of time a foster child has spent in the home, and the number of previous foster care placements for the foster child will also be included in the analysis, although, due to lack of literature in this area, there are no specific hypotheses about whether these factors will be associated with engagement. Selected potential predictors are listed in Aim 2 of the section that follows.

Current Study

The KEEP intervention ("KEEP") is a foster parent training intervention that has been found to be efficacious in reducing both behavior problems in foster children as well as negative placement changes (Chamberlain et al., 2008; Price et al., 2008). During KEEP's effectiveness trial, *process-oriented* participant engagement was identified as an important moderator of intervention outcomes (DeGarmo et al., 2009). These results translate into two important questions that may improve the likelihood of the successful future dissemination and implementation of KEEP. First, what is the relation between process-oriented foster caregiver engagement and concurrent child behavior problems during the intervention? And second, what pre-intervention factors are most associated with foster caregiver engagement during the intervention? A better understanding of the role of engagement in the KEEP intervention may lead to improvement and refinement of the intervention with an eye towards increasing participant engagement, which, in turn, may increase the likelihood of improving child behavior outcomes. Although not included in the larger study's original aims, the current implementation trial of the KEEP intervention ("KEEP Reaching") provided an excellent opportunity to evaluate engagement as the intervention was being delivered by a community-based social service agency. To answer these questions, two specific aims were proposed:

Aim 1: Participant Engagement and Child Behavior Problems Over the Course of the Intervention. The first aim of this study was to evaluate the relation between weekly levels of participant engagement and weekly child behavior change. Previous research has established that participant engagement has the potential to

moderate treatment outcomes (e.g., DeGarmo et al., 2009, Prado et al., 2006), but considerably less attention has been given to how engagement might change over the course of an intervention and how it might be associated with concurrent changes in the outcomes of interest. Although DeGarmo and colleagues' (2009) previous evaluation of engagement in the KEEP implementation trial evaluated the relation between engagement and child behavior problems, they limited their analysis to post-intervention behavior problems. The goal of Aim 1 was to first identify the respective concurrent trajectories of foster caregiver engagement and child behavior problems and to then evaluate the relation between these trajectories. This will allow for a better understanding of which time point(s) during the course of the intervention process-oriented participant engagement factors are most intertwined with behavior problems in foster children. Engagement was assessed for every foster caregiver at the end of every week's session over 15 content-focused weeks of the intervention using the same engagement measure employed by DeGarmo and colleagues (2009). Child behavior problems were also assessed weekly during the intervention using the Parent Daily Report (PDR).

Hypothesis 1: Participant Engagement Associated with Concurrent Child Behavior Change. It was hypothesized that the trajectory of participant engagement over the course of the intervention would be associated with the concurrent trajectory of behavior problems, such that greater engagement would be associated with fewer behavior problems over time.

Aim 2: Factors Associated with Engagement. To build on Aim 1, the evaluation of the relation between the respective trajectories of engagement and child behavior problems, the goal of the second aim of this study was to evaluate the pre-intervention factors that may be associated with the trajectory of participant engagement if the results from Aim 1 supported doing so. The research in which this issue was examined has been limited in how engagement was defined and assessed, with attendance often being used as a proxy for engagement (e.g., Gorman-Smith et al., 2002; Spoth & Redmond, 1992, 1995). In the current study, the more process-oriented engagement measure used by DeGarmo and colleagues (2009) that evaluated factors such as participant homework completion and openness to ideas was utilized to assess engagement.

Hypothesis 2a & 2b: Pre-intervention foster parent and foster child characteristics. Demographic information was collected for every foster parent participant (2a). It was hypothesized that foster parent age, education level, income, parent distress about child behavior, number of children in the home, length of time as a foster parent, and language of the group in which the foster parent participated (Spanish or English) would be associated with engagement, although there were no hypotheses about the specific directions of these associations due to the inconsistencies in the current research literature. In addition, demographic information was collected for every foster child (2b). It was hypothesized that pre-intervention behavior problems would be associated with greater engagement. There were no specific hypotheses about the effects of length of time in the foster home, number of previous foster care placements, child gender, and child age on foster caregiver engagement. For both 2a and 2b, if the findings

from Aim 1 indicated the need to do so, an evaluation of the relations between these predictors and engagement at different time points during the intervention was planned.

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CHAPTER 2:

METHODS

Participants. The current study used the intervention group (n = 164) from a larger study (KEEP Reaching; N = 354) in which the effects of the KEEP intervention were examined as it was being delivered by a community service provider. Participants in KEEP Reaching were foster/kinship caregivers and their respective foster children. As a result, these sample sizes refer to foster/kinship caregiver and foster child pairings. Participants were recruited over a total of 36 months and randomly assigned to one of two study conditions (KEEP Intervention or treatment as usual Control), using an *intent-to-treat design***.** In December 2012, the participant recruitment goal of 354 was completed. The final sample was reflective of recruitment targets and is representative of foster parents and children in foster care in San Diego County.

The demographic characteristics of the sample used in the current study are presented in Table 2.1. The study sample included 96% female foster/kinship caregivers with an average age of 45.10 (SD = 10.2) and 47% female foster children with an average age of 7.84 (SD = 2.5). While the proportion of female foster/kinship caregivers was overwhelmingly female, this is representative of foster parents in San Diego County. The ethnic composition for the foster/kinship caregivers in the sample was 40% Hispanic, 33% Caucasian, 24% African American, 2% mixed ethnicity, and 1% Native American. The ethnic composition for the foster children in the sample was 46% Hispanic, 23% African American, 16% mixed ethnicity, 11% Caucasian, 2% Asian/Pacific Islander, and 1% Native American. The proportion of foster/kinship caregivers who reported having

obtained a high school diploma or higher level of education was 58.3%, and over 31.5% of foster/kinship caregivers reported having a yearly income of $24,999 or less.

Inclusion/exclusion criteria. Participants in the KEEP Reaching intervention included boys and girls living in state-supported foster homes in San Diego County and their respective foster parents. Data on eligibility were provided by the County of San Diego Health and Human Services Agency (HHSA) Child Welfare Services/Management Information System (CWS/MIS). Inclusion criteria were: (a) the focal child was between ages 5 to 12, (b) children were in foster/kinship care homes; (c) there was at least one other child in the home; and (d) the focal child had been in foster care for a minimum of 30 days. This latter criterion helped to minimize selecting children in temporary shelters or emergency foster placements. Children considered "medically fragile" (that is, severely physically or mentally handicapped, as is noted in the CWS/MIS data files) were excluded (< 1%). Because the intent was to conduct the intervention as it is being implemented in a child welfare system, no other exclusions were made. The target population was heterogeneous which is an advantage relating to the potential relevance and the generalizability of the intervention to "real world" populations.

Recruitment. The larger study used quarterly downloads from the County of San Diego Health and Human Services Agency (HHSA) Child Welfare Services/Management Information System (CWS/MIS) to identify foster and kin (foster families that are biologically related to the foster child) families that met the inclusion criteria for this investigation. Only families with at least one age-eligible child, aged 5 to 12, were

eligible to participate. Eligible foster and kinship families were contacted to determine their willingness to participate in the KEEP intervention study and to provide information on the children in their care. Within each family, a *Focal Child (FC),* aged 5 to 12, was identified. If there was more than one child who was age-eligible, the caregiver was asked to choose a child to serve as the FC. To enhance learning of core concepts, caregivers in the intervention group were asked to focus their parenting efforts on the FC during the parent training sessions. Although other children in the family were also assessed for the larger study, the current study only focused on the FC. In addition, although spouses/partners of foster/kinship caregivers were invited to participate in groups, this did not occur in practice throughout the course of the study. Data were only collected for the participating foster/kinship caregiver.

Overview of the KEEP Intervention. Participants in the intervention group received 16 weeks of training, supervision, and support in behavior management methods. The interventionists (group facilitators) were Social Advocates for Youth (SAY; the community organization who disseminated the intervention) personnel who received in-depth training from KEEP supervisors. Intervention groups consisted of approximately five to eight foster/kinship caregivers and were conducted by a trained facilitator. As discussed previously, although spouses/partners of foster/kinship caregivers were invited to participate in groups, this did not occur in practice throughout the course of the study. Both English and Spanish speaking groups were offered, depending upon parental preference. Curriculum topics map on to protective and risk

factors that have been found in previous studies to be developmentally relevant malleable targets for change (Eddy & Chamberlain, 2000). The primary focus was on increasing use of positive reinforcement, consistent use of non-harsh discipline methods such as brief time-outs or privilege removal over short time spans (e.g., no playing video games for one hour, no bicycle riding until after dinner), and teaching parents the importance of close monitoring of the child's whereabouts and peer associations. A content outline of the topic areas for the groups is presented in Table 2.2. There were two free sessions to address topics or concerns in greater depth. The final session involved a "wrap-up" and celebration of course completion. This resulted in 15 weeks of content-based sessions. Aim 1 evaluated the relation between the trajectories of foster caregiver engagement and child behavior problems over the 15 weeks of the content-based sessions of the intervention.

Group sessions lasted approximately 90 minutes each. If a foster caregiver missed a parent-training session, the material was delivered during a home visit. Group session attendance/completion rates (including make-up sessions) were high, with 81% of caregivers completing all sessions. Foster caregivers were reimbursed $15.00 per session for traveling expenses.

Training and Supervision of KEEP Group Facilitators. Training of the SAY group facilitators included the following: (1) learning the KEEP intervention objectives and manual (through individual and group instruction); (2) familiarization with the characteristics and needs of foster and kin providers and the children they care for; (3)

learning the format and function of KEEP group sessions via viewing videotapes of completed group sessions; (4) discussions and role plays of methods of introducing and integrating session material into group discussions; (5) participation in role plays of each session with KEEP supervisor facilitating sessions; and (6) participation in role plays of each session with new personnel facilitating sessions.

All parenting group sessions were videotaped and reviewed by on-site supervisors. Each SAY group facilitator identified 15 minutes of each session they wished to have the supervisor review. The supervisor also randomly selected an additional 15 minutes of the same session to review. The supervisor identified the key processes and events to discuss during weekly 90-minute supervision sessions. During the weekly on-site supervisory sessions, issues related to curriculum adherence, group dynamics and processes, and the individual needs of families were discussed. This supervision process enabled group facilitators to obtain specific feedback on their own performance and provided a mechanism for monitoring the progress of each parenting group. Throughout, data obtained from measures of facilitator adherence and group engagement was used to evaluate and provide additional feedback to facilitators and co-facilitators on KEEP content and adherence during the parent training sessions.

Data Collection Procedures. Data collection for the KEEP Reaching study followed a typical baseline/follow-up assessment format that took place at baseline, at 4 Months (termination of intervention), and at 12 and 18-month follow-ups. The assessments were conducted by telephone as they were in the original KEEP intervention

study. Foster/kinship caregivers had the option of completing these assessments in either Spanish or English. Assessments focused on family characteristics and processes, and a variety of child outcomes for the focal child (FC) and the focal sibling (FS) who was closest in age to the focal child. However, for the current study examining participant engagement, only data for the FC were included in the analyses. Since this is the child whom parents are asked to focus their attention during the intervention, this is the individual most likely to be impacted by the intervention. For the purposes of the current study, in addition to the data collected by facilitators (i.e., weekly engagement questionnaire, weekly Parent Daily Report [PDR] evaluating child behavior problems), only data from the baseline telephone interviews were used.

The focus of the baseline assessment was on measuring behavioral adjustment and characteristics of the foster family environment prior to the start of the intervention. It involved a 60-minute (approximately 30 minutes per child – focal child and focal sibling closest in age) telephone interview with the foster/kin parent followed by two telephone interviews using the PDR (5-10 minutes each per child, 20 minutes total) during the subsequent 14 days.

Measures and Primary Constructs. Three domains were assessed: parent and child characteristics at baseline, child behavior problems, and process-oriented engagement. Information regarding the measures, the data collection timelines for measures, the construct(s) measures are intended to define, and the reporting agent for each measure are presented in Table 2.3. Measures were selected based on their

psychometric properties and on their relevance to the current study.

Parent and Child Characteristics at Baseline: Foster/Kin Caregiver Interview. One foster/kin caregiver for each family participated in a 60-minute standardized assessment about each child's demographic characteristics. Interviews were conducted in either English or Spanish depending on caregiver preference. Caregivers were also asked to provide information about family demographic information, parental stress and support. The following variables obtained from this interview were included as predictors in Aim 2: foster parent age, foster parent education level, foster parent household income, number of children in the foster home, length of time as a foster parent, length of time a foster child has been in the foster home, foster child age, and foster child gender.

Parent and Child Characteristics at Baseline: CWS/MIS data files. Data on the number of prior foster home placements were obtained from CWS/MIS administrative data files.

Parent and Child Characteristics at Baseline and Child Behavior Problems: Parent Daily Report (PDR - Chamberlain & Reid, 1987). At the baseline assessment (assessed by KEEP staff interviewers) as well as every week during the intervention itself (assessed by KEEP group facilitators), foster/kin parents completed a 5 to 10-minute telephone interview about the type of child behavior problem that had occurred and the types of discipline and supervision used over the previous 24 hours. PDR interviews were conducted in either English or Spanish depending on caregiver preference. Caregivers were asked whether or not any of 31 problem behaviors occurred in the previous day and

how stressful each endorsed behavior was for the parent (i.e., "parent distress," see Appendix A for full measure). Both a child behavior problem score as well as a parent distress score are generated from the PDR. The PDR has been significantly related to the Becker Adjective Checklist (Patterson & Reid, 1975) aggression and conduct items, and to home observation of the youth's aversive behavior (Chamberlain & Reid, 1987). During the original KEEP intervention, test-retest reliability of the PDR was .84 at baseline and the internal consistency of the measure was strong (α = .84). For the current sample, Cronbach's alpha coefficients were calculated for the three PDR assessments for the focal child at baseline (B1=.82, B2=.84, and B3=.87; *M*=.84) and at termination (T1=.86, T2=.85, and T3=.87; *M*=.86). The PDR child behavior score from data collected *weekly* were used in Aim 1 evaluating the relation between the trajectories of foster child behavior problems and caregiver process-oriented engagement. The PDR child behavior problem score and parent distress score collected at *baseline* were planned for use in Aim 2 as predictors of engagement.

***Process-Oriented Engagement*: *Engagement Questionnaire*.** This measure was used as the primary measure of engagement for Aims 1 and 2. After each group session, facilitators rated the degree of engagement by participants in the group session using six, Likert-type items (1 = Not at all to 5 = Very Much; see Table 2.4 for full list of items). Findings from the original KEEP investigation revealed that this measure of engagement moderated the impact of the intervention on behavior problems and placement changes of children in care (DeGarmo et al., 2009). DeGarmo and colleagues (2009) submitted these

six items to an exploratory principal components factor analysis with varimax rotation aggregated across all sessions. This analysis extracted one factor that had an eigenvalue greater than 2 and with loadings that ranged from .62 to .94 (Eigenvalue = 2.82). The items included in this factor were the following: "level of participation in group process," "caregiver was open to ideas presented," "seemed satisfied with session," and "implemented homework practice." This 4-item scale (α = .85) was defined as "group engagement" and was used in the current study. Two items that did not load or converge with this factor ("was supported by group," "was confronted by group") were eliminated in both the DeGarmo colleagues (2009) study and in the current study. For the current study the alpha coefficient for this scale was calculated at two time points: session 8 (α = 0.86), and session 15 (α = 0.83).

Ten percent of the content-based sessions (48 out of 465) were double coded to determine the reliability of the facilitator ratings with those of a trained independent rater who was not associated with the KEEP program. Due to the continuous nature of the engagement measure, an intraclass correlation coefficient (ICC) was calculated to determine the level of agreement between the independent rater and facilitator ratings. According to the rule of thumb cutoffs outlined by Cicchetti (1994), these analyses indicated that there was fair agreement between the two raters, ICC = .448 (95% CI, .217 to .612), $p < .01$.

Data Analysis Plan

All personal identifying information was removed from data sets. All data analytic strategies that were employed followed the recent recommendations of Brown and colleagues (2008). Preliminary data screening and cleaning involved examination of

the data distributions for normality and missing data patterns at both the univariate and multivariate level. Once this preliminary phase of data analysis was complete, *piecewise* growth curve modeling (GCM) was used as the primary statistical analytic tool (Seltzer & Svartberg, 1998). Piecewise GCM in the context of linear GCM is an appropriate analysis because of the nested (or clustered) structure of the data (i.e., repeated measures [level-1] nested within children or foster parents [level-2]). Missing data common to longitudinal designs is readily incorporated in GCM if the data can be assumed to be missing at random. However, if the data was determined to be missing not at random, the missing data mechanism(s) would be built into the target statistical models if possible, as recommend by Little and Yau (see Little & Yau, 1998; Yau and Little, 2001). If indicated, covariates (e.g., number of children in the home) could also be explored within this framework. Each focal child and their respective foster parent would be represented as level-2 units in the nested data structure, with repeated measures nested within each child and foster parent representing the level-1 units. The analytic plan flowed directly from the specific aims and focused on two hypotheses. These hypotheses and the analytic strategies used to test them are detailed below.

Aim 1 (Participant Engagement and Child Behavior Problems Over the Course of the Intervention): Hypothesis 1. The current data set allowed for the modeling of developmental trajectories over a 15-week period. It was hypothesized that the trajectory of participant engagement over the course of the intervention would be associated with the concurrent trajectory of behavior problems, although there was no hypothesis about

the specific shape of these trajectories. To determine the growth trajectories over the course of the study, many functional forms of growth were evaluated within a GCM framework. As recommended by Singer and Willett (2003), examination of empirical growth trajectories was planned to determine the general functional form(s) most appropriate. Subsequent to this, unconditional growth models were tested to evaluate the functional form of growth (linear vs. nonlinear overall). However, because of the large number of assessments over the 15 weeks of the intervention, it was possible that conventional linear and nonlinear models would not best represent growth. Because of this, the use of piecewise GCM was planned to explore non-linearity. Two models were initially evaluated in order to facilitate the identification of the location of a potential quadratic effect: 1) weeks 1 to 6 and 2) weeks 7 to 15. Weeks one through six of the group sessions constitute what is considered the "core" content of the intervention, with the bulk of home practices taking place during these sessions. While sessions seven through fifteen introduce new content, as compared to the first six weeks, proportionally more time is spent on review of previously presented topics as well as troubleshooting aimed at addressing specific parent concerns. If supported by the results from these initial models, these segments were further divided according to thematic groupings in order to evaluate the nature of the non-linearity. Four piecewise GCM segment were determined based on stages of session content themes: 1) weeks 1 to 3 consist of foundational content for the KEEP intervention which includes an overview of positive reinforcement strategies; 2) weeks 4 to 6 introduce non-harsh limit setting strategies (e.g., privilege

removal over short time spans, brief time outs); 3) weeks 7 to 10 review the importance of monitoring of children's whereabouts and their peer associations; and 4) weeks 11 to 15 address foster parent stress and troubleshooting of remaining issues.

Subsequent to these models, conditional growth models were planned in order to incorporate the factors potentially associated with engagement (Aim 2).

Aim 2* (*Factors Associated with Trajectory of Engagement*): *Hypotheses 2a and 2b (Foster Caregiver and Foster Child Predictors of Engagement. It was hypothesized that participant engagement would be associated with certain pre-intervention foster caregiver characteristics (2a) and foster child characteristics (2b). Specifically, it was hypothesized that baseline foster caregiver age, education level, household income, distress, length of time as a foster caregiver, number of children in home, and language of the group in which the foster parent participated (Spanish or English) would form a construct of pre-intervention foster caregiver characteristics that predicts foster caregiver engagement throughout the 15 content-based weeks of the intervention (2a). There were no specific hypotheses about the effects of length of time in the foster home, number of previous foster care placements, child gender, and child age on foster caregiver engagement (2b). Following the unconditional growth model that evaluated the functional form of growth (linear vs. nonlinear) in Aim 1, conditional growth models were planned to incorporate foster caregiver/foster home characteristic variables (2a; aggregate representing foster caregiver age, education level, household income, length of time as a foster caregiver, distress, number of children in home, group language), foster

child characteristics (2b; foster child age, gender, number of previous foster care placements, length of time in the foster home, and pre-intervention behavior problems) as level-2 predictors of the engagement outcome-time slope (trajectory).

Power Analyses. To estimate the sample size needed to detect statistically significant effects for the relations specified in the GCM models, the power program RMASS2 was used (see Hedeker, Gibbons, & Waternaux, 1999). RMASS2 is specifically designed to calculate the projected sample size needed for longitudinal data when attrition is of primary interest. The power analysis presented below is based on finding a statistically significant predictor of a level-1 outcome over the 15 weeks. To determine the minimum sample size necessary, several assumptions were made. First, an alpha level of .05 and a power level of .80 were specified. Second, a small effect size (d = .20) was used. Third, standard deviations at each time-point were specified: (time-point 1: SD = 1.00, with SDs increasing by .1 at each time-point. Fourth, an overall attrition rate of 15% was specified. And fifth, a stationary autoregressive structure (lag 1) was specified for the variance-covariance matrix of the repeated measures, using an autocorrelation value of .50. Based on these assumptions, a total sample size at the family level of 122 was needed to detect a small effect.

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CHAPTER 3:

RESULTS

Descriptive Characteristics of Target Study Variables

Demographic Characteristics. Table 2.1 presents descriptive characteristics for the foster/kinship caregivers and their respective foster children that composed the intervention group (n = 164) and that were included in the current analyses.

Baseline Characteristics. The average length of time foster children had been in their foster/kinship caregiver's home was 14.04 months (SD = 23.03). The average length of time that caregivers had been foster/kinship caregivers was 38.22 months (SD = 52). Forty five percent of participants were kinship caregivers. Foster/kinship caregivers had an average of 3.65 (SD = 1.5) children in their homes. The proportion of foster/kinship caregivers that participated in English-speaking intervention groups was 62.8%. At baseline, the average score for foster/kinship caregiver distress about their foster child's behavior was 7.07 (SD = 7.71; observed range 0 to 35.33) and the average score for foster child behavior problems was 4.96 (SD = 3.8; observed range 0 to 17.33).

PDR and Engagement Descriptive Characteristics. Means and standard deviations for weeks 1 through 15 of the PDR and engagement measures are presented in Table 3.1. Mean PDR scores ranged from 6.17 (SD = 4.92) during week one to 2.86 (SD = 3.3) during week fifteen. Mean engagement scores ranged from 4.5 (SD = .54) during week one to 4.35 (SD = .57) during week nine. As might be expected due to the large number of time-points, only 36 participants had complete PDR data for all time-points and 123 had some missing data whereas 126 participants had complete engagement data at all time-points and 42 participants had some missing data. This discrepancy is likely

due to the fact that engagement data was completed immediately after each group session by the respective intervention facilitator whereas weekly PDR data required that facilitators call the caregivers following the group session, which increased the likelihood of a missing data point if the caregiver could not be reached.

Evaluations of Missing Data and Assumptions of Normality. While there is no formal statistical test to determine data missing at random (MAR), there were no significant associations/differences between whether a participant had missing engagement or PDR data and other study variables (e.g., demographics, foster caregiver versus kinship caregiver). In addition, target study variables were determined to be normally distributed based on examination of histograms, skew, and kurtosis.

Aim 1: Participant Engagement and Child Behavior Problems Over the Course of the Intervention.

Preliminary Analyses: Empirical Growth Plots. In order to determine the most appropriate general functional form(s) (linear vs. nonlinear overall), empirical growth trajectories were examined for both the engagement data as well as the PDR behavior problem data according to the recommendations of Singer and Willett (2003). These plots indicated that the overall form of growth for both engagement and the PDR was nonlinear, supporting the use of piecewise growth curve modeling. Piecewise growth curve models incorporating multiple stages have been demonstrated to have significant improvement on model fitting compared to single-piece growth curve models (Chou, Yang, Pentz, & Hser, 2004).

Unconditional Growth Models: PDR. Unconditional growth models for PDR scores were tested to formally evaluate the functional form of growth. Because of the

large number of assessments over the 15 weeks of the intervention, two models were evaluated in order to facilitate the identification of the location of a potential quadratic effect: 1) weeks 1-6 and 2) weeks 7-15. If supported by the results from these initial models, these segments were further divided according to thematic groupings in order to evaluate the nature of the non-linearity: 1) weeks 1-3, 2) weeks 4-6, 3) weeks 7-10, 4) weeks 11-15. The rationale for these predetermined segments is discussed in Chapter 2, "Data Analysis Plan."

PDR Unconditional Growth Model Weeks 1-6. The unconditional growth model for weeks 1-6 indicated a significant linear effect (b = -1.94, $p < .001$) as well as a significant quadratic effect (b = .25, p = .004). Although this model fit well statistically (χ^2 [12, N = 164] = 228.51, $p < .001$), it did not fit well descriptively (CFI = .000, RMSEA = .33, SRMR = .6). These results did not support exploration of piecewise segments aimed at understanding the form of growth of engagement during weeks 1-6.

PDR Unconditional Growth Model Weeks 7-15. The unconditional growth model for weeks 7-15 indicated a non-significant linear effect (b = .94, p = .516), but indicated a significant quadratic effect (b = -.03, p = .026). This model fit well statistically (χ^2 [36, N = 116] = 65.67, p = .0018), and descriptively (CFI = .93, RMSEA = .08, SRMR = .07). This significant quadratic effect supported exploration of piecewise segments in order to better understand the form of growth during weeks 7-15.

Piecewise Growth Curve Models: PDR. *PDR Weeks 7-10.* The slope latent variable for weeks 7-10 did not differ significantly from zero (b = -.08, p = .589). Individual variability for the slope latent variable was not significant (σ^2 = .4, p = .365). This model did not fit well statistically (χ^2 [5, N = 112] = 3.86, p = 0.5693), but did fit

well descriptively (CFI = 1.00, RMSEA = 0.00, SRMR = 0.04). These results suggest, as a group, no clear overall trajectory in PDR scores during weeks 7-10 of the intervention.

PDR Weeks 11-15. The slope latent variable for weeks 11-15 differed significantly from zero (b = -0.35, $p < 0.001$). Individual variability for the slope latent variable was not significant (σ^2 = -.02, p = .896). This model did not fit well statistically (χ^2 [10, N = 98] = 17.60, p = 0.0621), but did fit well descriptively (CFI = 0.96, RMSEA = .09, SRMR = .06). These results suggest, as a group, a reduction in PDR scores during weeks 11-15 of the intervention.

Unconditional Growth Models: Engagement. Unconditional growth models for engagement scores were tested to formally evaluate the functional form of growth. These models mirrored those that were tested for PDR scores. Again, because of the large number of assessments over the 15 weeks of the intervention, two initial models were evaluated in order to facilitate the identification of the location of a potential quadratic effect: 1) weeks 1-6 and 2) weeks 7-15. If supported by the results from these initial models, these segments were further divided according to thematic groupings in order to evaluate the nature of the non-linearity: 1) weeks 1-3, 2) weeks 4-6, 3) weeks 7-10, 4) weeks 11-15. The rationale for these predetermined segments is discussed in Chapter 2, "Data Analysis Plan."

Engagement Linear Unconditional Growth Model Weeks 1-6. The linear unconditional growth model for weeks 1-6 indicated a non-significant linear effect (b = .01, p = .793) and a non-significant quadratic effect (b = .01, p = .486). This model fit well both statistically (χ^2 [15, N = 164] = 719.45, $p < .001$) and descriptively (CFI = .669,

RMSEA = .344, SRMR = .616). These results did not support exploration of piecewise segments aimed at understanding the form of growth of engagement during weeks 1-6.

Engagement Linear Unconditional Growth Model Weeks 7-15. The linear unconditional growth model for weeks 7-15 indicated a significant linear effect (b = -.45, p = .002) and a significant quadratic effect (b = .45, p = .001). This model fit well both statistically (χ^2 [36, N = 136] = 77.48, p < .001) and descriptively (CFI = .98, RMSEA = .09, SRMR = .07). This significant quadratic effect supported exploration of piecewise segments in order to better understand the form of growth during weeks 7-15.

Piecewise Growth Curve Models: Engagement. *Engagement Weeks 7-10.* The slope latent variable for weeks 7-10 did not differ significantly from zero (b = .01, p = .459). However, significant individual variability was found for the slope latent variable (σ^2 = .01, p < .001) indicating that some individuals significantly differ from the average slope. This model did not fit well statistically (χ^2 [5, N = 134] = 5.45, p = .3639), but did fit well descriptively (CFI = 1.0, RMSEA = .36, SRMR = .08). These results suggest, as a group, no clear overall trajectory in engagement scores during weeks 7-10 of the intervention.

Engagement Weeks 11-15. The slope latent variable for weeks 11-15 differed significantly from zero (b = 0.020, p = .001). Significant individual variability was also found for the slope latent variable (σ^2 = .001, p = .024). This model fit well both statistically (χ^2 [10, N = 130] = 39.55, p < .001) and descriptively (CFI = .967, RMSEA = .15, SRMR = .07). These results suggest, as a group, an increase in engagement scores during weeks 11-15 of the intervention, although some individuals significantly differ from the average slope.

Correlation of PDR and Engagement Slopes/Trajectories for Weeks 11-15. The overlapping results indicating that the trajectories for weeks 11-15 of the PDR data as well as the engagement data differed significantly from zero supported evaluating the relation between these trajectories. This relation was evaluated by correlating the PDR slope latent variable for weeks 11-15 with the engagement slope latent variable for weeks 11-15. The correlation between the slope latent variable for weeks 11-15 of the PDR and the slope latent variable for weeks 11-15 of engagement was not significant ($r = 0.01$, $p = .544$). This model did fit well statistically (χ^2 [46, $N = 131$] = 2420.11, $p < .001$) but did not fit well descriptively (CFI = .00, RMSEA = .63, SRMR = not able to be calculated), indicating that the overall model did not fit well. It should be noted that this lack of model fit might have been due to insufficient power rather than a true lack of association.

Supplementary Analyses: Overall Association Between PDR and Engagement. Due to the inability to evaluate the correlation between the trajectories of the PDR with engagement, it was determined that it would be beneficial to evaluate the aggregate relationship between PDR and engagement within the context of multilevel modeling (MLM). To do this, MLM was used to evaluate the aggregate correlation between PDR scores and engagement scores. This strategy correlated engagement and PDR scores at each of the 15 weeks of the interventions and then averaged these across all time-points. This analysis indicated that PDR and engagement are statistically ($p = .031$) and negatively related ($r = -.196$). Higher engagement scores are associated with lower PDR scores when aggregated across time.

Aim 2: Factors Associated with Trajectory of Engagement

Although analyses evaluating the factors associated with the trajectory of engagement were planned in the aims of the current study, the validity of evaluating these factors and any resulting interpretations was dependent upon establishing the relation between foster caregiver engagement and child behavior problems. Since child behavior problems are the primary outcome of interest in the KEEP intervention, foster caregiver engagement is only as important as it relates to this target outcome. As a result, the inability to establish a relation between the respective trajectories of PDR and engagement did not support the evaluation of factors associated with the trajectory of engagement. Due to this, these analyses were truncated. Potential future directions will be reviewed in the discussion chapter that follows.

This chapter is currently being prepared for submission for publication of the material. Walsh, N. E., Price, J. M., & Roesch, S. The dissertation author was the principal investigator and author of this material.

CHAPTER 4:

DISCUSSION

The overall goal of the current study was to evaluate the role of process-oriented foster parent engagement during the KEEP (Keeping Foster Parents Trained and Supported) intervention in its most recent dissemination by a community service provider. The first aim of this study involved evaluating the relation between the trajectories of process-oriented foster parent engagement and contemporaneous child behavior problems across the 15 weeks of the KEEP intervention. The second aim of this study was to determine which pre-intervention factors were most associated with foster parent engagement at different time points during the intervention.

Findings from the analyses of the first aim of this study identified a significant *upward* trajectory for process-oriented engagement and a significant *downward* trajectory for child behavior problems during the eleventh through fifteenth weeks of the KEEP intervention. However, power limitations may have limited the ability to evaluate the association between these contemporaneous trajectories. As a result, analyses for the second aim were not supported. Supplementary analyses were conducted in order to determine whether there was an overall association between process-oriented engagement and child behavior problems. When aggregated across all fifteen weeks of the intervention, higher levels of process-oriented engagement were associated with fewer child behavior problems. These findings are discussed in detail in the sections that follow.

Trajectory of Child Behavior Problems

In order to evaluate the respective trajectories of foster child behavior problems and process-oriented engagement throughout the KEEP intervention, the 15 weeks of the intervention were divided into four predetermined segments based on thematic groupings of the KEEP curriculum: 1) weeks 1-3 consist of foundational content for the KEEP intervention which includes an overview of positive reinforcement strategies, 2) weeks 4-6 introduce non-harsh limit setting strategies (e.g., privilege removal over short time spans, brief time outs), 3) weeks 7-10 review the importance of monitoring of children's whereabouts and their peer associations, and 4) weeks 11-15 address foster parent stress and troubleshooting of remaining issues (more complete details regarding rationale for these segments can be found in "Chapter 2: Methods"). A common trajectory for number of foster child behavior problems during the first 10 weeks of the intervention was not identified. However, a significant *downward* slope trajectory was found during the final five weeks of the intervention.

These findings are notable as they indicate that a consistent decrease in foster child behavior problems across KEEP intervention participants does not begin until week 11 of the intervention and continues until the end of the intervention at week 15. To date, there appears to be a paucity of research evaluating the trajectory of child behavior problems while parent-training interventions are in progress. Although this was not intended as a standalone aim of the current study, these findings nevertheless have the potential to add to this literature by providing valuable information about the course of child behavior change during a parent training intervention. More specifically, it is helpful to know that 11 weeks of the KEEP intervention may be needed in order to begin

seeing consistent reductions in behavior problems across intervention participants. To borrow from medical terminology, these results suggest that the *effective dose* (i.e., the amount of treatment that produces a therapeutic response in some proportion of participants) of the KEEP intervention appears to be eleven weeks and that this response continues to accrue through the end of the intervention.

The fact that eleven weeks were necessary before seeing a consistent reduction in foster child behavior problems is conceptually supported by the fact that this is also the number of weeks required to cover the core KEEP content focused on increasing the use of positive reinforcement as well as consistent use of non-harsh discipline methods. This is in line with meta-analytic findings in the broader parent training literature demonstrating that programs that include components that emphasize increasing positive parent–child interactions and teaching parents to use time out and the importance of parenting consistency report significantly larger effect sizes (Kaminski, Valle, Filene, & Boyle, 2008). Additionally, it is also possible that it takes 11 weeks for parents to learn how to consistently apply these strategies with fidelity and that the continued decrease in behavior problems through week 15 may be due to additional consistent use of these strategies. This would be consistent with findings indicating that treatment participants may contribute to fidelity to a treatment protocol (Allen, Linnan, & Emmons, 2012; Perepletchikova and Kazdin, 2005; Schoenwald, Sheidow, Letourneau, & Liao, 2003).

Whatever the reason(s) for the nature of the trajectory of child behavior problems, these findings have the potential to better inform multiple stakeholders of the KEEP intervention and similar parent training interventions including policy makers within child welfare settings, intervention participants, as well as intervention

therapists/facilitators. For example, while there may be several incentives to reduce the length of parent training programs (e.g., cost to agencies, convenience for caregivers), these findings would suggest that short-term service programs might not have an impact on reducing child behavior problems. Additionally, caregivers would gain from being informed that it may take eleven weeks to begin seeing changes in children's behavior. This might mitigate potential frustrations about program efficacy earlier in the intervention. Finally, it may be valuable for intervention therapists or facilitators of parent training programs similar in content and pacing to KEEP to more closely monitor rates of behavior problems in the later phases of treatment to evaluate whether children are responding to the strategies as intended or whether additional support may be necessary. Ultimately, all stakeholders benefit from having a greater understanding of the trajectory of child behavior problems in parent training interventions.

Trajectory of Process-Oriented Engagement

The trajectory of process-oriented foster parent engagement was evaluated using the same procedure as the evaluation of the trajectory of the number of foster child behavior problems. A common trajectory for foster caregiver engagement during the first 10 weeks of the intervention was not identified. However, significant individual variability was found during weeks 7 through 10 of the intervention, indicating that the mean slope during this time period does not accurately reflect process-oriented engagement in foster caregivers and that it might either decrease, increase, or stay stable across participants during this time period. Finally, a significant *upward* slope trajectory was found during weeks 11 through 15 of the intervention indicating a more consistent increase in process-oriented engagement across foster parent participants during the final

five weeks of the intervention, although, like weeks 7 through 10, this time period also demonstrated significant variability.

There are numerous possible explanations for why engagement may initially be inconsistent across participants only to more consistently increase towards the end of the intervention. Among the potential explanations is that as parents are learning the intervention content and attempting to apply these strategies with their children, their level of engagement also increases. More specifically, this may lead to caregivers seeking facilitator feedback on their attempts to apply the course material to their particular situation, thereby increasing their participation in session as well as their apparent satisfaction and openness to session content, which would increase their overall level of engagement. This trajectory pattern might also be simply explained by time: the longer foster parents are in the intervention, the more interested and consistently engaged they become. In support of these potential explanations are findings that indicate that number of sessions attended and length of time in treatment are two factors that have been significantly associated with increased caregiver participation in treatment (Fawley-King, Haine-Schlagel, Trask, Zhang, & Garland, 2013; Haine-Schlagel & Walsh, 2015). Finally, had the trajectory of engagement been found to be associated with the trajectory of child behavior problems, the significant variability in engagement trajectory also suggests that it may be valuable to probe this finding further in order to determine what factors may be associated with different rates of growth in engagement.

Regardless of the possible explanations for the identified trajectory of process-oriented engagement in the current study, these results are consistent with previous findings within the broader engagement literature indicating that engagement in an

intervention is not always constant and may fluctuate over time (McKay & Bannon Jr, 2004; McKay et al., 1998; Kazdin & Mazurick, 1994). However, previous findings have generally focused on evaluating engagement aggregated at different phases of treatment (i.e., attendance at initial appointments versus later appointments, dropping out at early/late phases in treatment versus completing treatment) rather than examining the potential shape of this trajectory. In addition, the focus in the present study on process-oriented engagement rather than attendance makes the current findings unique within this literature since, as previously discussed, attendance is conceptually distinct from process-oriented engagement. These findings also suggest that inconsistent process-oriented engagement across participants may not be indicative of engagement at later stages of the KEEP intervention. Facilitators may benefit from being aware that inconsistent process-oriented engagement across participants may be common in the first two thirds of the intervention and that they may want to closely monitor patterns of engagement among group members in order to better understand individual progress in applying parenting strategies.

Association Between Process-Oriented Engagement and Child Behavior Problems

The planned analyses evaluating the relation between the session-by-session trajectories of process-oriented foster caregiver engagement and contemporaneous foster child behavior problems did not result in conclusive findings, although this may have been due to insufficient power rather than a lack of association between these trajectories. However, it was still possible to evaluate the overall association between these constructs. The results of these analyses indicated that when aggregated across all fifteen

weeks of the intervention, higher levels of process-oriented engagement were associated with fewer child behavior problems, albeit at a low level of association.

Unfortunately, the temporal precedence of either process-oriented engagement or foster child behavior problems could not be established in the current study. This makes it challenging to determine whether process-oriented foster parent engagement drove changes in foster child behavior problems or vice versa. Currently, there is a gap in this area of research so arguments can be made in either direction. For example, it is possible that because consistent reductions in foster child behavior problems do not begin until week 11 across participants, foster parents do not feel motivated to exhibit behaviors consistent with process-oriented engagement until that same point in the intervention. That is, engagement might be a by-product of foster parents seeing positive effects from the intervention and so being more apt to share verbally about their experiences, appearing open to the topics covered in sessions, and completing practice assignments. However, as discussed previously, it is also plausible that it may take 10 weeks to learn enough content in the KEEP intervention to be able to consistently exhibit increased levels of process-oriented engagement, which may affect the consistency with which foster parents apply KEEP strategies at home with their foster children during the initial two thirds of the intervention. As discussed earlier in this chapter, since treatment participants have the potential to affect fidelity to a treatment protocol, process-oriented engagement may have an impact on whether foster caregiver participants implement the parenting strategies taught in KEEP as intended. In this case, behavior change does not occur consistently until foster parents are engaged in the intervention, which is the basic premise of much of the current research on process-oriented engagement. Given this

possibility, it may be fruitful for future research to evaluate the relation between process-oriented engagement and the use of the specific parenting practices taught in the KEEP intervention.

Despite the inability to establish the temporal precedence of either change in child behavior problems or process-oriented engagement, the overall results *do* support the notion that there is an associated parallel process between foster child behavior problems and process-oriented engagement in foster parents. A more detailed evaluation of the nature of this parallel process is a prime candidate for future study.

Strengths & Limitations

Some limitations of this study should be considered. First, although preliminary power analyses indicated that the sample size in the current study was likely adequate for the planned analyses, this was not what occurred in practice. As a result, one of our primary research questions, the association between the trajectories of foster child behavior change and foster caregiver process-oriented engagement, was left unanswered. This also impeded the evaluation of the second aim of this study, the potential predictors of process-oriented engagement at different time points during the intervention, since this question was not supported by the findings of the first aim. Our results indicated that absent a significantly larger sample, it may be challenging to evaluate these questions in the context of trajectories. In spite of this, it might be beneficial to build on the results of the supplementary analyses evaluating the overall association between behavior problems and process-oriented engagement by examining predictors of engagement within this context. This is especially warranted given that a previous evaluation of predictors of process-oriented engagement identified several predictors of engagement (Walsh & Price,

Under Review). It would be valuable to see whether these findings might be replicated with the sample in the current study.

Second, it should be noted that while the measure of process-oriented engagement used in the current study is more closely aligned with the behavioral components of engagement proposed by Staudt (2007) than indicators used in previous research, it is limited to four components of process-oriented engagement: participant homework completion, openness to intervention strategies, satisfaction with intervention strategies, and level of participation in the group process. As a result, it may not fully capture all of the complex and important dimensions of process-oriented engagement. For example, it might be worth evaluating how well foster/kinship caregivers respond to and follow up on specific feedback from facilitators or whether foster/kinship caregivers' contributions to the group process were more negative or positive in tone. Foster/kinship caregiver rapport with the interventionist, satisfaction with rate of progress towards goals, and how reflective foster/kinship caregivers are about their progress are other potential dimensions that might also be worthy of examination. Future research would benefit from evaluating these and other aspects of process-oriented engagement.

Third, it is important to consider that the current study's measure of process-oriented engagement was based exclusively on facilitator ratings. This is relevant because the nature of the intervention likely meant that facilitators developed relationships with foster/kinship caregivers, which might have influenced their ratings over the course of the intervention. Facilitators also collected and graphed weekly behavior problem (PDR) data to use in their supervision in order to troubleshoot implementation issues, but having a regular awareness of weekly changes in behavior problems could have the potential of

influencing their ratings of caregiver engagement. In addition to using facilitator ratings of participation engagement, in future studies researchers might code individual parents during in vivo or recorded sessions on various dimensions of participation engagement. The study of this construct might also benefit from mixed-methods qualitative component where foster parents could describe their own process of process-oriented engagement. Relatedly, a measure that evaluates behaviors consistent with process-oriented engagement, the Parent Participation Engagement Measure (PPEM), was recently developed and validated by Haine-Schlagel, Roesch, Trask, Fawley-King, Ganger, & Aarons (2015). The PPEM is a 5-item parent and youth (over age 13) report measure that asks each party to rate parents' verbal participation (e.g., directing questions towards their child's therapist in session, sharing their opinion with their child's therapist, giving input about home practice), behavioral participation (e.g., participation in games, role plays, or other types of within session practice), as well as level of agreement with planned home practice prior to the next appointment. These items have considerable overlap with those in the process-oriented measure used in the current study, but the focus on the parent and youth's perspective of parent engagement provides a different lens for examining this construct. Although this measure was validated with youths and caregivers receiving treatment in an individual rather than group settings, it is possible that a measure such as the PPEM may also lend itself to a group-based treatment such as KEEP and so may be worthy of consideration for future research in this area.

Fourth, the measure of process-oriented engagement may have been subject to a ceiling effect such that the average weekly scores on this measure throughout the 15 weeks of the intervention were all quite high, ranging from 4.36 to 4.5 on a scale of 1 to

5. Limited variability in these data may have reduced the power of analyses evaluating the relation between engagement and child behavior problems. However, results demonstrated that there was significant variability during weeks 7 through 15 of the intervention, which indicates that these means did not accurately represent participants' process-oriented engagement scores during the latter half of the intervention. Regardless, the measure would likely benefit from a larger range of potential scores for each item in order to better discriminate between levels of engagement.

Finally, regarding the inability to establish the temporal precedence of process-oriented engagement, it is possible that the piecewise segments for engagement may not have been properly specified, although these were driven by a priori hypotheses about how engagement might map on to concepts presented during the intervention. Rather than focusing on contemporaneous trajectories, it may be fruitful to evaluate the relation between engagement and behavior problems in an autoregressive, cross-lagged model. This would allow for an evaluation of whether a particular week of engagement is related to behavior problems at a later time point. Given that altering the consequences to behaviors often results in an "extinction burst" (a worsening of behavior prior to extinction or improvement; Cooper, Heron, & Heward, 2007) and targeting these behaviors is the explicit goal of the KEEP intervention, it is possible that process-oriented engagement in foster caregivers may actually affect foster child behavior problems later than the current week. The remaining challenge in this type of evaluation would be determining the length of this "lag" given the large number of time points that would be included in this evaluation, particularly since there appears to be a lack of research examining the typical duration of extinction bursts in the treatment of behavior disorders.

Given the current lack of research examining trajectories of process-oriented engagement, perhaps this evaluation may benefit from a more exploratory approach (although this introduces other potentially problematic issues, including a potential critique of "fishing" for results).

Despite these limitations, valuable information was still gleaned from this study. The design of this study was unique in its ability to evaluate the two constructs of interest, foster child behavior problems and foster caregiver process-oriented engagement, using concurrent week-by-week measures of process-oriented engagement and KEEP's target outcome, child behavior problems. This allowed for a better understanding of the shape of trajectories for these respective constructs. Additionally, this study was distinct due its evaluation of these constructs with participants who were affiliated with the child welfare system as foster or kinship caregivers, children with histories of maltreatment (neglect and/or physical abuse), and within the context of a parent training intervention that was being carried out in a group setting. These characteristics of the study have been neglected in previous research examining process-oriented engagement, which adds to the potential value of the resulting findings.

While not a primary focus of current study's aims, the findings related to the trajectory of behavior problems while the KEEP intervention is in process has the potential to add important information to the broader parent training literature as it demonstrates that it may take several weeks before parents begin to see changes in their child's behavior. Similarly, although previous literature supports that engagement in psychotherapy is not static and may change over the course of an intervention, the findings related to the trajectory of process-oriented engagement add greater clarity about

the shape of this trajectory within the context of a group-based foster parent training intervention. Although this study was not able to determine the relation between these trajectories, supplementary analyses demonstrated that there *is* a relation between these constructs and that they may share a parallel process, which supports continued research in this area.

Conclusions

The findings from this study provide conceptual and empirical information to support future research evaluating the role of participation engagement in parent-mediated interventions aimed at addressing behavior problems in children involved in the child welfare system, as well as the potential importance of evaluating this construct at different phases of an intervention. Having a better understanding of this construct may allow for the refinement of current interventions in order to increase process-oriented engagement, which may, in turn, improve treatment outcomes. With this type of awareness, it is possible that effective interventions may be able to have an even greater impact on populations that have a need for strong evidence-based interventions.

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TABLES

Table 2.1: Descriptive Statistics for Key Variables

Participant Demographic Characteristics (n = 164)	M	SD
Focal Child (FC) Age	7.84	2.5
FC Gender (female)	47%	--
Foster/Kinship Caregiver (FP) Age	45.10	10.2
FP Gender (female)	96%	--
FP Percent High School Diploma/GED or higher	58.3%	--
FP Income Level		
Less than 14,999	16.1%	--
15,000-24,999	15.4%	--
25,000-34,999	14%	--
35,000-44,999	14%	--
45,000-54,999	9.1%	--
55,000-64,999	7%	--
65,000-74,999	6.3%	--
75,000-84,999	5.6%	--
85,000-94,999	5.6%	--
95,000 or above	7%	--
Foster/Kinship Parent Ethnicity	%	N/A
African American	24	
Asian/Pacific Islander	0	
Caucasian	33	
Hispanic	40	
Native American	1	
Mixed Ethnicity	2	
Focal Child Ethnicity	%	N/A
African American	23	
Asian/Pacific Islander	2	
Caucasian	11	
Hispanic	46	
Native American	1	

Table 2.1: Descriptive Statistics for Key Variables (continued)

Focal Child Ethnicity	%	N/A
Mixed Ethnicity	16	
Additional Baseline Study Variables		
Length of time FC in foster home (months)	14.04	23.03
Length of time as a foster/kinship caregiver (months)	38.22	52
Percent Kinship Caregiver	45%	--
Number of Children in Foster Home	3.65	1.5
FP Group Language (English)	62.8%	--
FP distress re: FC behavior (observed range 0-35)	7.07	7.71
FC behavior problems (i.e., observed range 0-17)	4.96	3.8

Table 2.2: KEEP Group Topics by Week

Week	Topic
1	Group orientation and overview
2	Encouraging cooperation & effective adult requests
3	Teaching new behaviors
4	Using charts and incentives
5	Limit setting
6	Balancing encouragement and limit setting
7	Avoiding power struggles
8	Pre-Teaching
9	Dealing with covert problem behaviors
10	Promoting school success
11	Encouraging pro-social peer relationships
12	Managing stress
13	Managing transitions
14	Open
15	Open

Table 2.3: Data collection timelines for measures, construct(s) measures are intended to define, and the reporting agent for each measure

Measures		**Timeline**		**Domain**		
Informant	Measure	Baseline	Intervention	Parent and child characteristics at baseline	Child behavior problems	Process-oriented engagement
Foster/Kin Parent	Foster/Kin Parent Interview	x		x		
	PDR (Chamberlain & Reid, 1987)	x	x	x	x	
Staff	Parent Group Engagement		x			x

Table 2.4: Engagement Measure Items

Engagement Measure
1. Did the foster parent participate during the group session?*
2. Did the foster parent seem open to the ideas presented in the group session?*
3. Did the foster parent seem satisfied with the materials provided during the group session?*
4. Did the foster parent implement the assigned homework?*
5. Did the foster parent receive support from the other group members?
6. Was the foster parent confronted by the other group members?
*Items included in analysis based on the findings of DeGarmo et al. (2006) Response Options: 1 = Not at all, 2 = Very little, 3 = Some, 4 = Quite a lot, 5 = Very much

Table 3.1: Descriptive Statistics for Weekly PDR and Engagement Variables

Week	PDR Mean (SD)	Engagement Mean (SD)
1	6.17 (4.92)	4.50 (.54)
2	5.19 (4.52)	4.45 (.64)
3	4.80 (4.58)	4.50 (.53)
4	4.07 (4.15)	4.49 (.53)
5	4.61 (4.59)	4.42 (.60)
6	4.62 (4.38)	4.43 (.52)
7	4.59 (4.46)	4.40 (.56)
8	4.80 (4.87)	4.39 (.55)
9	4.08 (4.71)	4.36 (.57)
10	4.47 (4.66)	4.38 (.54)
11	4.80 (4.71)	4.40 (.51)
12	3.98 (4.30)	4.36 (.54)
13	3.49 (3.76)	4.41 (.54)
14	3.73 (4.24)	4.43 (.53)
15	2.86 (3.30)	4.44 (.53)

APPENDIX A

PDR (Parent Daily Report)

I'm going to ask you some questions about [CHILD]'s behavior and activities in the last 24 hours.

For each behavior I read, I'd like you to tell me whether [CHILD]) has done that behavior in the last 24 hours, Since__ __ o'clock yesterday. You may simply answer yes or no.

For each of the behaviors you just listed as having occurred in the last 24 hours, I'm going to ask how upset you were by that behavior.

DAY OF WEEK: 1- Mon 2- Tues 3- Wed 4- Thurs 5- Fri 6- Sat 7- Sun

	Child Behaviors 1- Yes 2- No		
	Did he or she….	**yes/no**	**Upset?**
1	Argue		
2	Back-talk		
3	Wet		
4	Competitive		
5	Complain		
6	Defiant		
7	Destructive, vandalize		
8	Soil		
9	Fight		
10	Irritable		
11	Lie		
12	Negative		
13	Boisterous, rowdy		

	Child Behaviors How Upset? 1- Not at all 2- Somewhat/ a little 3 – Quite a lot		
	Did he or she….	**yes/no**	**Upset?**
17	Run away		
18	Swear, use bad language		
19	Tease, provoke		
20	Depressed, sad		
21	Sluggish		
22	Jealous		
23	Truant		
24	Steal		
25	Nervous/jittery		
26	Short attention span		
27	Daydream		
28	Irresponsible		
29	Marijuana/drugs/		

14	Not mind		
15	Stay out late		
16	Skip meals		

	Alcohol		
30	Any school problem		
31	Inappropriate sexual activity		