THE EFFECTS OF IN THE MOMENT COMMENTING AND INTERVENTION SESSION LENGTH ON PARENTAL BEHAVIOR CHANGE IN ATTACHMENT AND BIOBEHAVIORAL CATCH-UP

by

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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Honors Bachelor of Science in Psychology with Distinction.

Spring 2016

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ACKNOWLEDGMENTS

I would like to thank everyone at the Infant Caregiver Project for their help, patience, and support over the past year with my thesis, especially Dr. Dozier, EB Meade, and Amanda Costello. Thanks to Dr. Roben and Dr. Roth for their guidance. Last, but certainly not least, I would like to thank my family and friends for their endless encouragement throughout this process.

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ABSTRACT

In high-risk environments, children are put at risk for the development of insecure parent-child attachments and physiological dysregulation. The Attachment and Biobehavioral Catch-up intervention has been demonstrated effective in improving attachment and regulatory outcomes. The current study examines two hypothesized active ingredients of the Attachment and Biobehavioral Catch-up (ABC) intervention. First, parent coaches are trained to make In the Moment comments that label targeted parent behaviors. Previous work has shown that these comments encourage positive behaviors among the parent-child dyad. This study focused on evaluating the contribution of a second potential active ingredient of intervention, session length. Two studies were conducted, the first in a lab setting and the second in a community dissemination site. In the first study, parent behaviors were measured in-session, while in the second study, parent behaviors were measured before and after intervention. Key aspects of parent coach commenting were coded from five-minute video clips of sessions. Multiple linear regression analyses showed that commenting predicted increased parental following the lead in the future, while session length had no effect on parental behavior. These results support a focus on commenting in training and supervision for ABC.

Chapter 1

INTRODUCTION

High-risk environments can impede children's proper growth and development. Children who are in high-risk environments may experience adverse outcomes such as temperament issues, developmental delays, and insecure attachments (Ramey et al., 2000). However, sensitive parents, who respond in attentive and nurturing ways to their children, can buffer children from high-risk environments (Asok, Bernard, Roth, & Dozier, 2013). Thus, interventions to promote parental sensitivity and thereby increase positive child outcomes are essential.

The Infant Caregiver Project, directed by Dr. Mary Dozier at the University of Delaware, has developed an intervention to help parents become more sensitive toward their children. The intervention, called Attachment and Biobehavioral Catch-up (ABC), helps improve the relationship between caregiver and child by increasing caregiver levels of nurturance, following the lead, and delight. Nurturance is defined as the ability of a parent to show warm, empathic care towards a child when he is distressed or bidding for physical affection. Following the lead is the ability of the parent to actively and contingently engage in the child's play but not take control of it. Delight is when a parent smiles or laughs with the child and at what he or she is doing. The parent-child dyad participates in ten sessions of ABC with a clinician who we refer to as the "parent coach." During ABC sessions, parent coaches discuss manual content with parents, use videos to provide examples and video feedback to parents, and use structured practice activities in which parents can practice new skills.

Throughout these activities, the parent coach makes "in the moment" comments about parent behaviors as they occur.

The ABC intervention has been found to increase parental sensitivity, or following the lead. Mothers who have completed ABC are more sensitive than mothers assigned to a control intervention (Bernard, Simons & Dozier, 2015; Bick & Dozier, 2013). Further, among mothers in ABC, sensitivity increases from pre- to post-intervention (Bick & Dozier, 2013). This increased sensitivity is thought to allow children to become more trusting of their parents and develop secure attachments, despite their high-risk environments and adverse pasts (Bick & Dozier, 2013). In fact, ABC is indeed effective in promoting attachment security, as children placed in the ABC intervention, compared to the control group, show higher rates of secure attachment (Bernard et al., 2012).

ABC's "active ingredient" of intervention is thought to be In The Moment (ITM) commenting. ITM commenting is a statement made by the parent coach after he or she observes a behavior displayed by the parent. For example, a parent coach may say, "That was great following the lead. She handed you the toy, and you accepted it. That really shows her that she has an effect on the world." These comments have been shown to predict parent behavior change, specifically, increased rates of following the lead and decreased rates of parental intrusiveness (Caron, Bernard & Dozier, in press; Meade, Dozier & Haggerty, 2015).

The role of ITM comments as an integral component of ABC is further supported by findings linking similar therapeutic techniques to parent behavior change in Parent-Child Interaction Therapy (PCIT). PCIT and ABC use similar techniques of intervention, although PCIT is designed for children with conduct problems (Barnett,

Niec & Acevedo-Polakovich, 2014). That is, although the parenting skills targeted in ABC (following the lead, delight and nurturance) differ from those targeted by PCIT (labeled praise, reflections, and behavior descriptions), both interventions use "in vivo coaching" to encourage targeted behaviors in parents. Styles of "in vivo coaching" also differ, as PCIT coaching is traditionally delivered from behind a one-way mirror in a clinic treatment room, over a "bug-in-the-ear" device, while ABC is done with the coach present in the room making live comments in front of the child for all participants to hear.

Aside from the differences, in vivo commenting has been shown to predict parent behavior change in both interventions. In PCIT, frequency of responsive coaching statements has predicted parents' use of labeled praise in the next session (Barnett et al., 2014). In ABC, frequency of comments has predicted higher rates of following the lead in subsequent sessions (Meade, Dozier & Haggerty, 2015). However, all three of these studies were correlational in nature. In contrast, one study assigned parents to two sessions of PCIT coaching (Shanley & Niec, 2010). After just two sessions of PCIT with in vivo commenting, increases in positive parental behavior change were observed. In contrast, when no coaching was provided, there was actually a decrease in positive parental behavior (Shanley & Niec, 2010).

Within this study, however, dose of intervention was held constant to 15 minutes per session (Shanley & Niec, 2010). In other studies of PCIT and ABC, intervention dosage has not been measured (Barnett et al., 2014). How long does the intervention session have to be to be successful or does that not matter? I will be expanding upon the previous works of our laboratory to find this out.

In prior work, as discussed above, we have found that ITM comments are a critical piece of successful intervention and parental behavior change. What has not been looked at, though, is the dose of the intervention. Every parent-child dyad participates in ten sessions of ABC. Although sessions are intended to be about 60 minutes long, this length requirement is not strictly enforced. Some parent coaches have shorter sessions than others for various different reasons. A child may not be cooperating or the parent may cut the session short due to prior commitments. A coach may also cut the session short if he or she becomes uncomfortable with the interaction or setting. No matter the circumstance, it must be taken into account that some dyads do not receive full time while others get longer sessions. Average length of therapy treatment has shown no effect on the efficacy of a therapist on a patient (Lutz et al., 2015). This was only evaluated for outpatient private practices, however. Also, sessions tended to not be longer at random. Longer sessions were conducted for patients with a higher number of insurance-approved sessions or higher levels of interpersonal distress (Lutz et al., 2015). The same results of length and outcome having no correlation may be true for ABC intervention as well.

The studies will examine if length of sessions has an impact on the amount of parental behavior change that occurs during ABC. It may just be the quality and frequency of the comments within even a short session that can prompt change. Will a twenty-minute session with five comments have less of an impact than a forty-minute session with comments of a similar frequency? Additionally, parent coaches who make more comments may also have longer sessions, first, because they may place greater value on adhering to both of these aspects of the ABC intervention, and second, because adding comments spaces the manual content out, leading to sessions

of greater length. In this study, I will examine session length as a possible third variable in the relationship between ITM commenting and parental behavior change, and evaluate its association with both ITM commenting and parent behavior outcomes. I will also compare the effects of session length on parent behavior. Finding that commenting predicts parent behavior outcomes, over and above the amount of time spent with a parent coach, would strengthen the evidence that commenting is an active ingredient of ABC. Alternatively, finding that both commenting and session length independently predict parent behavior outcomes would provide evidence that session length is a critical aspect of adherence to ABC. This study expanded on two prior studies by examining session length as an additional predictor of parent behavior change in ABC. The first study examined session length and commenting in a lab-based randomized clinical trial (Meade, Dozier & Haggerty, 2015), and the second study examined these two predictors at a dissemination site implementing ABC (Caron et al., 2016).

Chapter 2

STUDY 1: METHODS AND RESULTS

Methods

The sample consisted of 56 parent-child dyads. The children in these pairs were internationally adopted, and were participants in a study evaluating the efficacy of the ABC intervention for the internationally adopted population, as compared to a control intervention. Participants were recruited through the help of various adoption agencies and children's hospital clinics. The participants in this study were randomly selected for the ABC intervention rather than for the control intervention.

Participants

On average, children were 21.4 months old (*SD=8.9*) when they enrolled in the study. Twenty-three children (or 41% percent) were adopted from China, eleven (20%) were adopted from South Korea, ten (18%) were adopted from Russia, six (11%) were adopted from Ethiopia, and six were from other countries, including Guatemala, Kazakhstan, and Thailand, or had data missing. Half of the children were male (50%). The vast majority of families (91%) had two parents living in the home. However, the majority of the 56 families (n = 39; 70%) had only one parent participate in intervention. In the other third of the sample, two parents participated in at least one of the two intervention sessions examined in the current study. Every family had yearly income reported at $40,000 or higher, with over half having above $100,000.

The primary caregiver of almost all families was white, with the exception of one Asian-American parent (1.8%), and 39.3 years old (*SD = 6.0*), on average.

Procedure

The ABC intervention sessions took place in participants' homes every week for ten weeks. Sessions were videotaped to ensure the ability to code behaviors and ITM comments. For this study, video clips that were five minutes long were selected from sessions 3 and 9. Session 3 was used because it was beginning but coaches had some knowledge of commenting. Session 9 was used because it was the end of the intervention right before the wrap-up in Session 10. To select the clip, the first five minutes of the middle ten were chosen. Upon skimming the video, if the dyad encountered a problem (e.g., an off screen parent), the clip time was changed to the nearest piece where the full 5 minutes were codeable. In four cases, sessions could not be used because there were missing videos. When this occurred, an alternate video was used, such as session 4 or 10. Coders coded only one session per dyad, and were distributed equally across session 3 and 9 videos.

Measures

ITM commenting assessment

There are two parts to the ITM coding system. The first codes parents' displayed behaviors as behaviors targeted by the intervention. The second part records and scores the parent coach response to each behavior. Comments of the parent coaches were only credited if they praised, labeled, or scaffolded a parent behavior. One of these criteria must be met in order for the comment to be coded as on-target.

Behavior and response targets

Behavior targets are separated into positive and negative behaviors. Positive behaviors include following the lead, delight, and nurturance.

Following the lead is coded when a parent responds to the child's play or is engaging in the play as well, following what he or she is doing and not taking control of the interaction. Delight is coded when a parent smiles or laughs at what the child is doing, showing a clear expression of joy. Nurturance is coded when a child is crying or seems to be in distress and the parent responds warmly to his or her needs. Nurturance is also coded when a child is reaching for the parent or clearly craving a form of physical affection, and the parent provides it.

Negative behaviors are those that deviate from the intervention targets. Behaviors like this include not following the lead, non-nurturance, and over-stimulating or frightening behaviors. Not following the lead includes when a parent takes over the child's game or ignores the child when the child is trying to engage in play. Ignoring, rejecting or dismissing distress would be coded as non-nurturance. Over-stimulating behaviors occur when a parent shows signs of physical intrusiveness, such as tickling or shaking items in the child's face.

In addition to assigning target codes to parents' behaviors, targets are also coded for comments. Targets for comments are coded based on the descriptions and outcomes included in the comment (e.g., the coach describes the parent's following the lead behavior, or labels the behaviors as "following the lead").

On-target

For a comment to be considered "on-target," the target of the parent coach's comment must appropriately match the parent behavior. An off-target comment is

made in reference to the wrong behavior. For example, a following the lead behavior that receives a nurturance comment would be considered off-target. In addition, any comments that address behaviors not targeted by ABC (e.g. a caregiver just watching the child who receives a "Great watching" comment), or that are directed at the child instead of the caregiver, are considered off-target.

Scoring

The coding is done on an Excel spreadsheet. The spreadsheet is automated to produce summary calculations based on what is entered. If two parents participate in ABC, the spreadsheet allows calculation of behaviors and comments specific to each parent. In the current study, on-target comment frequency was chosen as the key commenting predictor variable. The spreadsheet also calculates frequencies of each ABC-targeted behavior displayed by the parent, and the frequency of following the lead was used in the current study as the behavior outcome measure.

Reliability

Fidelity coders are trained to reliability standards for both behavior and comment coding. Before coding videos in the current sample, coders received 40 hours of training and coded a reliability set of 10 five-minute clips. About 15% of the videos in this study were selected at random for double coding to evaluate reliability. The number of parent coach comments had an intra-class correlation (ICC) of .79. The ICC for number of following the lead behaviors was .88.

Session Length

Session length was assessed from the length of video recordings. When multiple video recordings for a session were available, length of each clip was added

together to calculate the full session length. In the current study, the average of Session 3 and 9 was taken for all cases. This was expected to provide a more accurate representation of the time that the parent had with the parent coach over the ten-week period of ABC intervention than using only session 3 or 9 length.

Analyses

Regression analyses were conducted. The dependent variable was the frequency of the primary caregiver's following the lead in Session 9. Hierarchical multiple regression was specified. In Step 1, frequency of Session 3 following the lead was entered. In Step 2, session length was entered. Finally, in Step 3, the frequency of comments was entered, to examine whether comments early in ABC would continue to predict parent behavior later in ABC, over and above the amount of ABC received (as assessed by session length).

Results

Preliminary Analyses

As shown in Table 1 and 2, session 3 following the lead was significantly correlated with session 9 following the lead. Session length was not correlated with parent behaviors or commenting variables. Frequency of on-target comments in session 3 was correlated with both session 3 and session 9 parent behavior.

Regression Analyses

To determine the effects of commenting, above and beyond prior behavior and session length, multiple linear regression analyses were run. Results are shown in Table 2. In Step 1, the Session 3 frequency of parental following the lead was added,

to account for early parental behavior predicting later parent behavior, and potentially eliciting higher frequencies of parent coach commenting. Early following the lead accounted for 14% of the variance in following the lead in Session 9, β = .375, $p < .01$. Next, in Step 2, session length was added. Session length did not significantly predict Session 9 following the lead (β = .031, *ns*).

Commenting frequency was added in Step 3 to see if Session 3 comments predicted observed following the lead in Session 9. Comment frequency did predict frequency of following the lead in future sessions, such that more comments predicted more instances of following the lead, β = .313, $\Delta R^2 = .064$, $p < .01$. For every additional comment per minute in session 3, the regression model estimated an increase of 2.05 following the lead behaviors in session 9.

Table 1 Means and Standard Deviations of Variables, and Bivariate Correlations between Screening Measures and Following Scores

	Mean (SD)	Session 3 Following	Session 3 Comment Frequency	Session 3 & 9 Average Length
Session 3 Following	3.64 (2.65)	--		
Session 3 Comment Frequency	0.33 (0.53)	.584**	--	
Session 3 & 9 Average Length	61.12 (15.46)	-.035	.015	--
Session 9 Following	4.96 (3.45)	.375**	.426**	.018

Note. * $p < .05$ ** $p < .01$

Table 2 Means and Standard Deviations of Variables, and Bivariate Correlations between Screening Measures and Following Scores

Variable	b	*SE*	*β*	*t*-ratio	*p*-value
Step 1					
Session 3 Parent Following	.489	.165	.375	2.970	.004
(Constant)	3.182	.739		4.305	.000
Step 2					
Session 3 Parent Following	.491	.166	.376	2.951	.005
Average Session 3 & 9 Length	.007	.028	.031	.246	.807
(Constant)	2.750	1.912		1.438	.156
Step 3					
Session 3 Parent Following	.251	.199	.193	1.262	.212
Average Session 3 & 9 Length	.005	.028	.020	.163	.871
Session 3 Comment Rate	2.050	.998	.313	2.054	.045

Chapter 3

STUDY 2: METHODS AND RESULTS

Methods

Participants

Study 2 involved ABC conducted at a Hawaiian dissemination site. This study was conducted to examine whether ABC would work outside of the laboratory setting. Participants included 56 parent-child dyads seen by eight parent coaches in Hawaii. Forty-eight (86%) of the primary caregivers who participated were birth mothers, whereas 3 (5%) were birth fathers. Five of the primary caregivers (9%) were foster mothers. Most of the caregivers (33 or 59%) were of mixed race. Seven (12.5%) where white and non-Hispanic, while 3 (5%) were white and Hispanic. There were 5 (9%) Asian primary caregivers and one (2%) African American caregiver. The other 7 (12.5%) caregivers were native Hawaiian or other Pacific Islanders. Caregivers had an average age of 29.5 (*SD* = 7).

Forty-four of the 56 children (79%) were of mixed race, 5 (9%) were white and non-Hispanic, 3 (5%) were native Hawaiian, while 1 (2%) participant was African American, 1 (2%) was Asian American, and 1 (2%) was other Pacific Islander. Children were on average 11.8 months old (*SD = 7.2)*.

Procedure

Prior to beginning ABC, parent coaches conducted a play assessment to measure following the lead behaviors that were already present before intervention.

Then, the families were given ten sessions of ABC, all ten of which were videotaped and later coded by supervisors. Following the ten sessions, another play assessment was conducted to measure the parental post-intervention behaviors of following the lead.

Measures

In the Moment Assessment

The fidelity assessment used in Study 2 varies slightly from the assessment used in Study 1. The fidelity assessment used in the current study was designed for use by parent coaches in dissemination sites and was simplified for this purpose. For example, over-stimulating intrusive behavior is coded as not following the lead, instead of a separate category. The coding system used in the second study also has a higher level of automation. In the current study, parent coaches' percentage of on target comments and commenting frequency were used as predictor variables. These variables were averaged across sessions 1 to 5.

Reliability

Eighty-four videos were selected for double coding to evaluate coders' inter-rater reliability. The frequency of parent coach comments had an intra-class correlation (ICC) of .92. The percentage of on target comments ICC coefficient was .81.

Session length

Once again, session length was assessed using length of session videos. In the current study, however, session lengths from all available sessions (including sessions

1-10) were averaged, in order to achieve the most precise amount of time spent per session.

Parent behavior assessment

Parent behavior was coded from videos of semi-structured play interactions conducted prior to and after intervention. Parent coaches provided parents with a standardized set of toys, told them to play as they normally would, and recorded for 9 minutes. During this time, parent coaches did not make comments and remained silent. Videos were coded for parental following the lead using a 5-point scale adapted from the NICHD Observational Record of the Caregiving Environment (ORCE; NICHD ECCRN, 1996).

For reliability purposes, about 15% of the videos were double coded. The ICC for following the lead behavior was .65.

Analyses

Regression analyses were conducted to determine the dissemination-based effects of in the moment commenting on parent behavior. In Step 1 of the analysis, pre-intervention measures of following the lead were entered. In Step 2, session length was added. In Step 3, comment frequency and percentage of on-target comments were included.

Results

Preliminary Analyses

As shown in Table 3, 4, and 5, pre-intervention following the lead was not correlated with post-intervention following the lead. Session length was also not

correlated with either post-intervention behavior score. Both commenting variables were correlated with both post-intervention behaviors.

Regression Analyses

As shown in Tables 4-5, in each regression model, the pre-intervention parent behavior was added in Step 1. In each model, it did not significantly predict post-intervention parent behavior. Next, in Step 2, session length was added. In each model, session length did not significantly predict post-intervention parent behavior.

Next, the commenting variables were added in Step 3. In the models in which comment rate was entered as a predictor of post-intervention following the lead, it significantly contributed to the model (β = .341). When percentage of on-target comments was added as a predictor of post- intervention following the lead, it also significantly contributed to the model (β = = .273).

Table 3 Means and Standard Deviations of Variables, and Bivariate Correlations between Screening Measures and Following Scores

	Mean (SD)	Pre Following	Average Length	Comment Frequency	% On Target
Pre-Intervention Following	*2.93 (1.16)*	--			
Average Session Length	*46.08 (8.45)*	.061	--		
Average Comment Frequency (1-5)	*1.05 (0.56)*	.064	-.221	--	
Average Percent On-Target (1-5)	*82.88 (16.15)*	-.181	.166	.506**	--
Post-Intervention Following	*3.96 (1.16)*	.120	.134	.302*	.257

Note. * $p < .05$ ** $p < .01$

Table 4 Study 2: Results of Linear Regression Model Effects of Session Length, Parent Coach Comment Rate and Pre-intervention following the lead on Post-intervention Following

Variable	**b**	***SE***	β	***t*-ratio**	***p*-value**
Step 1					
Pre-intervention Following	.120	.135	.120	.888	.378
(Constant)	3.612	.426		8.489	.000
Step 2					
Pre-intervention Following	.112	.136	.112	.829	.411
Average Session Length	.017	.019	.127	.937	.353
(Constant)	2.832	.935		3.029	.004
Step 3					
Pre-intervention Following	.086	.129	.086	.663	.510
Session Length 1-10	.028	.018	.204	1.542	.129
Comments Per Minute	.705	.273	.341	2.581	.013
(Constant)	1.688	.993		1.699	.095

Table 5 Results of Linear Regression Model Effects of Session Lengths Parent Coach On-targetness and Pre-intervention Following the Lead on Post-intervention Following

Variable	**b**	***SE***	β	***t*-ratio**	***p*-value**
Step 1					
Pre-intervention Following	.120	.135	.120	.888	.378
(Constant)	3.612	.426		8.489	.000
Step 2					
Pre-intervention Following	.112	.136	.112	.829	.411
Average Session Length	.017	.019	.127	.937	.353
(Constant)	2.832	.935		3.029	.004
Step 3					
Pre-intervention Following	.165	.135	.165	1.226	.226
Session Length 1-10	.011	.018	.078	.585	.561
Percent on Target	.020	.010	.273	2.010	.05
(Constant)	1.360	1.168		1.165	.250

Chapter 4

DISCUSSION

Overall, both studies demonstrate that comments predict later behavior, over and above all other variables included in the models. As such, this study builds on previous work and adds additional evidence that commenting is an active ingredient of the ABC intervention. Specifically, better quality and higher frequency of comments are linked to parental behavior improvement.

In contrast, time spent in sessions did not predict any later outcomes. The results from both studies work to eliminate a possible third variable and achieve greater certainty in the power of commenting in the intervention. Commenting appears to drive ABC's success. The behavior change that is present shows that ABC has accomplished its intervention goal by encouraging and increasing amounts of following the lead in parent-child interactions.

By establishing that commenting does predict higher rates of following the lead post intervention, this study has implications for how parent coaches implementing ABC can work to diminish effects of high-risk environments on children. The comments made in ABC are linked to greater parental sensitivity, which is in turn linked to more secure attachments in children. From this, we learn that parent coaches must provide accurate, high quality comments that are frequent in order to give the maximum benefit to the parents in the intervention.

It is also important to understand how an intervention works in order to replicate its effects outside of the laboratory (Fixsen, Naoom, Blase, Friedman &

Wallace, 2005). In prior work and the current paper, we have demonstrated that ITM comments are a critical component of ABC. However, most parent coaches are not natural commenters. Commenting can be difficult when parent coaches do not know what to look for or do not understand a behavior target. Many times, they confuse following the lead and nurturance due to the similar positive behavioral aspects. Commenting is also hard in sessions when parents want to engage with the parent coach instead of the child. It is hard or sometimes even uncomfortable to interrupt the parent and try to redirect the attention to the child without feeling rude. In order to promote parent coaches' ability to make comments, they receive training and supervision focused on commenting. Training in commenting begins at a two-day workshop, conducted by supervisors who are experienced and well versed in ABC intervention. After this initial training, coaches receive two types of supervision for one year, general clinical supervision with a doctoral level supervisor, and commenting-focused supervision with an expert coder. Commenting-focused supervisors must pass reliability sets to assess their coding ability, receive training in supervision, and are then assigned a parent coach to work with throughout the coach's intervention sessions.

In commenting-focused supervision, every week, the supervisor observes a video of the parent coach's most recent session. Both the supervisor and the parent coach code a five-minute clip from the session and compare results. They code comments made as well as the missed opportunities in which the parent coach could have made a comment but did not. Supervisors provide parent coaches with feedback on their commenting performance, including on-targetness and frequency, based on the supervisor's coding. Via online conferencing, the supervisor watches video clips

with the parent coach and talks about comments he or she could have made and also highlights the positives that the parent coach is already practicing. The supervisors also work to provide feedback on the coach's coding of himself or herself, to ensure that it is accurate. When the coach can code himself/herself accurately, it shows that he or she has a grasp on ABC targets and commenting guidelines. In sum, these supervisory practices are intended to make commenting by the parent coaches more on-target, frequent, and effective, and evidence from a multiple-baseline design suggests that comment frequency increases following the initiation of commenting-focused supervision (Caron et al., in preparation).

Knowing that supervision is what drives parent coach comments, and commenting is what predicts parental behavior change, it is important to instill supervision into the implementation of ABC at dissemination sites. Further, these processes of identifying and validating core components of intervention, focusing supervisory practices on them, and testing results can be replicated in other interventions in hopes of similar positive results.

The ABC intervention has increased rates of secure attachment among high-risk children through changing parental behavior. In the current studies, intervention dose had little to do with post-intervention parent behavior change. However, the frequency and quality of comments did matter when assessing parental changes in following the lead, even after controlling for prior levels of this behavior. In these studies, we have ruled out session length as a possible third variable, and generated greater evidence that ABC's positive effects are driven by in the moment comments. This understanding allows for the intervention to be all the more successful because it focuses the training and supervision of parent coaches on commenting.

Future Directions

In future studies, our lab can test session length and in the moment commenting as predictors for other behavioral targets in lab settings and at dissemination sites, such as the targets of nurturance or intrusiveness. With these data, although it will be impossible to prove the null hypothesis of no association between session length and post-intervention behavioral change, we can continue to build support for the importance of commenting. We can also explore whether associations between commenting and behavior change hold in other populations at different dissemination sites, including sites outside of the United States. We can work to include other possible third variables in our studies to test them against commenting as predictors of parental behavioral change. Such other third variables could include amount of child engagement or even multiple sibling sessions. Finally, because we have a control group in our lab-based studies, we plan to test mediation of intervention effects on parent behavior by commenting. We are currently working to code commenting and parent behaviors from intervention sessions 3 and 9 of families randomized to the Developmental Education for Families (DEF) intervention.

Conclusion

Children from a high-risk environment who are likely to experience insecure attachments can achieve secure attachments with their parent, as noted by the results of ABC intervention's ITM commenting success. Therefore, Study 1 examined the relationship between Session 3 following the lead predicting parental behavior change in Session 9, as well as incorporating session length and Session 3 commenting as predictors. Both Session 3 instances of following the lead and the comments made served as predictors for Session 9 parental behavior change. In Study 2 which

incorporated dissemination, pre-intervention following the lead and session length did not correlate with post-intervention following the lead changes. Comment rates and percentage of on-target comments made by the coaches, however, did. By increasing the following the lead behavior in parents via parent coach comments, there is an overall impact on the parent-child dyad. A larger sample size could help us more accurately predict. Without such limitations, we may be able to access session length more reliably and even consider working with a different third variable to prove the effectiveness of ABC.

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