

Prematurity, Attachment, and Interpersonal Therapy: A Review

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Medical interventions have improved the lives and well-being of prematurely born infants and their families, however, mental health interventions among these families have yet to become more widely implemented. Approximately 10 % of the population in the United States is born prematurely, with a higher incidence among families of color. Parents of premature babies face several challenges that negatively influence their mental health, their ability to bond with their babies, and ultimately their children's development. In addition to the biological impairment that certain premature babies face, their experience of medical interventions at such a young age increases their caregiving needs. This paper aims to review the literature about caregivers' attachment representation and sensitivity and its impact on caregivers' behaviors and infant attachment. It also overviews effective early interventions emphasizing the caregiver–infant relationship treatment guided by the principles of Infant and

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Early Childhood Mental Health due to the reverberating influence of prematurity in the whole family.

Keywords: prematurity, NICU, attachment, preterm infant, maternal sensitivity, IPT

Prematurity (i.e., any birth that occurs before 37 weeks of gestation; CDC, 2021) has consequences for infant health and development and emerging attachment relationships. Most premature infants are born just a few weeks short of 37 weeks and usually do not present health difficulties as their organs are fully developed. However, experience shows that as ages decrease further below 37 gestational weeks, a newborn's chances of having medical complications increase. Respiratory difficulties are one of the more common issues. In some cases, premature babies are born before some major organs are fully formed (e.g., the heart), which can be incompatible with viable life.

Parents of premature babies face many challenges that can affect their experience of parenthood, their mental health, and their relationship with their premature infant. In turn, this affects the development of healthy attachment patterns; therefore, mental health assistance is indicated.

In these circumstances, the quality of caregiver and infant attachment patterns can be improved by targeted clinical interventions among parents of premature babies to promote positive changes in the family environment. Interpersonal Therapy (IPT) is proven to be efficient in the treatment of depression (Markowitz et al., 1998; Schulberg et al., 1996) and during peripartum (O'Hara et al., 2000; Spinelli, 1997; Klier et al., 2001; Zlotnick et al., 2001). IPT is a collaborative work between therapist and client, in this case, done with parents of neonatal intensive care unit (NICU) babies, and it has been demonstrated to induce a significant reduction in symptoms, improvement of marital relationships, and reduction of parental stress (Muzik et al., 2009, as cited in Pouyan et al., 2019).

IPT, with a focus on psychoeducation, improves *maternal sensitivity* (Grigoriadis & Ravitz, 2007, as cited in Bleiberg & Markowitz, 2019), significantly reduces stress in the NICU, lessens depression and anxiety at two months corrected age, increases the quality of caregiver-child interactions, and shortens NICU and hospital stays (3.8 days on the Creating Opportunities for Parent Empowerment program), (Melnik et al., 2006). Educational-behavioral intervention programs, such as Creating

Opportunities for Parent Empowerment, improve child developmental and behavior outcomes by enhancing parent-infant interactions and parent mental health outcomes (Deans et al., 2014).

For this paper, we reviewed articles published until the year 2020. We found that the literature published in the past decade was sparse. Our focus was to better understand the current situation of caregivers and their premature infants in the United States and to identify barriers to attuned caregiving in this population. We reviewed attachment, maternal sensitivity and representations of attachment, and caregiver-preterm baby interactions while exploring the infants' health repercussions of being born prematurely. Furthermore, we investigated the application of IPT as a therapeutic model for this population and how to promote resilience in those families.

Prematurity

According to the World Health Organization (WHO, 2018), 5 to 18% of babies are born preterm across 184 countries. In 2020, 10% of babies in the US were born prematurely (Center for Disease Control (CDC, 2021), which is about 450,000 babies. More than 80% of these births were unanticipated (Dolezel, 2019). Complications resulting from premature birth are the leading cause of death among children under five years of age, corresponding in 2015 to around 1 million deaths. Cost-effective medical interventions could not prevent only one-third of these cases (WHO, 2018). Dolezel (2019) reported that half of preterm births are idiopathic.

There are three sub-categories of prematurity, defined by the WHO (2018): 1) moderate to late preterm, which is when the birth happens between 32 and 37 weeks of gestation; 2) very preterm, when the birth happens between 28 and 32 weeks; and 3) extremely preterm, when the birth happens before 28 weeks (WHO, 2018). Unborn babies go through important development until the end of pregnancy, including in the final months and weeks. The earlier a baby is born, the higher the risk of health complications and death, which consequently can lead to developmental delay and lower performance in school (CDC, 2021). Preterm birth can be of little consequence with no need for prolonged hospitalization or significant disorder. Only 2% of babies born before 32 weeks gestation account for the majority of neonatal deaths and disabilities (Goldenberg & Rouse, 1998). The survival rates of premature infants illustrate this. Babies born at 22 weeks

have a survival rate of up to 21%, babies born from 23 weeks have a rate of survival of 5% to 46%, and the survival rates of babies born from 24 weeks to 26 weeks range from 40% to 93% (Lorenz, 2001).

Moreover, pregnancy outcomes and infant survival indicate racial disparities (Alexander & Slay, 2002), as the rate of preterm birth in 2020 was 14.4% among non-Hispanic black women, 9.8% among Hispanic women, and 9.1% among non-Hispanic White women (CDC, 2021). According to Mendelson et al. (2017), there is an increased risk of perinatal depression and anxiety for NICU caregivers, with negative implications for caregiving and infant development. More specifically, Black caregivers have a higher prevalence of postpartum depression and anxiety than non-Black caregivers (Howell et al., 2005). It is important to note that maternal mental health issues are frequently underreported in this population, and their symptoms are left unattended (Iturralde et al., 2021; Kozhimannil et al., 2011). Black caregivers are at 50 % higher risk of having a premature baby than White or Hispanic caregivers (CDC, 2022). Matthews et al. (2021) explained that these health inequalities start with perinatal and caregiver mental health disorders diagnosis and access to mental health treatment (Matthews et al., 2021). These inequities can be exacerbated by having a premature infant (Pao et al., 2019).

Impact of Prematurity

The severity of prematurity and neonatal complications can affect long-term development (Brisch et al., 2005). Rose et al. (2005, 2008) state the negative impact prematurity has on cognitive outcome, which has been consistently corroborated by several studies, demonstrating great variability of cognitive disabilities (e.g., language delays, lower IQs). Several studies have shown that babies born prematurely have a higher incidence of learning disabilities and school failure (e.g., Allen, 2002, as cited in Rose et al., 2005; Amiel-Tison, Allen, Lebrun, & Rogowski, 2002, as cited in Rose et al., 2005; Scottish Low Birthweight Study Group, 1992, as cited in Rose et al., 2005). A longitudinal cohort conducted by Rose and Feldman (1995, 1996, 1997, as cited in Rose et al., 2008) analyzed specific cognitive abilities of 11-year-olds, comparing the abilities of preterm and full-term. They found significantly lower scores in preterm than in full-term individuals. These results are confirmed by recent MRI studies where prematurity is associated with structural brain abnormalities (e.g., ventricular enlargement and delayed

myelination) (e.g., Cooke & Abernethy, 1999; Stewart et al., 1999, as cited in Rose et al., 2005). Some affected brain regions control the deficits found in specific cognitive abilities. For example, memory deficits in school-aged preterm children can be associated with reduced hippocampal volume (Isaacs et al., 2000, as cited in Rose et al., 2008). Several studies point to attention impairments (Hack & Taylor, 2000; Taylor et al., 1998, as cited in Rose et al., 2008) and deficits in executive functioning (Anderson et al., 2004; Curtis et al., 2002, as cited in Rose et al., 2005). Lorenz (2001) states that 20-25% of premature infants have at least one major disability or mental developmental impairment, such as cerebral palsy (12%–15% of survivors affected), blindness (5% to 8%), or deafness (3% to 5%).

Caregiver-Preterm Baby interactions

Preterm infants differ from full term infants by expressing difficulties interacting with their caregivers (e.g., less alert, poorer motor coordination, and more difficult to comfort and feed) (Field, 1977a, 1977b, as cited in Frodi & Thompson, 1985). The infant's behavior may contribute to the observed behavior of some preterm babies' mothers who are more active and intrusive with their infant, thus having less contingent responses to their infants' cues (Goldberg, 1978, as cited in Frodi & Thompson, 1985). This is particularly important because the baby's tolerance for intense emotions and emotional fluctuation increases with contingent caregiver-infant interactions. Since this type of interaction is decreased with preterm infants, they express more intense distress and get upset easily (Brisch et al., 2005) due to having a lower defensive threshold for activating aversive or defensive reactions and a higher threshold for orienting or attentive responses, increasing their emotional lability mirrored by longer recovery time to be soothed (Frodi & Thompson, 1985).

Often, parents of preterm babies feel detached and separated from their infants, as they cannot or do not feel that they can interact as freely with their infants as they would do with a term infant at home (Brisch et al., 2005). Perinatal posttraumatic stress disorder (PPTSD) is a psychological disorder in which an individual experiences a traumatic event in or around childbirth, usually in the postpartum period in the context of a traumatic birth (Vignato et al., 2017). Caregivers experience the following symptoms: reliving the traumatic event, emotional numbing, hyperarousal, and avoidance of

thoughts, places, or persons associated with the event (Foa et al., 2009). PPTSD affects over nine percent of birthing people (Grekin & O'Hara, 2014). Caregivers of premature infants are at a higher risk for PPTSD and anticipatory mourning (Malin et al., 2020). Between 18% and 78% of caregivers of premature infants experience at least one symptom of posttraumatic stress disorder (Malin et al., 2020), which puts these caregivers at risk for depression, prematurity, decreased maternal-infant attachment, and other negative outcomes, such as psychological symptoms later in life (Rogal et al., 2007; Weinreb, 2012). Caregiver PPTSD affects caregiving behaviors and their children's health outcomes (Malin et al., 2020). Even 14 months after delivery, NICU caregiver PPTSD symptoms did not appear to decrease (Kersting et al., 2004). NICU caregivers experience situations of perceived imminent and possible loss of their children, which leads to frequent anticipatory mourning, which consists of "phases mourning, coping, interaction, planning, and psychological reorganization in response to the imminent loss of a loved one" (Coelho et al., 2018, p.2). This adds to the differences in caregiving behavior observed in this population, affecting display and reaction time, and can affect the quality of caregiver-baby interactions and relationships (Brisch et al., 2005). The adult's sensitivity to the baby's emotional cues can be shaped by the preterm infant's emotional responsiveness (Frodi & Thompson, 1985), which impacts the parent-child interaction that is paramount to the infant's development and outcomes and influences the parents' behaviors (Wijnroks, 1999, as cited by Brisch et al., 2005). Interestingly, caregivers of premature infants do not show any difference in parental self-efficacy compared to caregivers of full-term infants, i.e., self-perceived parental competence is similar in caregivers of preterm and full-term infants (Pennell et al., 2012).

Attachment

Attachment and Prematurity

The caregiver-child relationship is crucial for their social, emotional, and cognitive development (Wright & Edginton, 2016). Children are biologically preprogrammed to form attachments with others they depend on for survival. Attachment, defined as the "lasting psychological connectedness between human beings" (Bowlby, 1969, p. 194, as cited in McLeod, 2009; Bowlby,

1978), reflects a deep and enduring emotional bond that connects one person to another across time and space (Ainsworth, 1973; Bowlby, 1969, as cited in McLeod, 2009). Attachment can be adaptive as it can enhance the infant's chance of survival (McLeod, 2009).

Preterm babies, like full-term babies, have a repertoire of behaviors that promote attachment by seeking and maintaining significant caregivers in proximity (Mikulincer et al., 2003). Attachment is built upon how parents comprehend and answer their baby's communication (e.g., crying). Ideally, parents would become a secure base upon which the child builds self-confidence to explore the world (McLeod, 2009). Based upon this, infants create attachment figures and self-working models to be integrated into their personality (Bretherton, 1985), and can buffer anxiety and provide a sense of safety (Mikulincer et al., 2003). Preterm or fullterm infants, understanding that their caregivers will protect them, can take on adventure, explore their environment, and interact with others efficiently (Bowlby, 1988, as cited in Mikulincer et al., 2003). Infants build their internal models of self and others based on the information, individual processes, and feedback they receive from the environment (e.g., Collins & Read, 1994, as cited in Scharfe & Bartholomew, 1994; Main et al., 1985, as cited in Scharfe & Bartholomew, 1994).

The quality of child-caregiver attachment has been proven to be moderately stable (Scharfe & Bartholomew, 1994). The same has also been demonstrated in adults in a variety of longitudinal studies (e.g., Hammond & Fletcher, 1991, as cited in Scharfe & Bartholomew, 1994; Shaver & Brennan, 1992, as cited in Scharfe & Bartholomew, 1994). Furthermore, changes in the family environment (e.g., mother's return to work) are associated with changes in children's attachment categories. Thus, for infants in high-risk environments, the stability of attachment patterns is lower (Scharfe & Bartholomew, 1994).

Types of Attachment Patterns

Children can be categorized into three attachment types: secure, anxious avoidant, and anxious resistant (Mikulincer et al., 2003; Mallinckrodt et al., 1995). Infants with a secure attachment will explore their environment freely in the presence of their mother. They demonstrate some anxiety upon separation but are easily comforted upon reunion. Infants with an anxious

ambivalent pattern of attachment tend to be excessively anxious, angry, and clinging to their caregiver, limiting their ability to explore their environment. They feel distressed during separation and express difficulty in being comforted upon reunion. Infants with an anxious-avoidant attachment style demonstrate little interest in their caregiver and have a flatter affect. Inconsistent caregiver responses to infant cues promote an ambivalent attachment pattern, whereas consistent emotional unavailability and unresponsiveness from caregivers can lead to avoidant attachment styles (Mallinckrodt et al., 1995).

Caregivers' attachment patterns affect how they respond to their baby's cues; therefore, these patterns permeate the quality of caregiver-preterm baby interaction and subsequently influence the baby's development of attachment patterns. These relationships are more challenging with a preterm baby than with a fullterm healthy baby due to their baby's idiosyncrasies, which stress the caregiver-baby dyad and the caregiver's parenting skills. Preterm babies might develop different patterns than fullterm, which might shift according to changes in their family environment (Scharfe & Bartholomew, 1994).

Attachment and Health Outcomes

Optimal functioning is facilitated by contingent and synchronous child-caregiver interactions in which the caregiver is available to their child in times of need and responds appropriately to their needs (Bowlby, 1973, as cited in Mikulincer et al., 2003). Consequently, the child expects others to be available to them and develops a positive sense of self, healthier self-esteem, and feels competent and valued, which organizes their major affect-regulation strategies. In contrast, children who develop insecure attachment patterns learn that their caregivers are unavailable or unresponsive to their needs, and therefore, closeness to the caregiver does not soothe them, and they do not feel safe. This leads to negative representations of self and others, so they seek to affect regulation strategies that do not evolve the proximity of others (Mikulincer et al., 2003).

Insecure attachment patterns and attachment disorders are associated with poor long-term outcomes (e.g., educational, social, and physical) and subsequent psychopathology, which points to the clinical importance of promoting healthy attachments (Wright & Edginton, 2016). Behrens et al. (2016) state that it has been well documented (e.g., van Ijzendoorn, 1995, as

cited in Behrens et al., 2016) that attachment security can be transmitted intergenerationally. How children's attachment needs are attended to—caregiver sensitivity—is a central aspect of this transmission. Caregivers with a secure attachment pattern will be more sensitive to their children's needs, responding appropriately and synchronously, unlike those with insecure attachment patterns who portray lower maternal sensitivity (Brisch et al., 2005). These caregivers prioritize relationships and tend to be more thoughtful and reflective (Main et al., 2003), thus having more securely attached infants (Brisch et al., 2005).

Maternal Sensitivity and the Representation of Attachment

The caregiver's appropriate responsiveness and sensitivity toward the infant's cues and needs (maternal sensitivity) has a great impact on the quality of the infant's attachment to their caregiver, which also reflects the quality of early interactions (Ainsworth, 1979, as cited in Borghini et al., 2006). It has been well established that mothers of preterm infants display less positive affect and more anxiety toward their infants than mothers of term infants (Brisch et al., 2005). Preterm infant mothers show enhanced stimulation and activity levels (Borghini et al., 2006). Parents often experience their baby's premature birth as traumatic, associated with perceived life-threatening circumstances, with consequent parental anxiety translated into an overprotective parenting style (Affleck et al., 1991). The caregiver's attention is affected in function to the severity of neonatal medical problems (Beckwith and Cohen, 1978, as cited in Borghini et al., 2006). It has also been found that preterm infants smile less and are fussier than their age-matched controls (Brachfeld et al., 1980; Barnard et al., 1984, as cited in Borghini et al., 2006).

Parental perceptions and attitudes can distort early caregiver-child interactions. The latter is rooted in parents' experiences of their child's premature birth, which impacts the caregiver-child relationship even after the neonatal challenges have been resolved. This can explain the higher incidence of behavioral and social problems in infants and children born prematurely (Borghini et al., 2006).

Mothers of full term babies have more secure attachment representations (53% at six months and 57% at 18 months) than mothers of preterm babies (20% at six months and 30% at 18 months) (Borghini et al., 2006). Mothers of premature infants demonstrate the same percentage of secure attachment

representations independently of their baby's level of postnatal risk. In contrast, insecure attachment representation differs according to their babies' postnatal risk. Low-risk premature infant mothers present more disengaged representations, whereas high-risk premature infant mothers exhibit more distorted representations (Borghini et al., 2006). Mothers of low-risk premature infants tend to be emotionally distant, not knowing their infant well and not acknowledging their infant's needs for dependency and connection. This type of representation implies emotional withdrawal, which differs from distorted representations, which are more prevalent in mothers of high-risk premature infants, where emotional arousal is central. Several months after discharge, this emotional arousal often persists. Parents with this type of representation feel a strong need to be close to their children so that they can provide strength and comfort during stressful and painful medical experiences. They express anxiety and concern about their child's health and future development.

In contrast, low-risk parents mention low to no concern about their children (Endriga & Speltz, 1997). This is corroborated by a higher incidence of secure attachment representations in high-risk infants (42%) compared to low-risk infants (17%) at 18 months of age. It appears that the stress, anxiety, and consequent emotional difficulties endured by parents of high-risk infants prepare them for a higher level of closeness with their children. When mental health support has been provided, these parents feel more confident in their child's development, thus having optimal involvement with them (Borghini et al., 2006).

Borghini et al. (2006) postulated that in the first months following the infant's discharge, disengaged representations may lead to difficulties in establishing a close relationship and to long-term negative effects on the caregiver-infant relationship development, and this, consequently, promotes difficulties in infants in recognizing their needs.

Attachment in Preterm and Term Infants

Many studies have attempted to determine preterm infant attachment styles. These studies are inconclusive. Some authors (Brown & Bakeman, 1980, as cited in Borghini et al., 2006; Frodi & Thompson, 1985; Easterbrooks, 1989, as cited in Borghini et al., 2006) have not found a higher incidence of insecure attachment patterns. Goldberg, Perrotta, Minde, &

Corter (1986) and Wille (1991, as cited in Borghini et al., 2006) explain this finding by the parents' ability to adapt to their preterm infants' special needs, thus arguing that the quality of the attachment relationship is not influenced by prematurity. Frodi and Thompson (1985) corroborated this by affirming that affective expression and regulation, and security of attachment are the same between term and preterm infants at 14 months and 19 months (Mangelsdorf et al., 1996), demonstrating a lack of significant differences in the quality of attachment between term and preterm infants.

In contrast, Plunkett et al. (1988, as cited in Brisch et al., 2005) found a higher percentage of insecure attachment patterns in preterm infants, especially in infants with a high medical risk score compared to infants with a low-risk score. This is also confirmed by Brisch et al. (2005), who state that less secure attachment styles were found in preterm infants compared with term infants. Prematurity in and of itself does not constitute a higher risk of insecure attachment.

Interpersonal Therapy

Interpersonal Therapy (IPT) is an effective psychotherapy method supported by numerous empirical studies. It uses a biopsychosocial/cultural/spiritual model to assess personal strengths and vulnerabilities, target symptom resolution, increase social support, and improve interpersonal functioning. This is time-limited psychotherapy, with a range of 12-16 sessions, focused on interpersonal crises (International Society of Interpersonal Therapy (ISIPT), n. d.).

IPT—Clinical Intervention Focused on Caregiver-Child Relationship

The quantity or quality of the mother-infant interaction can be affected by changes in the family environment, such as numerous stressful or positive life events that facilitate changes in attachment patterns (Thompson et al., 1982). The socioemotional functioning of preterm infants can be improved by the caregiver's adaptation to the characteristics of premature babies and by establishing a more harmonious and appropriate interaction style (Frodi & Thompson, 1985).

Various interventions, most commonly parenting interventions, are used to address insecurity or attachment patterns and attachment disorders (Wright

& Edginton, 2016). Becoming a mother and accepting the transition to this role is more difficult for mothers of premature infants (Pouyan et al., 2019). Studies have shown an improvement in maternal mental health with IPT (Deans et al., 2015), which helps by improving an individual's stressful behaviors, improving mother-child attachment, and facilitating the adoption of their new maternal role (Deans et al., 2014).

IPT is an efficacious therapy in the treatment of depression (Schulberg et al., 1996; Markowitz et al., 1998) during peripartum (O'Hara et al., 2000; Spinelli, 1997; Zlotnick et al., 2001; Klier et al., 2001) in adolescents (Mufson et al., 1999), and geriatric individuals (Reynolds et al., 1999, as cited in Markowitz & Weissman, 2004), which makes a non-causal connection between an individual's mood and distressful life events. IPT has also been proven efficient for non-mood disorders and other conditions, such as social phobia (Markowitz & Weissman, 2004), posttraumatic stress disorder (Krupnick et al., 2002), and anxiety disorders (Agras et al., 2000, as cited in Markowitz & Weissman; Fairburn et al., 1995, as cited in Markowitz & Weissman, 2004; Wilfley et al., 2002 as cited in Markowitz & Weissman, 2004). It is collaborative work between therapist and client to resolve a problem by activating several mechanisms of interpersonal change, such as decreasing interpersonal stress, increasing social support, facilitating emotional processing, and improving interpersonal skills (Lipsitz & Markowitz, 2014).

IPT done with parents of babies who were hospitalized in a NICU shows a significant reduction in symptoms, improvement of marital relationships, and reduction in parental stress (Fuzik et al., 2009, as cited in Pouyan et al., 2019).

IPT as a Psychoeducational Program

IPT with a focus on the psychoeducation component has been shown to significantly reduce stress in the NICU, lessen depression and anxiety at two months corrected age, increase the quality of caregiver-child interactions, and shorten NICU and hospital stays (3.8 days on the Creating Opportunities for Parent Empowerment program) (Melnyk et al., 2006). Educational-behavioral intervention programs, such as Creating Opportunities for Parent Empowerment, improve child developmental and behavior outcomes by

enhancing parent-infant interactions and parent mental health outcomes (Deans et al., 2014).

The *maternal sensitivity* framework influenced the work of Grigoriadis and Ravitz (2007, as cited in Bleiberg & Markowitz, 2019), who noticed improvements in maternal perception and interpretation of their baby's emotional cues (i.e., joy, comfort, guidance, room for exploration), resulting in a more synchronous maternal response to signals.

Early parenting interventions, such as an educational-behavioral intervention program, starting in the NICU, can be extremely impactful for these parents because they can improve parents' mental health, raise the quality of caregiver-child interactions, and decrease hospital stay duration (Clark et al., 2003, as cited in Robertson et al., 2004). This is accomplished by facilitating the acquisition of developmentally appropriate, non-intrusive, and consistently clear communication with the preterm child. It is beneficial to add attachment-based principles to this intervention (Grigoriadis & Ravitz, 2007, as cited in Bleiberg & Markowitz, 2019). Gunlicks-Stoessel et al. (2017), in their work with adolescents (IPT-A), found it effective in attending to attachment pattern problems and decreasing attachment anxiety and avoidance while reducing depression symptoms.

Building Resiliency

The Benevolent Childhood Experiences scale (BCE; Narayan et al., 2018) is a self-report measure with ten items that measure perceived safety, security, support, and positive and predictable qualities of life. It is designed to quantify positive early life experiences (Karatzias et al., 2020) and predict lower levels of psychopathology and stress (Merrick et al., 2020). The recollection of and reasoning about pregnant women's own childhood experiences (Slade et al., 2009, as cited in Merrick et al., 2020) and childhood family environments and social contexts will become models and resources for their circumstances during their perinatal period (Merrick et al., 2020; Narayan et al., 2018), from which they draw as caregiving templates and will promote resilience and more positive caregiving for multiple generations (Narayan et al., 2018). Individuals should be encouraged to reflect on the benefits of Angel Memories (memories of intense shared affect between caregivers and child, eliciting feelings of being understood, accepted, and loved) to promote positive parenting and adulthood well-being. This could positively impact

maternal sensitivity, caregiver-child interactions, and healthy attachment behavior. For BCE and Angel Memories to have protective effects across generations, clinicians would benefit from unlocking the ability to recall Angel Memories created by severe Ghost Memories (Lieberman et al., 2015; Narayan et al., 2016) by focusing on trauma-informed treatment, such as child-parent psychotherapy (CPP) to facilitate a client's process of unresolved trauma, promote resilience during pregnancy, and support mother-infant bonding (Narayan et al., 2018). Both Angels and Ghosts, as opposite polarities of their experiences with their caregivers, coexist in a dynamic relationship and affect an individual's adaptation to their environment.

Clinical Implications and Future Research Potential

Mental health in adulthood can be protected through early interventions that introduce positive childhood experiences and resources to children and adolescents (Karatzias et al., 2020). To that end, “a first step in resilience-informed clinical perinatal health services is to bring individuals’ conscious awareness to resources that might already be in place, such as the loving, supportive, and predictable BCEs that become Angel Memories and serve as templates for positive caregiving in the next generation” (Narayan et al., 2020, p.130).

Early intervention with caregivers focusing on maternal sensitivity is clinically effective in promoting secure attachment in children. Clinicians must carefully consider not only their choice of intervention but also the match between their chosen intervention and the characteristics of the parents, caregivers, and children with whom they wish to use it.

IPT efficiency has been demonstrated in many areas, although it has yet to be studied regarding its impact on children’s mental health and development (Deans et al., 2014, 2015). More specifically, the caregivers-premature infant relationship faces many unique challenges that can hinder a child’s attachment patterns and general development. It is important to realize high-quality intervention research, especially on children under five years of age with attachment disorders and those with disorganized attachment (Wright & Edginton, 2016), and on children born prematurely.

It is pertinent to investigate BCE’s possible impact on parenting styles, parenting self-efficacy, preterm infants and their parents’ resiliency, maternal sensitivity, and attachment patterns. Particularly among caregivers of

premature babies and their infants, it is crucial to understand factors (e.g., individual, family, and community) that can offset the deleterious effects of prematurity (Narayan, 2015, as cited in Narayan et al., 2018). To that end, we need to develop efficient and empirical instruments and strategies to counter the negative impact of adverse experiences and promote favorable early experiences for high-risk populations, such as premature babies and their caregivers. Furthermore, it could be beneficial to study the implications of using the BCEs scale as a resilience-based perinatal screening and how improving the postnatal environment affects premature infant development and attachment patterns (Narayan et al., 2018).

Finally, the impact of IPT on caregivers of premature babies with a focus on trauma-informed treatment and building resilience by promoting BCE and Angel Memories should be studied to establish its possible influence on maternal sensitivity and quality of caregiver-infant interactions and child attachment and development.

Conclusion

This paper explored the value of early clinical interventions with premature infant caregivers. Premature birth can negatively impact infants, caregivers, and the relationships they establish. With premature babies, even the smallest caregiving tasks can be challenging and thus negatively affect one's experience of parenting their child. Holding a baby can be a very difficult and scary accomplishment for a parent, depending on the medical equipment to which the baby can be connected, and sometimes holding or even touching is not possible with some NICU preterm setups. In addition to the parents needing to adjust their caregiving behaviors, they have to cope with their grievance of not having a healthy baby.

Caregivers of premature babies might live with the shadow of impending medical complications or even death, depending on the severity of their baby's health complications. Understandably, these factors affect one's perceptions of their newborn and relationship. Caregivers' defensive mechanisms, their Angels or Ghosts in the nursery, early childhood memories (benevolent or adverse), and coping mechanisms shape how they address their babies' special needs and influence the relationship they establish with their infant. Premature babies experience several degrees of medical interventions, often with invasive touch. Their sensorial experiences are often very different

from those of full term babies. Premature infants' sensorial experiences can limit their ability to be held by their parents or skew their behavior toward increased emotional lability or sensitivity, affecting their caretakers' sensitivity and self-efficacy. How the relationship is established and maintained has long-lasting effects throughout adulthood.

IPT is a clinical approach that can improve caregiver-infant relationships and positively impact infants' attachment patterns and long-term outcomes (e.g., educational, social, physical, and psychological). In addition to reducing clinical risk, clinicians can enhance premature infants' well-being, development, and mental health by promoting resiliency in their caregivers and consequently improving outcomes for multiple generations. By improving caretakers' mental health and promoting the development of resiliency and coping skills, clinicians are enhancing parental sensitivity to their infants' needs and cues as it increases intimacy and closeness in the parent-child relationship. This creates a sense of safety and protection in these premature infants, facilitating more secure attachments.

References

- Affleck, G., Tennen, H., & Rowe, J. (1991). *Infant in crisis: How parents cope with medically fragile infants*. Springer Verlag.
- Alexander, G. R., & Slay, M. (2002). Prematurity at Birth: Trends, Racial Disparities, and Epidemiology. *Mental Retardation and Developmental Disabilities Research Reviews*, 8(4), 215–220. <https://doi.org/10.1002/mrdd.10047>
- Behrens, K. Y., Haltigan, J. D., & Bahm, N. I. (2016). Infant attachment, adult attachment, and maternal sensitivity: revisiting the intergenerational transmission gap. *Attachment & Human Development*, 18(4), 337-353. <https://doi.org/10.1080/14616734.2016.1167095>
- Bleiberg, K. L., & Markowitz, J. C. (2019). Interpersonal Psychotherapy for PTSD: Treating Trauma without Exposure. *Journal of Psychotherapy Integration*, 29(1), 15–22. <https://doi.org/10.1037/int0000113>
- Borghini, A., Pierrehumbert, B., Miljkovitch, R., Muller-Nix, C., Forcada-Guex, M., & Ansermet, F. (2006). Mother's Attachment Representations of Their Premature Infant at 6 and 18 Months after Birth. *Infant Mental Health Journal*, (27)5, 494-508, <https://doi.org/10.1002/imhj.20103>
- Bowlby, J. (1978). Attachment theory and its therapeutic implications. *Adolescent Psychiatry*, 6, 5–33.
- Bretherton, I. (1985). Attachment Theory: Retrospect and Prospect. *Monographs of the Society for Research in Child Development*, 50(1/2), 3-35. <https://doi.org/10.2307/3333824>
- Brisch, K.H., Bechinger, D., Betzler, S., Heinemann, H., Kächele, H., Pohlandt, F., Schmücker, G., & Buchheim, A. (2005). Attachment Quality in Very Low-Birthweight Premature Infants in Relation to Maternal Attachment Representations and Neurological Development. *Parenting: Science and Practice*, (5)4, 311–331. https://doi.org/10.1207/s15327922par0504_1
- Center for Disease Control (2021, November). *Premature Birth*. <https://www.cdc.gov/reproductivehealth/features/premature-birth/index.html>
- Coelho, A., de Brito, & M., Barbosa, A. (2018). Caregiver anticipatory grief: phenomenology, assessment and clinical interventions. *Current opinion in supportive and palliative care*, 12(1), 52–7. <https://doi.org/10.1097/SPC.0000000000000321>
- Deans, C., Reay, R., & Stuart, S. (2015, June 11-13). *IPT for postnatal depression incorporating the mother-child relationship: Integrating attachment work into IPT*. ISIPT Conference, London.
- Deans, C., Reay, R., & Stuart, S. (2014). Interpersonal Psychotherapy for Groups: Advantages and Challenges. *Psychotherapy in Australia*, (21)1, 28-37.
- Dolezel, J. (2019). Premature Birth Facts and Statistics: What You Need to Know. Very Well Family. <https://www.verywellfamily.com/premature-birth-facts-and-statistics-2748469>
- Endriga, M.C., & Speltz, M.L. (1997). Face-to-face interaction between infants with orofacial clefts and their mothers. *Journal of Pediatric Psychology*, 22(4), 439–453. <https://doi.org/10.1093/jpepsy/22.4.439>
- Foa, E.B., Keane, T.M., Friedman, M.J., & Cohen, J.A. (Eds.). (2009). *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress Studies*. (2nd ed.). Guilford Press.

- Frodi, A., & Thompson, R. (1985). Infants' Affective Responses in the Strange Situation: Effects of Prematurity and of Quality of Attachment. *Child Development*, *56*(5), 1280-1290. <https://doi.org/10.1111/j.1467-8624.1985.tb00196.x>
- Goldenberg, R.L., & Rouse, D.J. (1998). Prevention of Premature Birth. *New England Journal of Medicine*, *339*(5), 313-320. <https://doi.org/10.1056/NEJM199807303390506>
- Goldberg, S., Perrotta, M., Minde, K., & Corter, C. (1986). Maternal behavior and attachment in low-birth-weight twins and singletons. *Child Development*, *57*(1), 34-46. <https://doi.org/10.1111/j.1467-8624.1986.tb00004.x>
- Grekin, R., & O'Hara, M.W. (2014). Prevalence and risk factors of postpartum posttraumatic stress disorder: a meta-analysis. *Clinical Psychology Review*, *34*(5), 389-401. <https://doi.org/10.1016/j.cpr.2014.05.003>
- Gunlicks-Stoessel, M., Westervelt, A., Reigstad, K., Mufson, L., & Lee, S. (2017). The role of attachment style in interpersonal psychotherapy for depressed adolescents. *Psychotherapy Research: Journal of the Society for Psychotherapy Research*, *29*(1), 78-85. <https://doi.org/10.1080/10503307.2017.1315465>
- Howell E.A., Mora P.A., Horowitz C.R., & Leventhal H. (2005). Racial and ethnic differences in factors associated with early postpartum depressive symptoms. *Obstetric Gynecology*, *105*(6):1442-50. doi: 10.1097/01.AOG.0000164050.34126.37.
- International Society of Interpersonal Therapy (n.d.) <https://interpersonalpsychotherapy.org/about-isipt/>
- Iturralde E., Hsiao C.A., Nkemere L., Kubo A., Sterling S.A., Flanagan T., & Avalos L.A. (2021). Engagement in perinatal depression treatment: a qualitative study of barriers across and within racial/ethnic groups. *BMC Pregnancy Childbirth*, *21*(1): 512. <https://doi.org/10.1186/s12884-021-03969-1>.
- Karatzias, T., Shevlin, M., Fyvie, C., Grandison, G., Garozi, M., Latham, E., Sinclair, M., Ho, G. W. K., McAnee, G., Ford, J.D., & Hyland, P. (2020). Adverse and benevolent childhood experiences in Posttraumatic Stress Disorder (PTSD) and Complex PTSD (CPTSD): implications for trauma-focused therapies. *European Journal of Psychotraumatology*, *11*(1). <https://doi.org/10.1080/20008198.2020.1793599>
- Kersting, A., Dorsch, M., Wesselmann, K., Lüdorff, K., Witthaut, J., Ohrmann, P., Hörnig-Franz, I., Klockenbusch, W., Harms, E., & Arolt, V. (2004). Maternal posttraumatic stress response after the birth of a very low-birth-weight infant. *Journal of Psychosomatic*, *57*(5), 473-476. <https://doi.org/10.1016/J.JPSYCHORES.2004.03.011>
- Klier, C.M., Muzik, M., Rosenblum, K.L., & Lenz, G. (2001). Interpersonal psychotherapy adapted for the group setting in the treatment of postpartum depression. *Journal of Psychotherapy Practice and Research*, *10*(2), 124-131.
- Kozhimannil, K.B., Trinacty, C.M., Busch, A.B., Huskamp, H.A., & Adams, A.S. (2011). Racial and Ethnic Disparities in Postpartum Depression Care Among Low-Income Women. *Psychiatric Services*, *7*(62), 619-625.
- Krupnick, J.L., Green, B.L., & Miranda, J. (2002, May). Interpersonal psychotherapy groups for low-income women with PTSD, Presented at the American Psychiatric Association Annual Meeting, Philadelphia.
- Lieberman, A. F., Ghosh Ippen, C., & Van Horn, P. (2015). "Don't Hit My Mommy!": A manual for child-parent psychotherapy with young children exposed to violence and other trauma, 2nd Edition. Zero to Three.

- Lipsitz, D. J., & Markowitz, J.C. (2014). Mechanisms of Change in Interpersonal Therapy (IPT). *Clinical Psychology Review, 33*(8), 1134-1147.
<https://doi.org/10.1016/j.cpr.2013.09.002>
- Lorenz, J.M. (2001). The outcome of extreme prematurity. *Seminars in Perinatology, 25*(5), 348-359. <https://doi.org/10.1053/sper.2001.27164>
- Main, M., Goldwyn, R., & Hesse, E. (2003). *Adult attachment scoring and classification system*. University of California; Berkeley. Unpublished manuscript.
- Malin, K.J., Johnson, T.S., McAndrew, S., Westerdahl, J., Leuthner, J., & Lagatta, J. (2020). Infant illness severity and perinatal posttraumatic stress disorder after discharge from the neonatal intensive care unit. *Early Human Development, 140*.
<https://doi.org/10.1016/j.earlhumdev.2019.104930>.
- Mallinckrodt, B., Coble, H.M., & Gantt, D.L. (1995). Attachment Patterns in Psychotherapy Relationship: Development of the Client Attachment to Therapist Scale. *Journal of Counseling Psychology, 42*(3), 307-317. <https://doi.org/10.1037/0022-0167.42.3.307>
- Mangelsdorf, S.C., Plunkett, J.W., Dedrick, C.F., Berlin, M., Meisels, S.J., McHale, J.L., & Dichtellmiller, M. (1996). Attachment Security in Very Low Weight Infants. *Developmental Psychology, 32*(5), 914-920. <https://doi.org/10.1037/0012-1649.32.5.914>
- Markowitz, J.C., Kocsis J.H., Fishman B., Spielman L.A., Jacobsberg L.B., Frances A.J., Klerman G.L., & Perry S.W. (1998). Treatment of depressive symptoms in human immunodeficiency virus-positive patients. *Archives of General Psychiatry, 55*(5), 452-457. <https://doi.org/10.1001/archpsyc.55.5.452>
- Markowitz, J.C., & Weissman, M.M. (2004). Interpersonal psychotherapy: principles and applications. *World Psychiatry, 3*(3), 136-139.
- Matthews, E.J., Pupilampu, V., & Jan M. Gelech, J.M. (2021). Tactics and Strategies of Family Adaptation among Parents Caring for Children and Youth with Developmental Disabilities. *Global Qualitative Nursing Research, 8*, 1-18.
- McLeod, S. A. (2009). Attachment Theory. Simply Psychology.
www.simplypsychology.org/attachment.html
- Melnyk, B.M., Feinstein, N.F., Alpert-Gillis, L., Fairbanks, E., Crean, H.F., Sinkin, R.A., Stone, P.W., Small, L., Tu, X. & Gross, S.J. (2006). Reducing Premature Infants' Length of Stay and Improving Parents' Mental Health Outcomes With the Creating Opportunities for Parent Empowerment (COPE) Neonatal Intensive Care Unit Program: A Randomized, Controlled Trial. *Pediatrics, 118*(5), e1414-e1427; DOI:
<https://doi.org/10.1542/peds.2005-2580>
- Mendelson T., Cluxton-Keller F., Vullo G.C., Tandon S.D., & Noazin S. (2017). NICU-based interventions to reduce maternal depressive and anxiety symptoms: A meta-analysis. *Pediatrics, 139*(3):e20161870. <https://doi.org/110.1542/peds.2016-1870>.
- Merrick, J.S., Angela J. Narayan, A., Atzl, V.M., Harris, W.W., & Lieberman, A.F. (2020). Type versus timing of adverse and benevolent childhood experiences for pregnant women's psychological and reproductive health. *Children and Youth Services Review, Vol. 114*(C).
- Mikulincer, M., Shaver, P., & Pereg, D. (2003). Attachment Theory and Affect Regulation: The Dynamics, Development, and Cognitive Consequences of Attachment-Related Strategies. *Motivation and Emotion, 27*(2), 77-102.
<https://doi.org/10.1023/A:1024515519160>

- Mufson, L., Weissman, M.M., Moreau, D., & Garfinkel, R. (1999). Efficacy of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry*, *56*(6), 573–579. <https://doi.org/10.1001/archpsyc.56.6.573>
- Narayan, A. J., Oliver Bucio, G., Rivera, L. M., & Lieberman, A. F. (2016). Making sense of the past creates space for the baby: Perinatal child-parent psychotherapy for pregnant women with childhood trauma. *Zero to Three*, *36*, 22–28.
- Narayan, A.J., Rivera, L.M., Bernstein, R.E., Harris, W.W., & Lieberman, A.F. (2018). Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale. *Child Abuse & Neglect*, *78*, 19–30. <https://doi.org/10.1016/j.chiabu.2017.09.022>
- Narayan, A.J., Atzl, V.M., Merrick, J.S, Harris, W.W., & Lieberman, A.F. (2018). Developmental Origins of Ghosts and Angels in the Nursery: Adverse and Benevolent Childhood Experiences. *Adversity and Resilience Science*, *1*, 121–134.
- O'Hara, M.W., Stuart, S., Gorman, L.L., & Wenzel, A. (2000). Efficacy of interpersonal psychotherapy for postpartum depression. *Archive of General Psychiatry*, *57*(11), 1039–1045. <https://doi.org/10.1001/archpsyc.57.11.1039>
- Pao C., Guintivano J., Santos H., & Meltzer-Brody S. (2019). Postpartum depression and social support in a racially and ethnically diverse population of women., *Archive of Women's Mental Health*, *22*(1)105-114. doi: 10.1007/s00737-018-0882-6.
- Pennell, C., Whittingham, K., Boyd, R., Sanders, M., & Colditz, P. (2012). Prematurity and parental self-efficacy: The Preterm Parenting & Self-Efficacy Checklist. *Infant Behavior & Development*, *35*(4), 678–688. <https://doi.org/10.1016/j.infbeh.2012.07.009>
- Pouyan, F., Kamrani, M.A., Rahimzadeh, M., Jamshidimanesh, M., & Esmaelzadeh-Saeieh, S. (2019). Effect of Interpersonal Psychotherapy Oriented Child Birth Education on Stress and Role Adaptation in Mothers with Premature Birth: A Randomized Clinical Trial. *Iran Journal Psychiatry Behavior Science*, *13*(1). <https://doi.org/10.5812/ijpbs.86645>
- Robertson, M., Rushton, P.J., Bartrum, D., & Ray, R. (2004). Group-Based Interpersonal Psychotherapy for Posttraumatic Stress Disorder: Theoretical and Clinical Aspects. *International Journal of Group Psychotherapy*, *54*(2), 145–175. <https://doi.org/10.1521/ijgp.54.2.145.40384>
- Rogal, S.S., Poschman, K., Belanger, K., Howell, H.B., Smith, M.V., Medina, J., & Yonkers, K.A. (2007). Effects of posttraumatic stress disorder on pregnancy outcomes. *Journal of Affective Disorders*, *102*(1–3), 137–143. <https://doi.org/10.1016/j.jad.2007.01.003>
- Rose, S.A., Feldman, F., Jankowski, J., & Van Rossem, R. (2005). Pathways from prematurity and infant abilities to later cognition. *Child Development*, *76*(6), 1172–1184. <https://doi.org/10.1111/j.1467-8624.2005.00843.x>
- Rose, S.A., Feldman, J.F., Jankowski, J.J., & Van Rossem, R. (2008). A Cognitive Cascade in Infancy: Pathways from prematurity to later mental development. *Intelligence*, *36*(4), 367–378. <https://doi.org/10.1016/j.intell.2007.07.003>
- Scharfe, E., & Bartholomew, K. (1994). Reliability and Stability of Adult Attachment Patterns. *Personal Relationships*, *1*(1), 23–43. <https://doi.org/10.1111/j.1475-6811.1994.tb00053.x>

- Scharfe, E. (2003). Stability and change of attachment representations from cradle to grave. In S. M. Johnson & V. E. Whiffen (Eds.), *Attachment processes in couple and family therapy* (pp. 64–84). Guilford Press.
- Scharfe, E. (2016). Measuring what counts: Development of a new 4-category measure of adult attachment. *Personal Relationships, 23*(1), 4–22. <https://doi.org/10.1111/pere.12105>
- Schulberg H.C., Block, M.R., Madonia M.J., & Rodriguez E., Imber, S. D., Perel, J., Lave, J., Houck, P. R., & Coulehan, J. L. (1996). Treating Major Depression In Primary Care Practice. Eight-month clinical outcomes. *Archive of General Psychiatry, 53*(10), 913–919. <https://doi.org/10.1001/archpsyc.1996.01830100061008>
- Spinelli, M. (1997). Interpersonal psychotherapy for depressed antepartum women: a pilot study. *American Journal of Psychiatry, 154*(7), 1028–1030. <https://doi.org/10.1176/ajp.154.7.1028>
10.1080/17405629.2013.859574
- Thompson, R.A., Lamb, M.E., & Estes, D. (1982). Stability of infant-mother attachment and its relationship to changing life circumstances in an unselected middle-class sample. *Child Development, 53*(1), 144–148. <https://doi.org/10.2307/1129646>
- Vignato, J., Georges, J., Bush, R.A., and Connelly, C.D. (2017). Posttraumatic Stress Disorder in the Perinatal Period: A Concept Analysis. *Journal of Clinical Nursing, 26*(23-24), 3859-3868. <https://doi.org/10.1111/jocn.13800>
- Weinreb, L. (2012). Meeting the Needs of Pregnant Women with PTSD in Health Start. [Funded Project]. Retrieved from <https://www.umassmed.edu/contentassets/49a725ba7ddd492986f65ecc03aa8692/mch-hrsa-pregnant-women-with-ptsd.pdf>
- World Health Organization (WHO). (2018, February). Preterm Birth. <https://www.who.int/news-room/fact-sheets/detail/preterm-birth>
- Wright, B., & Edginton, E. (2016). Evidence-Based Parenting Interventions to Promote Secure Attachment: Findings From a Systematic Review and Meta-Analysis. *Global Pediatric Health, 3*. <https://doi.org/10.1177/2333794X16661888>
- Zlotnick, C., Johnson, S.L., Miller, I.W., Pearlstein, T., & Howard, M. (2001). Postpartum depression in women receiving public assistance: Pilot study of an interpersonal-therapy-oriented group intervention. *American Journal of Psychiatry, 158*(4), 638–640. <https://doi.org/10.1176/appi.ajp.158.4.638>