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Enhancing Parental Sensitivity in Families with an Evidence-Based Early Intervention

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ABSTRACT

Early caregiving experiences set the stage for children's developmental trajectories. Children who experience early adversity are more likely to show difficulties regulating their behaviors, emotions, and physiology than children who do not experience adversity. Parenting interventions designed to enhance parental sensitivity and responsiveness can buffer children from the detrimental effects of early adverse experiences and ultimately enhance child outcomes. One such intervention is Attachment and Biobehavioral Catch-up (ABC), an evidence-based home visiting program developed to enhance parental sensitivity and responsive care. In this paper, we review the intervention objectives and effectiveness of ABC. We then describe efforts made to supervise the fidelity and dissemination of ABC, including its implementation in diverse cultural contexts and with Spanish-speaking families in the United States. Lastly, we discuss the potential of ABC as a novel intervention to be implemented within the child welfare system in Spain and Latin America.

Promoviendo la sensibilidad parental con una intervención temprana basada en la evidencia

RESUMEN

Las experiencias tempranas son clave como cimientos de las trayectorias de desarrollo. Sufrir adversidad temprana está relacionado con dificultades en regular el comportamiento, las emociones y la fisiología. Las intervenciones que promueven la sensibilidad parental pueden proteger a los niños de las consecuencias negativas de la adversidad temprana y promover trayectorias de desarrollo positivas. Una de estas intervenciones es Attachment & Biobehavioral Catch-up (ABC), un programa de visitas domiciliarias basado en la evidencia que promueve un cuidado sensible y contingente. En este artículo, revisamos los objetivos de la intervención ABC y su eficacia. Describimos también la supervisión de la fidelidad al programa y su disseminación, incluida la implementación de ABC en diversos contextos y con familias de habla hispana en Estados Unidos. Por último, discutimos el potencial de implementar ABC en España y Latinoamérica como una innovación en el campo de la intervención familiar y la protección a la infancia.

Palabras clave:

Attachment and Biobehavioral
Catch-Up
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The first years of life set the stage for long-term social-emotional, cognitive, and neurobiological development (Knudsen, 2004; Sroufe et al., 2010). Exposure to chronic stress and inadequate caregiving during this critical period may be especially detrimental for child development (Knudsen, 2004; Shonkoff et al., 2012; Sroufe et al., 2010). Responsive and sensitive care early in life promotes a secure attachment and adaptive behavioral and physiological regulation, optimal patterns which are related with long-term positive outcomes (Feldman, 2012; Groh et al., 2017). Therefore, the use of evidence-based interventions designed to enhance parental sensitivity and responsiveness is an effective way to promote child development, especially among children who have experienced early adversity (Campbell et al., 2014).

There are several evidence-based early intervention programs that focus on enhancing sensitivity and nurturing care, and some of these models have demonstrated both enhancement of parental sensitivity as well as the promotion of positive outcomes in children (see meta-analysis by Mountain et al., 2017). Specifically, various meta-analyses suggest that short-term interventions which focus on changing parenting behaviors are the most effective (e.g., Bakermans-Kranenburg et al., 2003; Mountain et al., 2017). Given the detrimental impact of early adversity on social-emotional and cognitive development, children who are in the child welfare system are among those who need responsive and nurturing care the most, and therefore, would especially benefit from this type of intervention (Muzi & Pace, 2021; Shonkoff et al., 2012).

Despite the high need for implementing evidence-based interventions early in life, in Spain, interventions commonly delivered within the child protection system are more likely to target older children than younger children. Targeting younger children is especially important given that it is more difficult to remediate the detrimental effects of early adverse experiences on child development later in development than with targeted early interventions (Arruabarrena & Paúl, 2012). In Latin America, early intervention programs often focus on perinatal health and reduction of infant mortality, and the breadth, funding, and quality of early interventions significantly varies across countries (Cardia et al., 2016). Thus, there is a scarcity of evidence-based programs which specifically target the detrimental impact of early adversity. Additionally, whereas in Anglo-Saxon and Scandinavian countries there have been notable efforts towards implementing evidence-based programs for children and families in the child protection system, in Spain there are still very few evidence-based programs in this field. Some noteworthy exceptions are the implementation of Triple P and SafeCare in the Basque Country (de Paul et al., 2015), or positive parenting psychoeducative interventions—most of them delivered in a group format—focused on supporting foster care processes, such as reunification (e.g., “Caminar en familia”; Balsells et al., 2015) or families receiving a variety of social services (Rodrigo, 2016).

In this review, we introduce the Attachment and Biobehavioral Catch-up (ABC) intervention, an evidence-based, short-term, home visiting program designed to enhance parental sensitivity for children who have experienced early adversity. Given that there is both a critical need and an opportunity for social intervention innovation in the child welfare system in Spain,

we believe ABC can support local efforts to expand services for vulnerable families. Although we are less familiar with the complex and diverse child welfare systems of Latin American countries, the implementation of short-term interventions focused on enhancing parental sensitivity—such as ABC—could be immensely helpful in supporting Latin American families and children in their communities (Cardia et al., 2016). In fact, there is evidence suggesting that ABC enhances parental sensitivity (Berlin et al., 2019) and is culturally relevant for Latino families who live in the United States (U.S.; Aparicio et al., 2016). Thus, ABC is a novel intervention that has the potential to ameliorate some of the detrimental effects of early childhood adversity of families within welfare systems in Spain and Latin America by enhancing parental sensitivity and in turn, promoting positive child development.

Attachment and Biobehavioral Catch-up

The literature on the effects of secure attachment on development is vast, linking secure attachment to optimal patterns of neurological development, regulatory coping systems in response to stress, and to overall mental health (see Schore, 2001 for a review). However, children who have experienced early adversity (e.g., chronic distress, abuse, disruptions in their relationships with their parents) are more likely than other children to develop disorganized attachments (Dozier et al., 2001; van IJzendoorn et al., 1999). Disorganized attachment, in turn, is a risk factor for externalizing and internalizing problems in childhood and psychopathology in late adolescence (Groh et al., 2017). Thus, there is a critical need for early intervention programs which can attenuate some of the risk factors associated with early adversity.

Grounded in attachment theory and informed by the literature on stress neurobiology, ABC was created to promote three key parental behavior targets, particularly relevant for parents of children who have endured significant adversity: 1) providing nurturing care to enhance attachment security and organization; 2) following a child’s lead to support physiological, emotional, and behavioral self-regulation; and 3) avoiding intrusive and frightening behaviors.

Providing Nurturing Care

Secure, organized attachments are likely to develop when parents are emotionally available and responsive to their infants, particularly in times of distress (de Wolff & van IJzendoorn, 1997). Examples include a father who asks his child, “Are you OK?” after the child falls, or a mother who holds her child close when the baby is crying. Yet, there are many factors that may pose a barrier to parents’ ability to provide such nurturing care. First, children who experience adversity are less likely to elicit nurturing responses and behaviors from their parents than are other children, and, as a result, their parents respond “in-kind” by failing to consistently nurture them in times of distress (Stovall-McClough & Dozier, 2004). Second, parents who experience high levels of parenting stress or those with insecure states of mind regarding attachment may find it difficult to provide nurturing care to their children (Pereira et al., 2012). Thus, a central aim of ABC is to promote attachment security and organization among vulnerable children by

enhancing their parents' ability to nurture and comfort them, even when children do not elicit it or when nurturance does not come naturally to the parent.

Following the Lead with Delight

As previously noted, early experiences of adversity may reshape neurobiological development. Indeed, alterations to the stress-response system are evident among human and nonhuman primate infants who are separated from their parents (Bernard & Dozier, 2010; Bruce et al., 2009; Levine, 2001). The development of optimal physiological regulation is crucial for young children setting the stage for subsequent behavioral and emotional self-regulatory capabilities (Posner & Rothbart, 2000). Human infants depend on their parents to serve as co-regulators of physiology and behavior (Hofer, 2006), and self-regulation skills develop most optimally when infants are scaffolded by parents via contingent and responsive interactions (Shonkoff et al., 2012). As such, a second aim of ABC is to build a child's self-regulatory capacity by enhancing a parent's ability to follow their child's lead, and take enjoyment (i.e., delight) in those interactions. For example, a child may be playing with a truck and his parent may say "Oh, here comes the truck driver" (i.e., following the child's lead) while the parent applauds the child and smiles (i.e., delighting).

Avoiding Intrusive and Frightening Behaviors

Experiences of significant distress, such as poverty, discrimination, and physical or mental health concerns, may impede a parent's ability to provide nurturing care and contingent responsiveness to their children (Mesman et al., 2012). Moreover, parents with histories of unresolved trauma and those with high levels of parenting stress are at increased likelihood to engage in frightening behaviors with their children (e.g., yelling, hitting, threatening; Jacobvitz et al., 2006). These negative parental behaviors may be especially detrimental to young children who have experienced adversity early in life given their need for responsive and nurturing care. Therefore, a tertiary aim of ABC is to reduce the likelihood that parents will engage in behaviors that are frightening or intrusive as these may undermine a child's capacity to develop secure, organized attachments (Schuengel et al., 1999) and adaptive self-regulatory capabilities (Bernard & Dozier, 2010).

Overview of ABC

ABC is a 10-session, home visiting intervention originally developed for foster parents with infants between 6 and 24 months of age, and it has now been adapted for birth parents involved in Child Protective Services (CPS), parents of internationally adopted children, and for parents of toddlers between the ages 24 and 48 months old. *Parent Coaches*, professionals trained to implement ABC in the home, present manualized content which addresses the three key parental behavior targets described above. Parents who are participating in the intervention are also presented with videos of interactions between other parents and children to illustrate concepts and target behaviors. One guiding goal in ABC is to change parental behaviors in the same environment in which the

behaviors occur (i.e., the home), with the expectation that these changes will be more sustainable over time. See Table 1 for a session overview of the ABC model.

Table 1.
Overview of ABC Sessions

Intervention Sessions	Topic
Sessions 1 and 2	Providing nurturance even when children do not elicit it
Sessions 3 and 4	Following the lead and delighting in the child
Session 5	Reducing intrusive and over-stimulating behaviors
Session 6	Reducing frightening behavior
Sessions 7 and 8	Recognizing and overriding voices from the past
Sessions 9 and 10	Consolidating and celebrating change

In-the-Moment Comments

The key mechanism of change in the ABC program is ITM commenting. These in vivo comments aim to provide immediate feedback and direct parental attention to the intervention behavior targets. Comments provide parents with extensive behavioral descriptions of the intervention target and highlight the importance of such behaviors as contributors for optimal child development. Every time a parent engages in one of the behavior targets (e.g., nurturance, following the lead), the parent coach has an opportunity to comment. For instance, if the child pretends to eat a toy ice cream cone, and the parent says, "What yummy ice cream!" the parent coach might say, "She pretended to eat the ice cream and you said, 'What yummy ice cream.' You're following the lead! These little moments help build self-regulation." One of the unique aspects about ABC is that parent coaches are expected to make at least one comment per minute throughout the 60-minute intervention session. The frequency and quality of ITM comments have been found to predict parental behavior change (Caron et al., 2016).

Efficacy of ABC

The efficacy of the ABC intervention has been assessed in multiple randomized clinical trials (RCTs) with different populations, such as CPS-involved children and their birth parents (Bernard et al., 2012), foster children (Bick & Dozier, 2013; Lind et al., 2017), internationally adopted children (Yarger et al., 2020), and children enrolled in Early Head Start a program subsidized by the US government dedicated to promoting physical, cognitive, social, and emotional development in childhood (Aparicio et al., 2016). Both positive parental and child outcomes have been observed among families who complete the program, when compared to a control intervention that focuses on language and motor development.

Parental Outcomes

In each of these RCTs, ABC has been shown to be effective in improving parental sensitivity and positive regard, as well as decreasing intrusive behaviors, compared to parents receiving a control intervention. In a study with CPS-involved parents, those who received the ABC intervention showed higher levels of sensitivity during a parent-child play interaction compared to

parents who received the control intervention, and these changes were sustained 3 years later (Yarger et al., 2016). Similar results have been found with adoptive (Yarger et al., 2020) and foster families (Bick & Dozier, 2013). Moreover, parents who complete the ABC intervention have also been shown to develop more coherent attachment narratives (Raby et al., 2021) and enhanced attention to infant emotions as measured by neural activity using event-related potentials than parents in a control intervention (Bernard, Simons et al., 2015).

Child Outcomes

In addition to having positive effects on parenting behaviors, the ABC intervention has been found to contribute to a wide range of short- and long-term positive child outcomes. In a study with CPS-involved children, those whose parents received the ABC intervention developed secure attachments at a higher rate (52% and 33%, respectively) and fewer developed disorganized attachments (32% and 57%, respectively), as measured by the Strange Situation procedure (Ainsworth et al., 1978), compared to those who received the control intervention (Bernard et al., 2012). When these children were nine years of age, the ones whose parents completed ABC when they were infants reported higher levels of attachment security, as measured by the Kerns Security Scale, than those who received the control intervention (Zajac et al., 2020).

ABC has also been shown to be effective in promoting children's physiological regulation. For instance, infants whose parents completed the ABC intervention showed more normative patterns of diurnal cortisol production than those who received the control intervention (Bernard, Dozier et al., 2015). The effects of ABC on cortisol regulation were sustained three and seven years after participating in the intervention (Bernard, Hostinar et al., 2015; Garnett et al., 2020). ABC effects have also been seen on children's autonomic nervous system regulation suggesting that the implementation of ABC during infancy is effective in promoting healthy patterns of autonomic regulation among children exposed to early adversity (Tabachnick et al., 2019).

Furthermore, ABC has been linked to other positive outcomes such as those associated with better executive functioning (Lewis-Morrarty et al., 2012; Lind et al., 2017), language development (Raby et al., 2019), and DNA methylation (Hoye et al., 2020). These findings underscore that the promotion of early parental sensitivity has cascading effects on child outcomes across a wide range of domains and extending through middle childhood.

Dissemination of ABC

Given the demonstrated efficacy of the ABC intervention, the next logical step was to make the intervention available to organizations serving underserved communities nationally and internationally. However, fidelity is critical for the success of an intervention in community settings (Hulleman & Cordray, 2009). To address this challenge, EB Caron developed a detailed coding system to quantify and measure the frequency and quality of comments parent coaches made in session (Caron & Dozier, 2014). This careful observational review through video coding of commenting in session was integrated into the training and

implementation process. This fidelity monitoring method ensures that parent coaches are correctly identifying and commenting on parental behaviors that are consistent with the three central tenets of the ABC intervention. Data from our RCTs and initial attempts of implementing ABC in community settings suggested that ITM comments are one of the critical aspects of fidelity in ABC (Caron et al., 2016), with more frequent and high-quality comments leading to greater change in parent behavior.

We believe this comprehensive system of supervision coupled with fidelity monitoring via ITM coding is key to our ability to successfully implement ABC in communities within the U.S. and internationally. For example, we have found large effect sizes ($d = 0.83 - 0.89$) for increases in parental sensitivity from pre- to post-intervention observational assessments across our dissemination sites (Roben et al., 2017) and similar patterns of fidelity and increases in parental sensitivity have been found recently in a telehealth version of ABC (Roben et al., 2022; Schein et al., 2022). These effects are as large as those found in RCTs and suggest that the ABC intervention can be disseminated with high effectiveness as a result of a strong fidelity assessment method.

Implementation of ABC in diverse contexts and cultures

Although the mechanism of change upon which ABC is based – parental sensitivity as a way of enhancing child attachment and self-regulation – is broadly universal (Mesman et al., 2016), parenting does not occur in a vacuum. As such, it is important to recognize that culture plays a key role on parenting beliefs and behaviors, alignment with the intervention content, and openness to delivery aspects, such as home visiting and ITM commenting (Castro et al., 2004; Kumpfer et al., 2012). Therefore, the cultural context in which families are embedded should be carefully considered when delivering ABC in diverse socio-cultural contexts, both within and outside the U.S. to ensure that the intervention is meaningful to participants. This is especially important to maximize the reach, engagement, and effectiveness of the intervention (Cabassa & Baumann, 2013; Gonzales et al., 2016).

To date, ABC is implemented in 9 countries across the world, including the U.S., Canada, South Africa, Taiwan, Australia, Sweden, Norway, Germany, and Russia. The process of adapting the intervention to those diverse contexts was carried out in close collaboration with local teams, as detailed in Costello et al. (2021). Given the cultural and ethnic diversity within the U.S., we have also faced the challenge of implementing ABC in culturally sensitive ways in this country. One example is our work with Latino families in the U.S., including the translation and adaptation of ABC materials and the development of a supplemental Spanish-implementation support group for bilingual coaches in which cultural aspects related to the implementation of ABC are discussed.

An additional effort in this area includes the development of guidelines and best practices for agencies which seek to implement ABC within culturally and linguistically diverse communities, both nationally and internationally. This framework aims to preserve a balance between fidelity and adaptation of evidence-based interventions by maintaining the core components of ABC (e.g., focus on parental sensitivity, brief home-visiting intervention format, ITM commenting as central to delivery of

the intervention), while also exploring and incorporating cultural values and practices that may enhance the implementation of ABC within a target community. We believe this approach, rooted in best practices in international dissemination and cultural adaptations of evidence-based interventions, will allow us to implement the intervention in a meaningful and culturally humble way, while maintaining fidelity to the model and ensuring effectiveness (Escoffery et al., 2019; Gonzales et al., 2016).

Conclusion and future directions

The ABC intervention is an evidence-based home visiting program for families of young children which is grounded in attachment theory and informed by the literature on stress neurobiology. ABC's short, 10-session format and its focus on changing parental behaviors has been shown to promote sensitive parenting through a combination of several techniques, with ITM commenting identified as the active ingredient of the intervention (Dozier & Bernard, 2019).

ABC has been shown to be effective in various RCTs on an impressive array of child and parent outcomes, including parental sensitivity, children's attachment security and organization, and physiological and behavioral regulation (e.g., Bernard et al., 2012; Bernard, Dozier et al., 2015). These intervention effects are evident in different biological and behavioral levels of observation (e.g., diurnal cortisol levels, executive functioning, inhibitory control) and are sustained years after the intervention is completed (Korom et al., 2021). Beyond controlled experimental conditions, ABC has shown comparable effect sizes in improving parental sensitivity at a community level (Roben et al., 2017), which we attribute to the intensive fidelity monitoring and supervision process during the training year (Caron et al., 2016; Costello et al., 2019).

From this vantage point of solid evidence base and established dissemination procedures, one of the most exciting future directions for ABC is to continue expanding its reach to diverse communities across the globe. We believe professionals, families and, ultimately, children in Spain and Latin America could benefit from receiving ABC in their communities, both due to the need to expand access to such services in these countries, but also due to the feasibility and acceptability of ABC with Spanish-speaking families in the U.S. This exciting prospect can only be possible in close partnership with local stakeholders and community members to ensure there is a need for an intervention such as ABC, and to assess fit of intervention procedures to socio-cultural and organizational contexts (Chamberlain & Saldana, 2014). We are aware that innovations in child welfare systems and the introduction of novel interventions such as ABC can be challenging, yet we believe it is well worth the effort given its potential for both concurrent and long-term benefits for children and families in our communities.

Disclosure statement

MD developed and evaluated the ABC intervention and MBG, PC, FZ, and CR work in its dissemination from a non-profit approach.

Conflict of interest

There is no conflict of interest.

References

- Ainsworth, M.D.S., Blehar, M.C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Lawrence Erlbaum Associates.
- Aparicio, E. M., Denmark, N., Berlin, L. J., & Harden, B. J. (2016). First-generation Latina mothers' experiences of supplementing home-based Early Head Start with the Attachment and Biobehavioral Catch-up Program. *Infant Mental Health Journal*, 37, 537–548. <https://doi.org/10.1002/imhj.21586>
- Arruabarrena, I., & Paúl, J. De. (2012). Early intervention programs for children and families: Theoretical and empirical bases supporting their social and economic efficiency. *Psychosocial Intervention*, 21, 117–127. <https://doi.org/10.5093/in2012a18>
- Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 129, 195–215. <https://doi.org/10.1037/0033-2909.129.2.195>
- Balsells, M., Pastor, C., Amors, P., Fuentes-Pelez, N., Molina, M. C., Mateos, A., ... Vazquez, N. (2015). *Caminar en familia: Programa de competencias parentales durante el acogimiento y la reunificación familiar [Journeying as a family: Parenting skills program during foster care and family reunification]*. Ministerio de Sanidad, Servicios Sociales e Igualdad.
- Berlin, L. J., Martoccio, T. L., Bryce, C. I., & Harden, B. J. (2019). Improving infants' stress-induced cortisol regulation through attachment-based intervention: A randomized controlled trial. *Psychoneuroendocrinology*, 103, 225–232. <https://doi.org/10.1016/j.psyneuen.2019.01.005>
- Bernard, K., & Dozier, M. (2010). Examining infants' cortisol responses to laboratory tasks among children varying in attachment disorganization: Stress reactivity or return to baseline? *Developmental Psychology*, 46, 1771–1778. <https://doi.org/10.1037/a0020660>
- Bernard, K., Dozier, M., Bick, J., & Gordon, M. K. (2015). Intervening to enhance cortisol regulation among children at risk for neglect: Results of a randomized clinical trial. *Development and Psychopathology*, 27, 829–841. <https://doi.org/10.1017/S095457941400073X>
- Bernard, K., Dozier, M., Bick, J., Lewis-Morrarty, E., Lindhiem, O., & Carlson, E. (2012). Enhancing attachment organization among maltreated children: Results of a randomized clinical trial. *Child Development*, 83, 623–636. <https://doi.org/10.1111/j.1467-8624.2011.01712.x>
- Bernard, K., Hostinar, C. E., & Dozier, M. (2015). Intervention effects on diurnal cortisol rhythms of Child Protective Services-referred infants in early childhood: Preschool follow-up results of a randomized clinical trial. *JAMA Pediatrics*, 169, 112–119. <https://doi.org/10.1001/jamapediatrics.2014.23>
- Bernard, K., Simons, R., & Dozier, M. (2015). Effects of an attachment-based intervention on child protective services-referred mothers' event-related potentials to children's emotions. *Child Development*, 86, 1673–1684. <https://doi.org/10.1111/cdev.12418>
- Bick, J., & Dozier, M. (2013). The effectiveness of an attachment-based intervention in promoting foster mothers' sensitivity toward foster infants. *Infant Mental Health Journal*, 34, 95–103. <https://doi.org/10.1002/imhj.21373>

- Bruce, J., Fisher, P. A., Pears, K. C., & Levine, S. (2009). Morning cortisol levels in preschool-aged foster children: Differential effects of maltreatment type. *Developmental Psychobiology*, *51*, 14-23. <https://doi.org/10.1002/dev.20333>
- Cabassa, L. J., & Baumann, A. A. (2013). A two-way street: Bridging implementation science and cultural adaptations of mental health treatments. *Implementation Science*, *8*, 1-14. <https://doi.org/10.1186/1748-5908-8-90>
- Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014). Early childhood investments substantially boost adult health. *Science*, *28*, 1478-1486. <https://doi.org/10.1126/science.1248429>
- Cardia N., Alves R., Gomes A., Mourão A. (2016). Home visitation programs for early child development: Experiences in Latin America and the Caribbean. In L. Roggman & Cardia N. (Eds), *Home visitation programs* (pp. 157-189). Springer, Cham. https://doi.org/10.1007/978-3-319-17984-1_10
- Caron, E., Bernard, K., & Dozier, M. (2016). In vivo feedback predicts parent behavior change in the Attachment and Biobehavioral Catch-up Intervention. *Journal of Clinical Child & Adolescent Psychology*, *47*, S35-S46. <https://doi.org/10.1080/15374416.2016.1141359>
- Caron, E., & Dozier, M. (2014). *In-the-moment coding: Fidelity coding for attachment and biobehavioral catch-up*. University of Delaware. Unpublished document.
- Caron, E., Weston-Lee, P., Haggerty, D., & Dozier, M. (2016). Community implementation outcomes of Attachment and Biobehavioral Catch-up. *Child Abuse & Neglect*, *53*, 128-137. <https://doi.org/10.1016/j.chiabu.2015.11.010>
- Castro, F. G., Barrera, M., & Martinez, C. R. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science*, *5*, 41-45. <https://doi.org/10.1023/B:PREV.0000013980.12412.cd>
- Chamberlain, P. & Saldana, L. (2014). Practice-research partnerships that scale-up, attain fidelity and sustain evidence-based practices. In R. S. Beidas & P. C. Kendall (Eds.), *Dissemination and implementation of evidence-based practices in child and adolescent mental health* (pp. 127-142). Oxford University Press.
- Costello, A. H., Roben, C. K. P., Schein, S. S., Blake, F., & Dozier, M. (2019). Monitoring provider fidelity of a parenting intervention using observational methods. *Professional Psychology: Research and Practice*, *50*, 264-271. <https://doi.org/10.1037/pro0000236>
- Costello A. H., Schein S. S., Roben C. K. P., & Dozier M. (2021). Navigating the international dissemination of an evidence-based intervention: Scaling with fidelity and cultural-specificity. *Children and Youth Services Review*, *131*, 106281. <https://doi.org/10.1016/j.childyouth.2021.106281>
- de Paul, J., Arruabarrena, I., & Indias, S. (2015). Implantación piloto de dos programas basados en la evidencia (SafeCare e Incredible Years) en los Servicios de Protección Infantil de Gipuzkoa (España) [Pilot implementation of two evidence-based programs (SafeCare and Incredible Years) in the Child Protection Services of Gipuzkoa (Spain)]. *Psychosocial Intervention*, *24*, 105-120. <https://doi.org/10.1016/j.psi.2015.07.001>
- De Wolff, M. S., & Van IJzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development*, *68*, 571-591. <https://doi.org/10.1111/j.1467-8624.1997.tb04218.x>
- Dozier, M., & Bernard, K. (2019). *Coaching parents of vulnerable infants. The Attachment and Biobehavioral Catch-up approach*. The Guilford Press.
- Dozier, M., Stovall, K. C., Albus, K. E., & Bates, B. (2001). Attachment for infants in foster care: The role of caregiver state of mind. *Child Development*, *72*, 1467-1477. <https://doi.org/10.1111/1467-8624.00360>
- Escoffery, C., Lebow-Skelley, E., Udelson, H., Böing, E. A., Wood, R., Fernandez, M. E., & Mullen, P. D. (2019). A scoping study of frameworks for adapting public health evidence-based interventions. *Translational Behavioral Medicine*, *9*, 1-10. <https://doi.org/10.1093/tbm/ibx067>
- Feldman, R. (2012). Bio-behavioral synchrony: A model for integrating biological and microsocial behavioral processes in the study of parenting. *Parenting: Science and Practice*, *12*, 154-164. <https://doi.org/10.1080/15295192.2012.683342>
- Garnett, M., Bernard, K., Hoye, J., Zajac, L., & Dozier, M. (2020). Parental sensitivity mediates the sustained effect of Attachment and Biobehavioral Catch-up on cortisol in middle childhood: A randomized clinical trial. *Psychoneuroendocrinology*, *121*, 104809. <https://doi.org/10.1016/j.psycheneu.2020.104809>
- Gonzales, N. A., Lau, A. S., Murry, V. M., Pina, A. A., & Barrera, M., Jr. (2016). Culturally adapted preventive interventions for children and adolescents. In D. Cicchetti (Ed.), *Developmental psychopathology: Risk, resilience, and intervention* (pp. 874-933). John Wiley & Sons, Inc.
- Groh, A. M., Fearon, R. M. P., van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Roisman, G. I. (2017). Attachment in the early life course: Meta-analytic evidence for its role in socioemotional development. *Child Development Perspectives*, *11*, 70-76. <https://doi.org/10.1111/cdep.12213>
- Hofer, M. A. (2006). Psychobiological roots of early attachment. *Current Directions in Psychological Science*, *15*, 84-88. <https://doi.org/10.1111/j.0963-7214.2006.00412.x>
- Hoye, J. R., Cheishvili, D., Yarger, H. A., Roth, T. L., Szyf, M., & Dozier, M. (2020). Preliminary indications that the Attachment and Biobehavioral catch-up intervention alters DNA methylation in maltreated children. *Development and Psychopathology*, *32*, 1486-1494. <https://doi.org/10.1017/S0954579419001421>
- Hulleman, C. S., & Cordray, D. S. (2009). Moving from the lab to the field: The role of fidelity and achieved relative intervention strength. *Journal of Research on Educational Effectiveness*, *2*, 88-110. <https://doi.org/10.1080/19345740802539325>
- Jacobvitz, D., Leon, K., & Hazen, N. (2006). Does expectant mothers' unresolved trauma predict frightened/frightening maternal behavior?: Risk and protective factors. *Development and Psychopathology*, *18*, 363-379. <https://doi.org/10.1017/S0954579406060196>
- Knudsen, E. (2004). Sensitive periods in the development of the brain and behavior. *Journal of Cognitive Neuroscience*, *16*, 1412-1425. <https://doi.org/10.1162/0898929042304796>
- Korom, M., Goldstein, A., Tabachnick, A. R., Palmwood, E. N., Simons, R. F., & Dozier, M. (2021). Early parenting intervention accelerates inhibitory control development among CPS-involved children in middle childhood: A randomized clinical trial. *Developmental Science*, *24*, e13054. <https://doi.org/10.1111/desc.13054>
- Kumpfer, K. L., Magalhães, C., & Xie, J. (2012). Cultural adaptations of evidence-based family interventions to strengthen families and improve children's developmental outcomes. *European Journal of Developmental Psychology*, *9*, 104-116. <https://doi.org/10.1080/17405629.2011.639225>

- Levine, S. (2001). Primary social relationships influence the development of the hypothalamic-pituitary-adrenal axis in the rat. *Physiology & Behavior*, 73, 255–260. [https://doi.org/10.1016/S0031-9384\(01\)00496-6](https://doi.org/10.1016/S0031-9384(01)00496-6)
- Lewis-Morrarty, E., Dozier, M., Bernard, K., Terracciano, S. M., & Moore, S. V. (2012). Cognitive flexibility and theory of mind outcomes among foster children: Preschool follow-up results of a randomized clinical trial. *Journal of Adolescent Health*, 51, S17–S22. <https://doi.org/10.1016/j.jadohealth.2012.05.005>
- Lind, T., Raby, K. L., Caron, E. B., Roben, C. K., & Dozier, M. (2017). Enhancing executive functioning among toddlers in foster care with an attachment-based intervention. *Development and Psychopathology*, 29, 575–586. <https://doi.org/10.1017/S0954579417000190>
- Mesman, J., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2012). Unequal in opportunity, equal in process: Parental sensitivity promotes positive child development in ethnic minority families. *Child Development Perspectives*, 6, 239–250. <https://doi.org/10.1111/j.1750-8606.2011.00223.x>
- Mesman, J., van IJzendoorn, M. H., & Sagi-Schwartz, A. (2016). Cross-culture patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 790–815). Guildford Press.
- Mountain, G., Cahill, J., & Thorpe, H. (2017). Sensitivity and attachment interventions in early childhood: A systematic review and meta-analysis. *Infant Behavior and Development*, 46, 14–32. <https://doi.org/10.1016/j.infbeh.2016.10.006>
- Muzi, S. & Pace, C. S. (2021). Multiple facets of attachment in residential-care, late adopted, and community adolescents: an interview-based comparative study. *Attachment & Human Development*, 1–20. <https://doi.org/10.1080/14616734.2021.1899386>
- Pereira, J., Vickers, K., Atkinson, L., Gonzalez, A., Wekerle, C., & Levitan, R. (2012). Parenting stress mediates between maternal maltreatment history and maternal sensitivity in a community sample. *Child Abuse & Neglect*, 36, 433–437. <https://doi.org/10.1016/j.chiabu.2012.01.006>
- Posner, M. I., & Rothbart, M. K. (2000). Developing mechanisms of self-regulation. *Development and Psychopathology*, 12, 427–441. <https://doi.org/10.1017/S0954579400003096>
- Raby, K. L., Freedman, E., Yarger, H. A., Lind, T., & Dozier, M. (2019). Enhancing the language development of toddlers in foster care by promoting foster parents' sensitivity: Results from a randomized controlled trial. *Developmental Science*, 22, e12753. <https://doi.org/10.1111/desc.12753>
- Raby, K. L., Waters, T. E. A., Tabachnick, A. R., Zajac, L., & Dozier, M. (2021). Increasing secure base script knowledge among parents with Attachment and Biobehavioral Catch-up. *Development and Psychopathology*, 33, 554–564. <https://doi.org/10.1017/S0954579420001765>
- Roben, C. K. P., Dozier, M., Caron, E., & Bernard, K. (2017). Moving an evidence-based parenting program into the community. *Child Development*, 88, 1447–1452. <https://doi.org/10.1111/cdev.12898>
- Roben, C. K. P., Kipp, E., Schein, S. S., Costello, A. H., & Dozier, M. (2022). Transitioning to telehealth due to COVID-19: Maintaining model fidelity in a home visiting program for parents of vulnerable infants. *Infant Mental Health Journal*, 43, 173–184. <https://doi.org/10.1002/imhj.21963>
- Rodrigo, M. J. (2016). Quality of implementation in evidence-based positive parenting programs in Spain: Introduction to the special issue. *Psychosocial Intervention*, 25, 63–68. <https://doi.org/10.1016/j.psi.2016.02.004>
- Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., McGuinn, L., Pascoe, J., & Wood, D. L. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129, e232–e246. <https://doi.org/10.1542/peds.2011-2663>
- Schein S.S., Roben C.K.P., Costello A.H., & Dozier M. (2022). Assessing changes in parent sensitivity in telehealth and hybrid implementation of Attachment and Biobehavioral Catch-Up during the COVID-19 pandemic. *Child Maltreatment*. <https://doi.org/10.1177/10775595211072516>
- Schore, A. N. (2001). Effects of secure attachment: Relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22, 7 – 66. [https://doi.org/10.1002/1097-0355\(200101/04\)22:1<7::AID-IMHJ>3.0.CO;2-N](https://doi.org/10.1002/1097-0355(200101/04)22:1<7::AID-IMHJ>3.0.CO;2-N)
- Schuengel, C., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (1999). Frightening maternal behavior linking unresolved loss and disorganized infant attachment. *Journal of Consulting and Clinical Psychology*, 67, 54. <https://doi.org/10.1037/0022-006X.67.1.54>
- Sroufe, L. A., Coffino, B., & Carlson, E. A. (2010). Conceptualizing the role of early experience: Lessons from the Minnesota longitudinal study. *Developmental Review*, 30, 36–51. <https://doi.org/10.1016/j.dr.2009.12.002>
- Stovall-McClough, K. C., & Dozier, M. (2004). Forming attachments in foster care: Infant attachment behaviors during the first 2 months of placement. *Development and Psychopathology*, 16, 253–271. <https://doi.org/10.1017/S0954579404044505>
- Tabachnick, A. R., Raby, K. L., Goldstein, A., Zajac, L., & Dozier, M. (2019). Effects of an attachment-based intervention in infancy on children's autonomic regulation during middle childhood. *Biological Psychology*, 143, 22–31. <https://doi.org/10.1016/j.biopsycho.2019.01.006>
- van IJzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and Psychopathology*, 11, 225 – 249. <https://doi.org/10.1017/S0954579499002035>
- Yarger, H. A., Bernard, K., Caron, E. B., Wallin, A., & Dozier, M. (2020). Enhancing parenting quality for young children adopted internationally: Results of a randomized controlled trial. *Journal of Clinical Child & Adolescent Psychology*, 49, 378–390. <https://doi.org/10.1080/15374416.2018.1547972>
- Yarger, H. A., Hoye, J. R., & Dozier, M. (2016). Trajectories of change in Attachment and Biobehavioral Catch-up among high-risk mothers: A randomized clinical trial. *Infant Mental Health Journal*, 37, 525–536. <https://doi.org/10.1002/imhj.21585>
- Zajac, L., Raby, K. L., & Dozier, M. (2020). Sustained effects on attachment security in middle childhood: results from a randomized clinical trial of the Attachment and Biobehavioral Catch-up (ABC) intervention. *Journal of Child Psychology and Psychiatry*, 61, 417–424. <https://doi.org/10.1111/jcpp.13146>