



Nurturing Children, Empowering Women

**Best Practices in Early Childhood Development (ECD):
A Review of the Literature for Hands to Hearts International**



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Executive Summary

Early Childhood Development (ECD) refers to the fundamental developmental needs of children from birth to age eight, including nutrition, health care, education, access to clean water, safety and protection from harm. Underlying all aspects of healthy development is the most profound of human needs; a sense of trust in caregivers, and the knowledge that one is loved and valued. From infancy, a child is dependent on their caregivers and community to meet their basic needs, and therefore they are disproportionately negatively impacted by risk factors that affect that community. Concurrently when disease, malnutrition and poverty take a toll on young children, the society in which they live - already devastated in the present - is disadvantaged in the future. The early years of a child's life shape their development in ways that will determine their ability to contribute to their community in the years to come. Interventions that would address the child's basic needs must do so in the context of their family, community and culture, and must acknowledge that the context is also the delivery system. To provide sustainable support for a child's fundamental needs, the relationship between that child and the adults who care for him or her has to be prioritized and addressed. Acknowledging that physical, emotional, cognitive, and social development are intertwined, the curriculum and training of Hands to Hearts International provides a replicable and cost-effective tool for strengthening this crucial support system within a child's own family, community and culture. Education for caregivers in ECD, interaction, play, hygiene and baby massage creates a context in which all the interrelated needs of infants and young children can be met consistently and long-term, allowing every child the chance to maximize their developmental potential.

Acronyms

ECD – Early Childhood Development

HHI – Hands to Hearts International

NOFTT – Non-organic failure to thrive

OVC – Orphans & Vulnerable Children

UNICEF – United Nations Children's Fund

WHO – World Health Organization

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Early Childhood Development

The cognitive, social, and emotional development of human beings is shaped and supported by biological changes that begin even before birth. For example, while a child is still in the womb, waves of electrical activity are passing through the visual cortex of the brain, preparing neural networks that will allow the newborn, within minutes of birth, to see the faces of those who will care for her. Even the seemingly biological function of vision is emotional, as the circuitry for vision passes through the limbic system, activating a life-long emotional response to faces, especially loved ones, which are processed differently than anything else that passes into our visual field (Johnson & Morton, 1991; DeHaan & Nelson, 1997; Slater & Quinn, 2001). Vision is improved and refined by the act of seeing; similarly, neural pathways for language development, emotional expression and control, social skills, and cognitive skills are rapidly expanding in the first years of life, but without opportunities to interact, be spoken to, and have one's emotions reflected and understood, these skills can't develop optimally in any child (Bowlby, 1953; National Scientific Council on the Developing Child, 2004, 2012).

Increasingly, ECD is being understood as a priority for global health. The Convention on the Rights of the Child (1989) cited a child's right to survival, protection from harm, abuse, and exploitation, and the right to develop to their fullest potential, and encouraged governments worldwide to make the quality of children's lives a priority in program planning and budgeting (UNICEF, 2013). The Millennium Development Goals (MDGs) were created at the United Nations Millennium Summit in 2000 after a decade of conferences with world leaders. The Goals are a blueprint to meet the needs of the world's most impoverished citizens, to stop unnecessary death and suffering, and to improve maternal health (goal 5) and reduce child mortality (goal 4) by the year 2015. All the countries of the world have committed to the MGDs. **The World Health Organization (WHO) advocates for ECD to be integrated in both national and international policies to improve population health because the future of the world depends not only on child survival, but on families and societies raising children that can achieve their developmental potential (2013; Engle et al., 2011).** UNICEF's Model of Care, a tool for planning interventions to improve child survival, was expanded by nutrition and child development expert Patrice Engel to place the affective relationship between a child and his or her caregiver, in particular their responsiveness and behaviors, as an important link between child growth and survival, cognitive and social development, dietary intake and health status. The model was proposed in 1997, and research has supported it in both anticipated and unanticipated ways in the 15 years that have followed (Engel, Menon & Haddad, 1997).

A meta-analytic review of child development and parenting focused interventions with the caregivers of under-nourished children in developing countries has shown medium to large effects on children's physical development, cognitive development as measured by the Bayley mental development index (2006), and parental attitudes and caregiving behaviors (Walker et al., 2011). Positive child development benefits of relationship focused intervention plus nutritional intervention over nutritional intervention alone have been reported by studies in Vietnam, Bangladesh, Columbia, Ecuador & Jamaica (Watanabe, Flores, Fujiwara & Tran, 2005; Hamadani et al., 2006 and Aboud & Akhter, 2011; Super, Herrera & Mora, 1990; Tinajero, 2010; Grantham McGregor et al., 1989). A randomly controlled trial in 60 villages in Bangladesh found that an

intervention to encourage responsive feeding and play reduced stunting, increased dietary intake, and improved cognitive development in children under three years of age (Aboud, Singla, Nahil & Borisova, 2013). Two other trials in rural India found that interventions that integrated play and responsive feeding into feeding programs for malnourished children under 24-months of age showed significant cognitive developmental benefits, even though longer, more intensive intervention was needed to correct the severe physical and motor deficits resulting from malnutrition (Bentley et al., 2010; Nahar et al., 2012).

In a comprehensive review of strategies to reduce inequalities and improve developmental outcomes for children in developing countries, Engle et al. (2011) determined that interventions that address parenting and/or center based care have a clear impact on children's cognitive and social emotional development as well as school readiness. They note that increasing pre-school enrollment to 25% or 50% in each low and middle income country would provide a benefit-to-cost ratio ranging from 6.4 - 17.6 for each \$1 spent. The authors emphasize the importance of interventions in infancy and early childhood, before cumulative exposure to risk permanently alters a child's developmental trajectory.

Other disciplines have contributed evidence of the potential benefits of investing in caregiver-child relationships to promote the development of mentally & emotionally healthy children who can contribute to the future success of their communities. For example, the development of debilitating depressive symptoms can be moderated by sensitive caregiving, even among children with a genetic vulnerability to depression in response to harmful life events (Kim-Cohen et al, 2006). Similarly, maternal attitudes that attach importance and significance to a child decrease that child's risk for hostility as an adult. While children who carry a particular type of serotonin receptor gene are especially sensitive to early caretaking environments with respect to developing hostile or anti-social attitudes and behaviors, non-nurturing attitudes are a risk factor for hostility in all children (Merjonen et al., 2011). In a longitudinal study in Jamaica, children who had received both nutritional supplementation and weekly play sessions to improve mother-child interaction at age 9 to 24 months were assessed at 22 years of age. **Participants who received supplementation alone demonstrated no benefits. Those who had participated in the mother-child sessions had higher IQ scores, lower depression and social inhibition, more education, less involvement in fights and less violent behavior (Walker, Chang, Vera-Hernandez & Grantham McGregor, 2011).** Evidence continues to suggest that improving early caregiving improves all aspects of child survival and development.

Global Context

Child Mortality:

Based on 2012 reports by UNICEF and the UN Inter-agency Group on Child Mortality, the state of the world's children, while improving, has a long way to go.

- 19,000 children under age five die every day.
- About half of the deaths of children under age 5 occur in five countries: India (24 percent), Nigeria (11 percent), Democratic Republic of Congo, Pakistan, and China.

- The leading causes of death among children under age 5 are pneumonia, premature birth complications, diarrhea, complications during birth, and malaria.
- Neonatal deaths (in the first month of life) have declined more slowly since 1990 than the mortality rate of older children, and now account for about 43%.
- About 30% of all neonatal deaths occur in India. Sub-Saharan Africa has the highest neonatal mortality rate and is the region that has shown the least progress.

Orphans and Vulnerable Children (OVC):

It is nearly impossible to obtain an accurate count of the exact number of children who are orphaned or abandoned worldwide. However, an estimated 2- 8 million children live in institutions -although they may have a living parent- (Lancet, 2011; Save the Children, 2009) while an estimated 143 million children in 93 countries lack permanent parents (UNICEF, 2012). The term “Orphans and Vulnerable Children” (OVC) is commonly used to refer to children who have lost one or both parents, are institutionalized, living on the street, affected by HIV & AIDS or other illnesses or disabilities, and children who suffer from chronic undernutrition.

Children in institutional care are typically deprived of a secure caregiver-child bond. Children are commonly placed in homogenous age-groups, and these groups generally include between 9-16 children, but may have as many as 70. Caregivers often work in 24-hour shifts followed by 72-hours off, and children move to new groups of peers and caregivers when developmental milestones such as crawling or walking are reached (Rosas & McCall, in press, reported in McCall, Fish & Groark, 2012). The St. Petersburg-USA Orphanage Research Team estimates that it would not be unusual for a child to see between 60 and 100 caregivers by 19 months of age, and not in any consistent or predictable pattern (2008). This pattern of caregiving has proven to be very problematic for young children. Substantial delays in physical and behavioral development are the norm, and attentional, attachment, social-emotional, and behavior problems persist even among children who have been adopted from an orphanage, with the length of time spent in institutional care predicting more and longer-lasting problems (Gunnar & Vazquez, 2001; McCall, van Ijzendoorn, Juffer, Groark & Groza, 2011). It should be noted that co-morbid developmental and health issues such as pre-natal exposure to drugs, underlying developmental disabilities, or pre-institution experiences may also contribute to a child’s physical or developmental issues (St. Petersburg-USA Orphanage Research Team, 2008). However, studies of both institutionalized infants internationally and infants in foster care in the U.S. have concluded that repeated loss of caregivers predicts insecure or disorganized attachment patterns as well as behaviorally and physiologically disordered responses to stress, which have implications throughout the lifespan for self-regulation, immune function, and mental health; more so for children with pre-existing vulnerabilities (Gunnar & Vazquez, 2001; Cicchetti, Rogosch, Toth & Sturge-Apple, 2011; Del Giudice, Ellis & Shirtcliff, 2011).

Although the prognosis seems dire, it is encouraging that institutionalized children who are adopted or fostered into family-based care DO improve “immediately and substantially in all aspects of development” (McCall, Fish & Groark, 2012, p. 422; Rutter et al., 2010; Nelson et al., 2007; van Ijzendoorn & Juffer, 2006; Groark & McCall, 2011). Even within institutional settings, interventions that provide fewer, more consistent caregivers trained to provide sensitive and

responsive caregiving produced large improvements in the behavioral and physical development of the young children in their care (St. Petersburg-USA Orphanage Research Team, 2008).

Nutrition:

Globally, more than 31 million under-5 deaths are from undernutrition, which makes young children more vulnerable to infection, diarrhea, and the recurrence of illness (Black et al., 2013). In addition, maternal undernutrition contributes to 800,000 neonatal deaths annually (Bhutta et al., 2013). **Improving nutrition for the world's poorest children involves addressing both their nutritional and emotional needs.** Successful approaches include improving the quality of available food, including micro-nutrients, and encouraging breastfeeding, beginning within an hour of birth and continuing exclusively for the first six months. Ideally breastfeeding would continue until age two along with complementary feeding of age-appropriate, healthy food. The most successful programs have focused on nutritional aspects as well as the emotional needs of both mothers and children by building the capacity of healthcare workers to counsel mothers on the feeding of infants and young children, providing mother-to-mother support groups, and tailoring messages to the local culture, customs, and context.

In addition to the studies cited above that link improved caregiving with better outcomes for malnourished children, two specific focus areas of HHI are listed in the Lancet's 2013 review of evidence-based emerging interventions to improve maternal & child nutrition:

- 1) Infant massage has been shown to significantly improve the health and development of pre-term infants. Benefits include increased daily weight gain (from 28-48% across studies), improved bone density, and reduced hospital stays by up to 4-5 days (Vickers, Ohlsson, Lacy & Horsley, 2009; Field, Diego, Hernandez-Reif, 2011).
- 2) Antenatal psychosocial support is crucial for the health of both mother and infant. The connection between maternal mental health and child physical health and growth is well established (Rahman, Patel, Maselko & Kirkwood, 2008). Depressive disorders are the second leading cause of disability, after HIV/AIDS, for both males and females aged 15-44 in low and middle income countries (Patel, 2007). Maternal depression after childbirth is common in the developing world, and has been found to be a strong and independent contributor to child growth failure in the first year (Surkan, Kennedy, Hurley & Black, 2011; Patel, 2004). Maternal depression also increases the risk of infant diarrheal illness during the first year (Rahman, Bunn & Lovel, 2007). For a mother who is already stressed, an infant with feeding issues can increase anxiety and result in attempts at high control solutions such as force feeding, which tend to exacerbate the child's difficulties (Martin, Dovey, Coulthard & Southall, 2013; Barnard et al., 1989). However, **interventions designed to improve the mother-child relationship and provide social support for the mother have been successful in reducing maternal depression among mothers of undernourished children** in South Africa, Pakistan, and Jamaica (Baker-Henningham, Powell, Walker & Grantham-McGregor, 2005; Cooper, et al, 2009; Rahman, Malik, Sikander, Roberts & Creed, 2008). When maternal depression is reduced, a range of child outcomes improve.

Poverty and Risk:

More than 1 billion people live in extreme poverty world-wide (World Bank Index, 2013). This estimate is calculated using the cut-off of \$1.25 per day household income and data from the year 2010. **Poverty brings with it elevated risk factors, including malnutrition, increased risk of abuse or abandonment, vulnerability to the environment, poor or nonexistent medical care, low access to education and exposure to drugs, alcohol, and violence** (Evans & Kim, 2007). These risk factors impact caregivers and children, increasing stress and decreasing coping mechanisms in adults and internal and external protective factors in children (Cicchetti, 2010). In addition, **poverty and undernutrition in early childhood is predictive of 30% less income in adulthood and more than two years of lost education, perpetuating the cycle of lost potential** (Graham et al., 2007). Ultimately, investing aid dollars in **reducing risk and enhancing protective factors for healthy early childhood development leads to more literate populations, lower medical costs, greater educational attainment, and reduced poverty** (Shonkoff, Richter, van der Gaag & Bhutta, 2012; Fonseca, O’Gara, Sussman & Williamson, 2008). Wafaie Fawzi, chair of Harvard School of Public Health Department of Global Health has written that while the child mortality rate has been reduced, over 170 million children world-wide are prevented from reaching their developmental potential, and that beyond saving lives, “there is an urgent need to focus on quality of life” (HSPH, 2013).

Chronic Stress:

Chronic stress is harmful physically, emotionally, psychologically, and developmentally. In young children it can be particularly damaging. **Early stress in the form of abusive, non-supportive or absent caregiver-child relationships has a profound negative impact on psychosocial development** that has been well established through studies of maltreated and institutionalized children (Bowlby, 1952, Rutter et al., 2007, Bruce et al., 2009), as well as children orphaned or left to unpredictable care due to disasters such as the AIDS epidemic in sub-Saharan Africa (Fonseca, O’Gara, Sussman & Williamson, 2008). **Syndromes that researchers have associated (although not exclusively) with early relational deprivation include non-organic failure to thrive (NOFT), Reactive Attachment Disorder (RAD), Regulation Disorders (RD) and others** depending on the behavioral or psycho-social focus of the study. The features that these syndromes share are compromised physical growth and immunity, poor emotional regulation and recognition of others’ emotions, difficulty forming relationships, delayed cognitive and language development, and increased risk of psychopathology (Bron, Van Rijen, Van Abeelen & Lambregtse-VanDenBerg, 2012).

Supporting physiological evidence of significant damage from deprived early caregiving environments continues to accumulate. Important regulatory systems develop in the first years of life, especially from birth to age 3, and these systems are shaped, for better or worse, by the environment in which the child develops. Persistent anxiety, fear, or uncertainty has a detrimental impact on learning, problem solving, and forming relationships (National Scientific Council on the Developing Child, 2010). On-going stress, especially in the early years of life, can cause maladaptive functioning of the stress-response system (Hypothalamic-Pituitary-Adrenal Axis) with detrimental consequences for both physical and mental health (National Scientific Council on the Developing Child, 2005). For example, typically developing young children, when exposed to a stressor,

experience an increase in melatonin that is directly proportional to the severity and duration of the event causing the stress (Munoz-Hoyos, et al., 2009). They also experience increased serotonin, ACTH (Adrenocorticotrophic hormone) and Beta-endorphins. This process is protective, as melatonin helps to physiologically regulate the child and maintain homeostatic balance, ACTH functions as part of the stress-response feedback loop (the HPA axis), and Beta-endorphins contribute to alleviating pain and elevating mood. **Children who have been exposed to chronic stress experience a non-optimal stress response that predisposes them to depression, along with reduced immunity and a host of other, lifelong endocrinological consequences** (Munoz-Hoyos et al., 2011).

Modes of Intervention:

Home-visiting vs. Center Based

The needs of children and the capacity of caregivers and communities to participate in and sustain interventions often dictate the type of intervention that can be provided. For example, responding to the AIDS epidemic in South Africa required community-based interventions that could reach children and caregivers at multiple points because the children most in need of intervention typically lived with a changing series of caregivers or no caregivers (Kidman, Petrow & Heymann, 2007). For children who do live with a stable caregiver, home-based interventions can provide results, provided that the home visits meet other criteria (Engle et al., 2007). For example, in both Jamaica and Bangladesh, home visit programs that relied on information-sharing alone did not impact child development; however home visits that included practice or skill based activities with families reported long-term benefits (Powell, et al., 2004; Aboud, 2007). Reviews of service delivery models suggest that one mode of intervention is not clearly preferable over the other; rather the content and activities of the intervention are more likely to predict outcomes (Kingsley & Mailloux, 2013). Ramey & Ramey (1998) proposed that direct intervention (with caregivers and children) is more powerful than indirect intervention, or simply teaching parents and caregivers about child development in the hopes that they will implement that knowledge with the children in their care. Recent reviews support that idea; **interventions that focus jointly on the parent and the child have reported more successful outcomes than those that focus only on either parent training or child development** (Kingsley & Mailloux, 2013). Internationally, discussion and teaching models tend to be less effective in general than more hands-on, problem solving models (Aboud, 2007). Interventions that focus on parent-child relationships have been connected to better outcomes in community, home, and natural settings (Arbesman, Lieberman & Berlanstein, 2013).

Hands to Hearts International

Created in 2004, Hands to Hearts International (HHI) envisions a world where all children are nurtured, healthy, safe and set to reach their full developmental potential, and where caregivers are empowered and valued. The curriculum and training of HHI aims to empower the world's caregivers. **By supporting the universal parenting skills that have been suffocated beneath poverty and environmental crises, HHI is a replicable, cost-effective tool based on the latest and most consistent findings in child development research.** HHI provides education in ECD,

psycho-stimulation, brain development, baby cues, hygiene, play, and baby massage, awakening the nurturing ability inherent in all persons. The evidence provided in this review summarizes the impact of psychosocial care, defined as “the provision of affection and warmth, responsiveness to the child, and the encouragement of autonomy and exploration” (Engle & Menon, 1999, p. 1327). A summary of empirical and agency level recommendations compared to the components included in HHI’s intervention can be found in Appendix A.

Outcomes from HHI Evaluation

Uganda

HHI partnered on a USAID Child Survival Project, led by Medical Teams International from 2009 – 2013 in the post-conflict area of Lira, Uganda.

The Knowledge, Practice and Coverage (KPC) survey (CORE Monitoring and Evaluation working group, 2000) was used to measure the intervention. Questions on household practices encouraging cognitive, linguistic and physical development were included in the baseline, midterm and final evaluations. Quantitative data collected showed a statistically significant increase in key ECD indicators and **impressive sustainability measured up to 18 months post-intervention.**

Mothers of children aged 6-23 months reported at 18 months post-intervention:

- **Cognitive stimulation from parent to child doubled from 38% to 76%**
- **Linguistic stimulation increased from 23% to 64% (almost tripling)**
- Showing affection during feeding increased from 54% to 91%
- Believing that play helps children learn increased from 78% to 98%

Mothers of children aged 0-23 months reported the following significant increases in health promoting behaviors at 18 months post-intervention:

- Increased use of mosquito nets from 42% to 57%
- If their child had a fever in the past two weeks (a possible sign of Malaria), they were brought to a health facility within 24-hours – from 22% at baseline to 83%
- Increase in Growth Monitoring from 6% to 43%
- Contact with a Community Health Worker (CHW) in the past 1 month increased from 10% to 81%

To effectively promote women’s and children’s health, it is essential to involve men in the planning, decision-making, and implementation of programs. Men and women are embedded in the same cultural system, and are therefore impacted by the same social determinants of health or illness, although they may experience the impact differently because of gender (Gwatkin, 2000; Moser, 1993). As implemented **in Uganda, a total of 452 men and women, working in pairs, acted as peer educators for ECD in order to effectively reach more than 15,000 parents and caregivers during this four-year project.** Male involvement was encouraged in ante-natal care and prevention of mother-to-child transmission of HIV.

Focus groups on the impact of the ECD program on families indicated increased awareness of the importance of violence-free family life, including **less domestic violence and corporal**

punishment, and more family time spent “sharing love, solving misunderstandings, and educating family members on desirable behaviors” (Leonard, 2013, p. 6). Decreased family violence was an unexpected finding that was reported in the USAID evaluation of the program, “both volunteers and community members attributed it to the ECD interventions” (Leonard, 2013, p. 20). ECD peer educators (PE) taught parents alternatives to violence when relating to their children, and parents found them effective. The population that participated in this intervention had experienced violent conflict for nearly two generations, yet a non-violent approach to family life was accepted and valued by participants once they had been introduced to alternative methods. In addition, child school attendance improved as nutrition and health improved.

India

In India, quantitative measures have revealed a number of positive early indicators. **Knowledge based tests pre- and post- HHI trainings showed that the knowledge of participants increased by an average of 51%. In three-month qualitative follow-up, participants reported that they were spending more time interacting with their children, felt more competent in caring for their children, and had improved hygiene conditions for their children and themselves.** The participants also reported that their **children showed improvement in physical, language and social development, and were healthier and gaining more weight.** The latter finding was probably linked to improved hygiene practices as well as reports that caregivers had expanded their children’s diet to include a broader array of nutrients. In orphanage settings, caregivers reported that babies were sick less often, easier to soothe, had improved digestion, slept better, and that **no babies had died since practice changes were implemented based on the training provided by HHI (Peterson, 2006).** Across all groups trained, the **caregivers were reported to be more nurturing, more confident and more at ease in their caregiving.** Because they have increased their nurturing interactions and report enjoyment in activities such as baby massage, participants also reported that they would be less likely to use physical punishment.

Challenges

Analysis of **interventions to improve the caregiver-child relationship in families and institutions has shown that effects are larger when the population is more disadvantaged,** and the intervention provides systematic curricula and training, including active strategies for caregivers (Engel et al., 2011). Impact on physical development status is less predictable in populations with extreme malnutrition, a high prevalence of HIV/AIDS, and children with co-morbid developmental disabilities; however, intervention has shown benefits to child development in all these cases. Reaching the children and caregivers in the highest risk categories may be the most difficult (Engel et al., 2011). Other challenges in intervention with high-risk or disadvantaged caregivers and children are maintaining participation during implementation and sustaining the desired behaviors afterwards (McCall et al., 2013; Tibbits, Bumbarger, Kyler & Perkins, 2010).

Conclusion

The curriculum and training of Hands to Hearts International fills a need agreed upon by the leading international development agencies and in line with Millennium Development Goals for women and children's health and development. **The programming HHI provides is based on best practices established by UNICEF, WHO, and child development researchers worldwide.** As a global intervention, HHI is designed to be compatible with interventions being implemented to address other fundamental developmental needs of children including nutrition, health care, education, access to clean water, safety and protection from harm. **By empowering caregivers, HHI provides an effective psychosocial intervention that benefits the child both directly, by changing caregiver knowledge, and indirectly, by focusing communities on the importance of young children, understanding their developmental needs, and the incredible opportunity for positive change in a child's early years.**

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