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*Infants Young Child*. 2015 ; 28(1): 72–87. doi:10.1097/IYC.0000000000000024.**Maternal Depression and Early Intervention: A Call for an Integration of Services****Shanna L. Alvarez, PhD,**

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**Abstract**

Depression is a serious disorder with severe and far-reaching consequences. Two decades of observational research have shown robust associations between maternal depression and adverse consequences on offspring (Campbell et al., 2004; Campbell, Matestic, von Stauffenberg, Mohan, & Kirchner, 2007; Campbell, Morgan-Lopez, Cox, & McLoyd, 2009; National Research Council & Institute of Medicine, 2009). Depressive symptoms may pose particular risk to infants and toddlers with neurodevelopmental disabilities, whose long-term outcomes depend heavily on the provision of Early Intervention (EI). EI is most effective with active parental engagement. Maternal depressive symptoms may reduce parental engagement, thereby limiting EI benefits to the child (Gaynes, Gavin & Meltzer –Brody, 2005; O'Hara & Swain, 1996). At present, maternal mental health is not directly addressed in EI. The purpose of this paper is to discuss the literature and significance of maternal depression and apply that evidence to mothers of children with developmental delays and disabilities. We conclude that maternal mental health and well-being is currently insufficiently addressed in the EI population. An increased integration of mental health and EI services is needed to serve the unique needs of families who face an increased risk of stress and depression while coping with their child's special needs.

**Keywords**

maternal depression; early intervention; autism spectrum disorder; postpartum depression; developmental disabilities; maternal depressive symptoms

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The families of children with special needs face multiple challenges that may include depressive symptoms in the parents related to the stress of providing appropriate care for their child. This paper will combine literature from the fields of maternal mental health and early intervention to better understand the unique needs of these families and propose appropriate integrated service models. We begin with an overview of maternal depression, its impact on early parenting behaviors, and its relationship to child outcomes in the toddler

years and beyond. Next, we describe the relationship between child and parent factors in early development and the unique experiences of families of children with special needs. We then outline evidence-based treatments for maternal depression and treatments for developmental disabilities—services that are currently provided through distinct, uncoordinated agencies. We conclude by describing the need for integrated maternal mental health and EI services, describing potential service models and proposing next steps.

## Depression, Mothering, and Infant-Child Outcomes

The DSM-5 formally defines a major depressive episode (MDE) as a constellation of discrete symptoms that include persistent sad mood or loss of pleasure accompanied by cognitive and somatic symptoms that are severe and persistent over a two-week period of time (American Psychiatric Association, 2013; Kessler, et al. 2003). Individuals may have moderate to severe depressive symptomatology that does not reach the full criteria required for a formal diagnosis. However, subthreshold depressive symptoms also result in a broad range of changes that cause functional impairment in executing normal daily activities such as self-care, vocational engagement, managing finances, social and marital relationship engagement and parenting activities (Baune et al., 2010; Kessler et al., 2003; Merikangas et al., 2007). Throughout this paper, we will use the term “maternal depressive symptoms” to refer to the full spectrum of depression symptom severity.

The prevalence of depression in women with young children has been estimated at 32.2% for early onset (within 6 months after birth), 7.4% for late onset (child 24 months old), and 13.4% for chronic depression (onset within 6 months after birth with symptoms through or beyond 24 months of age) (Wang, Wu, Anderson & Florence, 2011). For these mothers struggling with depressive symptoms, functional impairments may negatively impact parental engagement, parental well-being, financial stability and parental social supports--factors which have all been strongly associated with child-well being (Frank & Kiss, 2005; Lovejoy et al., 2000; Kim & McKenry, 2002). The impact of depressive symptoms takes on a heightened sense of urgency when they occur in a child’s early years, as symptoms may interfere with the mother’s ability to develop the healthy attachment and parenting skills associated with positive child outcomes. Thus, without appropriate intervention, maternal depression can cause a cascading intergenerational impact.

### Maternal Depressive symptoms in Pregnancy and Early Infancy

Perinatal depression is defined in the DSM-5 as the onset of a major depressive episode (MDE) that begins during pregnancy and/or within the first 4 four weeks postpartum (American Psychiatric Association, 2013). However, the World Health Organization and the Center for Disease Control (CDC) expand this duration to include pregnancy and up to one year postpartum and other groups use this broader definition to be more inclusive (CDC, 2008; Gaynes, Gavin & Meltzer-Brody, 2005; O’Hara & Swain, 1996; WHO, 2010; Wisner & McShea, 2013). Mothers with depressive symptoms during pregnancy are at higher risk for post partum depression (PPD). PPD has a prevalence of 10–15% in all women who give birth (Gaynes, Gavin & Meltzer-Brody, 2005). Although the point prevalence for a MDE during pregnancy is not greater than at other times in a woman’s life, the literature

documents that the postpartum period is the highest risk interval for onset of a mood disorder (Gaynes, Gavin & Meltzer-Brody, 2005). Thus, monitoring maternal mental health should begin prior to birth and continue through the perinatal period.

Common clinical symptoms of perinatal depression include both mood and anxiety symptoms such as low mood, sadness or crying spells, irritability, impaired concentration and feeling overwhelmed (Hendrick, Altshuler, Strouse & Grosser, 2000). Prominent symptoms of anxiety or agitation are often distinctive features of perinatal depression (Paul, Downs, Schaefer, Beiler & Weisman, 2013). Many women report intrusive and recurrent anxious thoughts about the baby that can become disabling, with significant exacerbation of ruminating thoughts in the postpartum period (Bernstein et al., 2008; Abramowitz et al., 2010).

**The impact of maternal depressive symptoms on infants**—The consequences of untreated perinatal depression are potentially serious and long-term (Murray & Carothers, 1990; Small, Lumely, Yelland & Brown, 2007; Lindahl, Pearson & Colpe, 2005; Howard, Hoffbrand, Henshaw, Boath & Bradley, 2005). Without treatment, symptoms often persist and can become chronic (Vliegen, Casalin & Luyten, 2014), posing increased risk to the mother and the family. First, depression may threaten an infant’s basic family structure. The literature documents that suicide is one of the leading causes of maternal death, a trauma that has devastating impacts on a new infant, siblings and supporting caregivers (Lindahl, Pearson & Colpe, 2005; Howard, Hoffbrand, Henshaw, Boath & Bradley, 2005). Maternal depressive symptoms also impact paternal mood and family health and functioning (Goodman, 2004; Paulson, Dauber & Leiferman, 2006; Paulson & Bazermore, 2010), and are one of the strongest predictors of paternal depression. It is estimated that up to 50% of fathers whose partners are depressed in the perinatal period meet diagnostic criteria for minor or major depression (Goodman, 2004; Areias, Kumar, Barros & Figueredo, 1996). Thus maternal well-being is critical to the foundation of the family unit.

Maternal depression symptoms also significantly impact mothering behaviors. PPD is associated with decreased maternal sensitivity and attachment with the infant (Lindahl, Pearson & Colpe, 2005; Campbell et al., 2004; McLearn, Minkovitz, Strobino, Marks & Hou, 2006; Paulson, Dauber & Leiferman, 2006). Moreover, maternal depression in the first year postpartum has been associated with a reduction in the practice of recommended engaging parenting behaviors with the baby such as reading, singing, expressing joy and playing (Campbell et al., 2004; NECCR, 1999). These small, but fundamental parenting routines are a child’s earliest “classroom”, filled with fundamental learning opportunities. Through reciprocal social engagement, infants develop a sense of social efficacy. By observing a parent’s reciprocal reaction to their emotions and behaviors (e.g., “When I babble, mom talks to me,”; “When I smile, dad smiles”), they increasingly attend to social cues and reproduce desired social behaviors. Depressive symptoms make it challenging to provide the level of reciprocal interactions associated with positive child outcomes. The fewer opportunities an infant has to develop this sense of social efficacy with caregivers, the less they attend to and learn from their social-emotional environment.

**The impact of maternal depression on young children**—Though perinatal depression has received increased attention in recent years, the impact of depression on parenting and child outcomes continues beyond the perinatal period. The toddler years are an era of rapid brain growth when neurocognitive, psychomotor and social-emotional development are highly dependent on parenting interactions. When depressive symptoms interfere with child-centered conversation, expression of positive and negative emotions, and assistance with emotional regulation and aggressive behaviors, a child's developmental trajectory may be quickly disrupted (Turney, 2011; Turney, 2012; Campbell et al., 2009; Center on the Developing Child, 2010; Kiernan and Carmen Huerta, 2008; National Institute of Child Health and Human Development, 2006).

Toddlers of mothers with depressive symptoms show more concurrent health problems, more language and global developmental delays, more negative and less positive affect, less sustained attentiveness, overly high activity levels, and more non-compliance and tantrums than children of non-symptomatic mothers (Brennan et al., 2000; Turney, 2011; Turney, 2012; NICHD, 1999). These behavioral differences have been observed after as few as 6 months of exposure to the mother's depressive symptoms (Turney 2011; Center on the Developing Child at Harvard University, 2010). The impact of depression on young children has long term implications as infant/toddler behavior problems are predictive of learning difficulties, conduct problems, social difficulties and adjustment issues later in life (Campbell et al., 2009; McLeod & Kaiser, 2004; McLeod, Fettes & Danielle, 2007). Although other variables including SES, social support and parenting behaviors may mediate part of the association between maternal depression and child outcomes (Augustine, March & Crosnoe, 2010; Kiernan and Huerta, 2008), none predict outcomes as strongly as chronicity of maternal depression (Turney, 2012). In fact, repeated exposure to maternal depression and anxiety symptoms more strongly predicts child behavior problems than parental smoking, binge drinking, or domestic violence (National Center for Children in Poverty, 2008), even when symptoms fall below threshold for a clinical diagnosis of Major Depressive Episode (Hammen, 1991).

### **The Interaction between Parent and Child Factors in Early Development**

The relationship between child and parent behaviors is highly transactional. Just as parenting behaviors impact child development, child characteristics can influence parenting behaviors. One of the child characteristics that has been shown to impact parenting behaviors is child temperament. Over 30 years of temperament research has elucidated that young children are not simply passive recipients of parenting behaviors but rather actively contribute to the parent-child relationship that shapes their development. Children that have more challenging temperament qualities, such as irritability, may increase parent stress, reduce coping and increase punitive parenting practices (Ghera, Hane, Malesa & Fox, 2006; Bridgett et al, 2009; Eisenber et al., 1999). For example, in infants and young children with and without special needs (e.g., premature infants, ADHD and Intellectual Disability), infant temperament uniquely predicts parent stress, which predicts parenting behaviors (Gray, Edwards, O'Callaghan & Gibbons, 2013; Bostrom, Broberg & Bodin, 2011; Sarimiski, 2010). Similarly, a child's behavior problems may lead to increased parent stress which may increase parenting behaviors that tend to reinforce the child's behavior problems (Deater-

Deckard et al., 2005; Ghera, Hane, Malesa & Fox, 2006; Webster-Stratton, 1990). Thus, it is important to consider that all parent behaviors, positive and negative, are occurring in the context of an array of potentially challenging child behaviors.

While child characteristics impact parent well-being and behaviors, parent factors may impact the nature and extent of this relationship. In infants and young children with and without disabilities, child outcomes are not determined by temperament alone, but rather depend on the parenting practices used in response to difficult temperaments (Healey, Flory, Miller & Halperin, 2011; Kochanska, Aksan & Carlson, 2005). For example, Kochanska and colleagues reported that highly irritable infants with unresponsive mothers became highly uncooperative at older ages. However, highly irritable infants with highly responsive mothers became highly cooperative at older ages (2005). In mothers with depression, positive parenting behaviors can mediate the link between maternal depression and their child's problematic behaviors (Kiernan & Huerta, 2008). Thus, increasing positive parenting practices is an essential aspect of interventions designed for young children.

In children with and without disabilities, improving parenting behaviors through parent training has greater short and long term impacts on child behavior problems compared to treating the child in isolation (Webster-Stratton & Hammond, 1997). In order to increase positive parenting behaviors, parents must have the resources, including good psychological well being, to participate in treatment and implement suggested strategies. The greater the mother's psychological distress, the less likely she is to utilize effective parenting strategies in response to challenging temperaments and behaviors (Siquvelan, Olafsen & Moe, 2013). Early childhood interventions increasingly include both child and parent interventions (McMahon & Forehand, 2003; Eyberg, 1988; Sanders, Markie-Dadds & Turner, 2000; Webster-Stratton, 1981). However, the parent component of intervention typically focuses on training specific parenting behaviors without directly addressing or treating maternal mental health and well-being. The exclusion of maternal mental health assessment and treatment in these programs neglects the complex interplay between child and parent characteristics that shapes a child's development.

## Maternal Well-Being and Children with Special Needs

Families of children with developmental disabilities face an intersection of risk factors posed both by potentially reduced maternal well-being and by unique challenges associated with developmental disabilities/delays (DD). A child's developmental delay can increase maternal stress, heightening risk for depression in mothers with and without a previous history of depressive symptoms (Davis et al., 2003; Neece, Green & Baker, 2012; Singer et al., 1999; Singer, 2006). Parents of children with a DD experience higher levels of parent stress, depression, anxiety and physical health symptoms compared to parents of children without DD (Bailey, Golden, Robers & Ford, 2007; Greenberg, Seltzer, & Greenley, 1993; Ha, Hong, Seltzer, & Greenberg, 2008; Singer et al, 2006). However, not all parents of children with DD report increased stress, and some report specific benefits of parenting a child with DD (Blacher & Baker, 2007; Olsson, 2009). Overall, the literature reports rates of depression and anxiety as high as 68% and 52% respectively, a rate far higher than that seen in the general population (Thabet et al., 2013).

As in parents of children without disabilities, the stress experienced by parents of children with disabilities is related to a variety of child and parent factors. Stress in parents of children with DD is related to certain child characteristics. Children with DD are more likely to demonstrate challenging behaviors (Baker, Blanche, Crnic & Edelbrock, 2002; Hastings, 2002), with more severe behavior problems causing greater parenting stress (Herring et al., 2006). Diagnostic category also impacts parenting stress, with parents of children with Autism Spectrum Disorders reporting more stress than parents of children with other developmental disabilities (Abbeduto et al., 2004).

Hastings (2002) described the various factors related to the child behavior-parent stress relationship in his stress model for families of children with disabilities (Figure 1). According to Hastings's model, various parental appraisal variables may impact the relationship between behavior problems and parenting stress. For example, the impact of behavior problems on parenting stress is mediated by parent coping strategies (Orr, Cameron & Day, 1991; Quine & Pahl, 1991) and moderated by parents' beliefs about the efficacy of their child's intervention programs (Hastings, 2002) and mother's parental self-efficacy (Hastings & Brown, 2002). Understanding these parent factors may help interventionists reduce parents' stress as part of the child's intervention program and enhance behavioral outcomes. As parenting stress poses an increased risk for maternal depression, considering parental appraisal variables may enhance outcomes for parents and children in intervention programs.

An understanding of the experiences of families with disabilities who are also at risk for maternal depression will require attention to a multitude of variables. The additional responsibilities placed on mothers of a child with special needs may be particularly challenging when coping with maternal depressive symptoms. The dual challenge of an adult at increased risk for depression and a child at risk for developmental delays threatens the well-being of caregivers and their families.

## **Intervention: Mental Health and Early Intervention Services**

The long-term goal of understanding the experiences of these particularly vulnerable families of children with DD is, of course, to create appropriate interventions and shape policies that increase access to such interventions. At present, services for children with developmental disabilities and those for maternal depression are provided through distinct, uncoordinated agencies. We first present the literature on mental health treatment of depression, followed by a discussion of the EI literature.

### **Mental Health Services**

There is a well-established body of literature on evidence-based treatments for depression including both pharmacologic and psychotherapeutic interventions. Several large studies have reported that the effects of psychotherapy are comparable to the effects of pharmacological treatments, while the combination of the two is somewhat more effective than either in isolation (Robinson, Berman & Niemeyer, 1990; Friedman et al., 2004; Pampanolla et al., 2004; De Maat, Schoevers & Jonge, 2007). Moreover, evidence based



psychotherapy reduces depressive symptoms across age groups, genders, and medical comorbidities (Cuijpers et al., 2011).

In the acute postpartum period, there exists a substantial literature for evidence-based psychological interventions for treating PPD, such as interpersonal psychotherapy (Stuart S & O'Hara, 1995; Grote et al., 2009; Zlotnick, Miller, Pearlstein, Howard, & Sweeney, 2006; Beeber et al., 2010; Brandon et al., 2012; Beeber et al., 2013), cognitive behavioral therapy (Cooper, Murray, Wilson & Romaniuk, 2013) and group psychoeducation (Honey, Bennett & Morgan, 2002; Morgan, Matthey, Barnett & Richardson, 1997). Mothers with moderate to severe depressive symptoms should be treated with pharmacotherapy as an appropriate first line and efficacious intervention (Yonkers et al., 2011; Einarson, 2010). There is evidence for the efficacy of both newer antidepressants (selective serotonin reuptake inhibitors) and older tricyclic antidepressants in the treatment of postpartum depression (Wisner et al., 2006). Other evidence-based treatment modalities for postpartum depression include hormonal therapy (Moses-Kolko, Berga, Kalro, Sit & Wisner, 2009) such as the estrogen patch in the prevention and treatment of PPD, bright light therapy in antenatal depression (Wirz-Justice, 2011; Epperson et al., 2004; Oren et al., 2002) and the administration of repetitive transcranial magnetic stimulation (rTMS) during pregnancy (Kim et al., 2011; Zhang, Liu, Sun & Zheng, 2010) and postpartum (Garcia, Flynn, Pierce & Caudle, 2010; Myczkowski et al., 2012).

However, it is important to note that treatment of PPD, while helpful in reducing maternal depressive symptoms, may not impact mothering behaviors, especially if the PPD symptoms interfered with attachment at a critical development stage. Many intervention studies to date have focused on reducing mothers' depressive symptoms during the immediate postpartum period *without* also addressing maternal parenting behaviors and responsiveness. (Forman et al., 2007; Murray, Cooper, Wilson, Romaniuk, 2003; Appleby, 1997; O'Hara, 2000; Cooper, 2003; Grote, 2009; Roman, 2009; Ammerman, 2005 & 2009; Beeber, 2013) Thus, although reduction of maternal symptoms is necessary, this in itself is not sufficient to prevent negative child outcomes (Forman, O'Hara, Stuart, Gorman, Larsen, & Coy KC., 2007).

Relationship focused interventions have focused on increasing depressed mothers' responsiveness to their children through parenting guidance (Cooper; Field; Toth; van Doesum; Nylene; Spinelli; Lyons-Ruth; Cicchetti; Field; Cooper; Weissman; Miranda; Miranca). These studies worked to directly increase the responsiveness of depressed mothers and thereby decrease maternal depressive symptoms. However, the impact on maternal depression was inconsistent. Three studies in postpartum mothers used a combined symptom reduction and parenting enhancement approach. One of these studies showed sustained results at 12 months (Field, 2009) and the other resulted in the benefits waning by 18 months (Cooper, 2003 & 2009). Parenting groups have also been proposed as a means of increasing maternal functioning and well-being. A 2002 meta-analysis reported that parenting group interventions improved maternal and paternal outcomes including depression, stress/anxiety, self-esteem, and parent relationships (Barlow, Coren & Steward-Brown, 2002). To date, there are no studies of any of these maternal depression treatments specifically for parents of children with DD.

## Early Intervention Services

Parents are directed to Early Intervention services (EI) when their child is identified as having a developmental disability or delay. In the US, federally-funded EI provided enrichment activities and therapy for nearly 350,000 infants and toddlers with diagnosed and suspected disabilities in 2011 (National Dissemination Center for Children with Disabilities, 2012). EI teaches parents (most often mothers) to provide developmental support, accurately assess the child's abilities, respond effectively to challenging behaviors, acquire support, and advocate for ongoing services for their child. Parent-mediated, routines-based intervention is considered to be the most effective approach for young children participating in EI (Barton & Fettig, 2013; NC DHHS, 2002).

Services provided under the federal Individuals with Disabilities Education Act (IDEA) must be delivered in the natural environment - places in which typically developing children and their families normally spend time. This provides EI staff and families the opportunity to develop and carry out intervention activities during the families' naturally occurring routines, activities, and events. Such routines are individualized, and in the context of the intervention plan, might include meal times, regular visits to the park, picking a sibling up from an activity, or any other routine or activity that is meaningful to the family. This process of identifying natural learning opportunities and carrying out intervention activities requires ongoing assessment and adjustment, and it must be reciprocal to be effective, requiring active engagement by the child's caregivers (Dunst et. al., 2001; Woods & Lindeman, 2008).

The primary role of the service provider in routines-based intervention is to support family members and caregivers in carrying out intervention activities. Parent-mediated intervention requires the service provider to collaborate with and coach the parent or primary caretaker in therapeutic activities, helping the parent learn and practice new skills in interacting with their child so as to increase the likelihood of generalization of skills and behaviors and increase the likelihood that the family will engage in these activities when the provider is not present (Hanft & Pilkington, 2000; Workgroup on Principles and Practices in Natural Environments, 2008). In addition, parent involvement in EI and, in particular, parental responsiveness are critical to EI's efficacy (Guralnick, 2005; ; McCollum & Yates, 1994; Trivette, Dunst, & Hamby, 2010). Procedures found to impact parental responsiveness include those that promote reciprocity; expressive, animated, and warm interactions; and behaviors that match the child's developmental level, interests, and behavioral style or temperament (Mahoney, 2009; Trivette, Dunst, & Hamby, 2010). The expected role of the parent in parent-mediated, routines-based intervention may be difficult to fulfill when struggling with depressive symptoms. Thus, depressive symptoms may compromise successful delivery of EI to these very young children during the most developmentally sensitive window of opportunity for growth.

Early Intervention policy makers have recently began to recognize the importance of parental well-being in EI and explore policy changes that may shape future treatment models (Schultz et al., 2012). However, existing research often excludes women with multiple risks (low SES, comorbid diagnoses, non-English speaking), who are particularly at risk for depression and whose children are thereby at higher risk for the long-term impacts of



maternal depression. This gap between EI and mental health services requires attention if we are to address the needs of families holistically. Additional research regarding the acceptability, feasibility, and effectiveness of EI programs for mothers with maternal depressive symptoms will create an evidence base for future program development.

The critical remaining question is how to provide appropriate services for this unique population that requires both parent-mediated developmental therapy *and* mental health intervention. Maternal depressive symptoms may limit the reach of EI services; conversely, reducing maternal depression is necessary, but insufficient in improving child outcomes. The interrelated nature of child and parent well-being calls for integrated treatment. There is strong evidence for both evidence based treatment of depression and early intervention for developmental delays and disabilities. However, EI specialists typically do not have expertise in mental health diagnoses and interventions for adults. Similarly, mental health professionals that may address adult depressive symptoms may not have expertise in the developmental disabilities and unique parenting stressors that these “dually impacted” families may face.

## Integration of Maternal Mental Health and Early Intervention Services

Incorporating maternal mental health services into the existing EI infrastructure offers numerous potential advantages. The majority of individuals with mental health needs do not seek out services due to stigma and/or barriers to access (e.g., insurance, navigating systems, cost) (Depression and Bipolar Support Alliance, 2006; National Center for Children in Poverty, 2008). However, mothers with depressive symptoms are just as likely as non-symptomatic mothers to seek Early Intervention services for their children (Fienberg, Donahue, Bliss & Silberstein, 2012). EI may offer a nonthreatening avenue for accessing mental health treatment. First, concerns and referrals to services would come from a trusted provider who has an established relationship with the parents and child. Second, addressing mental health from the perspective of enhancing a child’s development, rather than “mental illness” may reduce stigma. Since families are already receiving EI services, the addition of maternal mental health services could be seen as a “twofer”— bringing together experts in early child development and those in mental health to service the family as a whole (National Center for Children in Poverty, 2008; Schultz et al., 2012). This “twofer” model reduces the challenging navigation of multiple complex service agencies, which may increase long-term engagement in treatment.

Easing families’ access to mental health services may be particularly beneficial for those from lower SES or minority backgrounds who may face additional barriers to access. The role of SES cannot be overlooked in public health research. Prevalence of depression in low-income women is double the rate in community samples, with 40–60% of low-income mothers reporting depression (National Center for Children in Poverty, 2008). When economic resources are taken into account, the magnitude of the direct relationship between maternal depression and child outcomes reduces significantly (Turney, 2011; Emerson & Hatton, 2007; Olsson & Hwang, 2008). Some researchers have argued that the reduced well-being of parents of children with disabilities may be more related to their increased likelihood of experiencing economic hardships related to caring for a child with special

needs than specific parenting stressors; and that the appropriateness and efficacy of interventions may depend largely on the SES status of the presenting family (Olsson, 2006; Emerson & Hatton, 2007). The importance of individualization of intervention may be particularly relevant for minority families, who are overrepresented in lower socioeconomic groups. Increased inclusion of these families in research and treatment will allow a better understanding of the various risk and protective factors faced by families of children with disabilities.

Finally, integrated maternal mental health and EI services may offer more efficient and potentially cost-effective service delivery. Is parent training on language facilitation strategies an effective use of resources if maternal depressive symptoms prevent utilization of these strategies outside of the clinic? Similarly, is psychotherapy for a depressed mother of a child with Autism Spectrum Disorders as effective if the therapist does not have an understanding of the child's needs nor address the parent-child relationship? Ignoring the mental health needs of parents only contributes to existing stigma. As gains in EI and depression treatment continue to separately forge ahead, a significant next step is the collaboration between these highly related fields.

### Steps in Integrating Maternal Health and EI Services

**Build upon existing innovations**—Numerous agencies have recognized the need to increase attention to maternal well-being. The American College of Obstetricians and Gynecologists (ACOG) recommends depression screening for pregnant women once per trimester (ACOG, 2006). Similarly, several states, such as North Carolina, are now including maternal depression screening in routine well-child visits and training primary physicians to make appropriate referrals as needed (Earls & Hay, 2006; National Center for Children in Poverty, 2008). Increased screening and referral is an important first step. However, implementation of screening programs can only improve outcomes if appropriate treatment programs are available and accessed by those in need. Most mothers experiencing depression, particularly low SES and minority mothers, do not access treatment (National Center for Children in Poverty, 2008).

Early Head Start has made important headway in the inclusion of maternal well-being within its early childhood services. Various Head Start pilot studies and programs have increased staff training in the area of family mental health and report increased parent and staff satisfaction and increased communication about mental health and parenting (Chazen et al., 2007; National Center for Children in Poverty, 2008). Boston Children's Hospital has taken a step further in their *Family Connections Program*, a “systems-oriented public health intervention whose aim was to increase the staff's capacity to interact with, understand, and effectively deal daily with parents who were difficult to engage because of depression and related adversities” (Beardslee, Ayoub, Avery, Watts & Carrol, 2010). *Family Connections* has implemented a preventive intervention curriculum model in ten Head Start and Early Head Start Centers providing training, mental health consultation, classroom interventions, and ongoing staff supervision. The qualitative and quantitative results are promising and show a decrease in severity of staff work related stress, increased staff knowledge, high levels of parent reported satisfaction, increased parent participation in support groups,

improved parent-staff relationships and improved classroom quality (Beardslee et al., 2010). This program provides a potential “consultative” model for integration of maternal mental health within existing early childhood services.

**Apply existing innovations to the EI population**—These policies and programs provide important examples of addressing mental health within existing early childhood programs. However, the specific needs of families in EI and the variability in EI systems across the nation must be considered in developing similar programs for families of children with special needs.

One example of a potential integrated model for maternal mental health and EI could be a modest enhancement to EI by preparing EI staff to recognize and acknowledge depression with the parent, offer symptom screening, and based on the results, offer information on efficacious treatment and referral to community resources. However, while increased identification is an essential, it may be insufficient if outside referral sources lack the training or resources to work with screened families. Given the gap between existing mental health and EI programs, effective policy will need to bridge these two systems by providing cross-system consultants and/or providing cross disciplinary trainings within the existing EI system, requiring significant interagency collaboration. A larger scale and potentially more streamlined approach would involve increasing prevention, identification, and treatment of maternal depression within existing infrastructure.

**Prevention:** Many children in EI programs receive evaluations to determine eligibility for the program, the results of which reveal developmental delays. In addition, children enrolled in EI may be in the process of undergoing diagnostic evaluations while receiving therapy services. This period of eligibility determination or diagnostic determination and uncertainty can be quite stressful for families. When a family receives a diagnosis such as Autism Spectrum Disorder, they may face a barrage of emotions and stressors while also attempting to access increased intervention services for their newly diagnosed child. Providing support services such as Cognitive Behavioral Therapy for parents during this stressful post diagnostic period has been shown to reduce symptoms of parent stress, thereby reducing risk for maternal depression (Feinberg et al, 2014).

**Identification, referral, and treatment:** The *Helping Families Raise Healthy Children* program (Schultz et al., 2013) developed and piloted an EI enhancement, which increased maternal depression screenings and referrals into relationship-based interventions. First, EI staff were trained in maternal depression screenings. As part of this training, staff were trained in how to discuss screening results and provide a warm, collaborative interaction, which reduces stigma. Next, select EI and behavioral health providers were trained in relationship-based interventions that have been used with mothers with depression including *Promoting First Relationships* (Kelly et al., 2003), *Partners in Parenting Education* (Dolezol & Butterfield, 1994), and *Nurturing Parenting* (Devall, 2004). This allowed for a specialized subteam within the EI system to serve the needs of referred families. Thus, screening, referral and service provision was streamlined within the EI program.

**Incorporating flexibility:** An enhancement to Early Intervention services would need to be flexible to accommodate variations in the way each U.S. state implements Early Intervention and allow for various models of implementation. One example of the way programs vary is in the personnel structure of the state Early Intervention program, which can impact which services are provided through contracts with private organizations as well as whether services like service coordination and direct therapy are provided by the same or different staff. This in turn could impact which staff needed to be trained to provide different levels of service in a model integrating mental health and early intervention services. For example, in a system in which service coordinators provide assessment and referral to specialists but not direct therapies for the child, staff would need to be trained in different phases of depression recognition and intervention. Service coordinators would need to understand the signs and symptoms and how to administer screening for depression. Therapists would need to understand how depression affects parental involvement and carry-through of therapeutic strategies with the child. In addition, EI funding varies greatly from state to state. In some states, a model such as the *Helping Families Raise Healthy Children* program, in which EI centers provide the training and staff resources for screening and treatment, may not be feasible. An outside consultant model, such as that utilized in the *Family Connections* program, may be a useful modification in such contexts. Finally, programs that rely on insurance reimbursement may have difficulties funding services that are family focused rather than individual focused.

**Conduct research to inform program development—**To design an evidence-based, flexible and feasible integrated system, we would need to know the prevalence, severity, and predictors of maternal symptoms, document the impact on uptake of EI services and explore the acceptability and feasibility of such program enhancements with mothers and EI program staff. If successfully implemented, such an enhancement could have long-range benefit to EI improving retention of families in EI and outcomes for EI infants and toddlers. A modest enhancement could be integrated into EI practice and replicated in EI programs throughout the US. Since EI services exist in every U.S. state, the ultimate impact could be quite large. In addition, understanding barriers to services uptake could help this and other national level programs tailor & target services to better match families' capabilities.

In conclusion, future work should focus on developing interventions to accelerate the translation of advances in maternal depression treatment into EI practice with the goal of improving the developmental and behavioral outcomes of EI infants and toddlers. This type of integrated care is a critical next step toward improving the health of at-risk families by addressing the mental health needs of the family as a whole.

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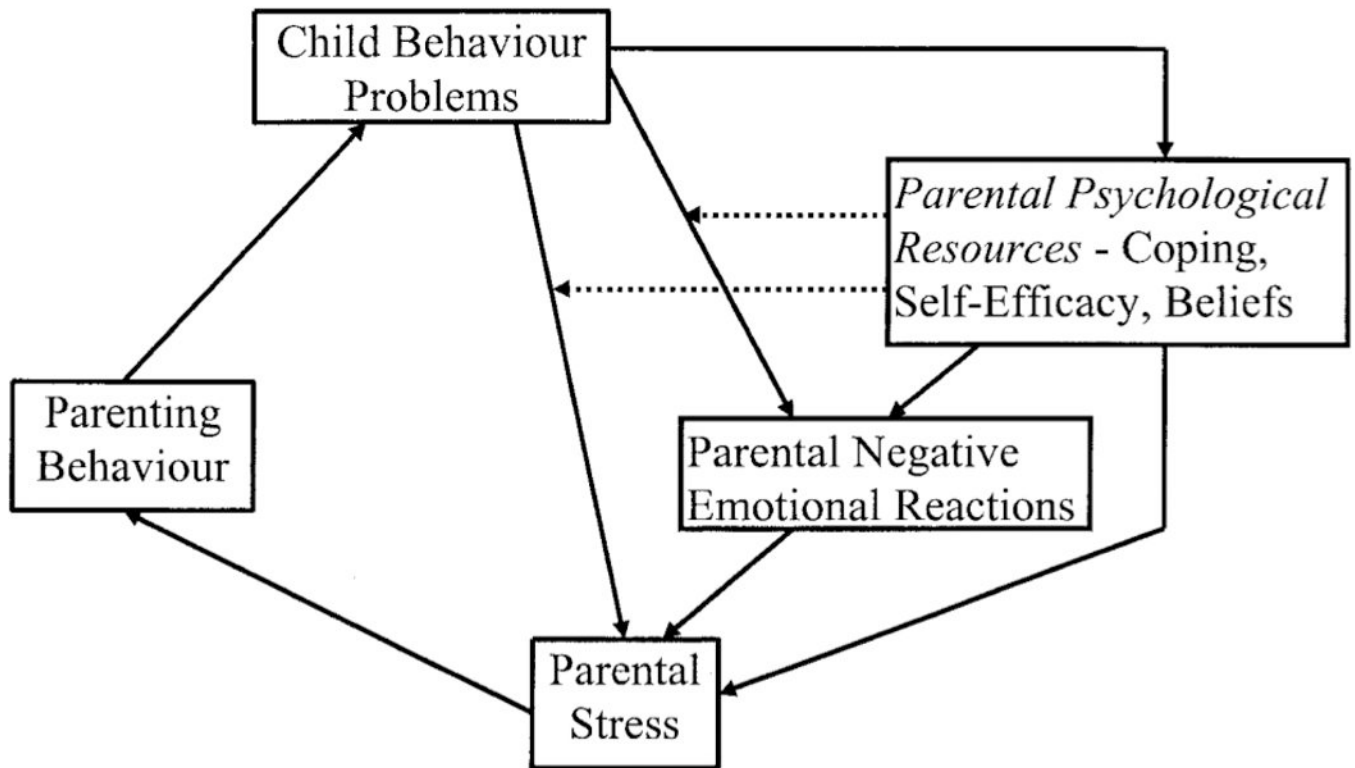
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**Figure 1.**  
Hasting's Stress and Parenting Model