

THE EVOLVED NEST: A PARTNERSHIP SYSTEM THAT FOSTERS CHILD AND SOCIETAL WELLBEING

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Abstract

Although most people want children to thrive, many adults in industrialized nations have forgotten what that means and how to foster thriving. We review the nature and effects of the evolved developmental system for human offspring, a partnership system that fosters every kind of wellbeing. The environment and the type of care received, particularly in early life, shape neurobiological process that give rise to social and moral capacities. A deep view of history sheds light on converging evidence from the fields of neuroscience, developmental psychology, epigenetics, and ethnographic research that depicts how sociomoral capacities are not hardwired but are biosocially constructed. The Evolved Nest is the ecological system of care that potentiates both physical and psychological thriving, the foundations of cooperative and egalitarian societies. Deprivation of the evolved nest thwarts human development, resulting in sub-optimal, species-atypical outcomes of illbeing, high stress reactivity, dysregulation, and limited sociomoral capabilities. Utilizing a wider lens that incorporates humanity's deep ancestral history, it becomes clear that deprivation of the evolved nest cuts against the development of human nature and humanity's cultural heritage. Returning to providing the evolved nest to families and communities holds the potential to revise contemporary understandings of wellbeing and human nature. It can expand current metrics of wellness, beyond resilience to optimization.

Keywords: Evolved nest, evolved developmental niche, wellbeing, partnership, play, breastfeeding, breastmilk, affection, social support, sociomoral, responsivity

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Until recently in human species existence, most societies of the world flourished within egalitarian, interdependent partnership systems, practicing a gift economy with their ecological surroundings, and fostering abundance (Gowdy, 1998, 2005; Narvaez, 2017; Narvaez, Four Arrows et al., 2019; Vaughan, 2015; Worster, 1994). Partnership societies like these value caring, empathy, and equitable relations; respect diversity, individual rights, and nonviolence; and work cooperatively with one another (Eisler & Fry, 2019). More recently in human history, a different narrative about human possibility emerged, one that paints humanity as innately selfish, destructive, and violent, valuing hierarchy and conquest (Sahlins, 2008). Riane Eisler and Douglas Fry (2019) challenge these dark tales of humanity which contend that humans naturally *dominate* others and therefore need to create social structures that control those destructive tendencies. Dominator societies have been imposing their ways onto the rest of the world for some time, increasing illbeing around the world through aggressive colonization (Narvaez, Four Arrows et al., 2019).

It does not have to be this way. Interdisciplinary scholarship reveals that humans functioned as partnership societies for 99 percent of their history (before about the last 10,000 years) and it is only in the last 1 percent that some societies shifted toward a dominance orientation (Fry, 2006). By utilizing a wider and deeper lens to understand human nature and development, it becomes clear that the destructive, selfish, and vicious behavior that is often prevalent in modern dominating systems does not match up with humanity's longstanding heritage. Further, a deep, transdisciplinary view of history offers converging evidence that capacities that give rise to either prosocial morality or antisocial morality are not hardwired but are biosocially constructed (Narvaez, 2014). It turns out that dominator societies actually *create* the systems that foster what they fear—self-centered individuals who have difficulty cooperating with others (Narvaez, 2014).

We know what a thriving plant of a particular species looks like and how to grow one, but what can guide human thriving? The focus of this article is to examine evolved pathways towards child thriving. We review empirical evidence from neuroscience, developmental psychology, epigenetics, and anthropology, that sheds light on child and adult thriving based in humanity's evolutionary history. Such care leads to prosocial moral functioning and the flourishing of individuals and communities.

PATHWAYS TO CHILD FLOURISHING

All parents want their children to thrive or flourish. But new parents often have little knowledge or experience about how to foster a thriving child, and they frequently face conflicting advice. Experts in public health often take a “glass half full” approach, interpreting child wellbeing as a lack of problems (e.g., obesity, divorce, abuse, poverty), a strangely pathogenic approach (Amerijckx & Humblet, 2014). Perhaps this is because the US, where most scholarship is published, has been rated on average at the bottom of wellbeing ratings (for children and adults) when compared with 16 other advanced nations, with shorter life expectancy and higher frequency of chronic conditions (National Research Council, 2013). Absence of disease or psychopathology becomes the working definition of health and wellness (e.g., presence or absence of depression). Similarly, a focus on resilience—on noticing the (few) people who survive and succeed despite adversity—puts the focus on individual responsibility instead of on systems and institutions that foster health or illness (Farmer, 1996). Of course, metrics assessing presence or absence of illness or of socially adverse outcomes (e.g., delinquency) are important and provide some basic information about human functioning. But freedom from illness and psychopathology does not describe an optimally developed individual, one who is thriving (Gleason & Narvaez, in press). Instead, child thriving must draw a holistic picture, one of well-functioning emotional, psychological, and social capacities that are based in appropriate physiological and emotional regulation (Gleason & Narvaez, 2014). Interdisciplinary work is

demonstrating the complexities of a childhood that fosters flourishing (Narvaez, Braungart-Rieker et al., 2016; Narvaez, Valentino et al., 2014).

What does a flourishing childhood look like? To answer this question, we take a transdisciplinary and deep history approach. First, human beings are social mammals, who emerged over 30 million years ago with particular intensive parenting practices (Konner, 2005, 2010). Second, human children are highly immature at birth, looking like fetuses until about 18 months of age, with the longest maturational schedule to adulthood of any animal (three decades; Montagu, 1968; Trevathan, 2011). Humans are more strongly shaped by early experience than their chimpanzee cousins, due to greater epigenetic plasticity (Gómez-Robles, Hopkins, Schapiro & Sherwood, 2015). Epigenetics refers to the interaction of environment, experiences, and genes, the biological fingerprint an infant has at birth. The type of care provided to the child has the power to turn genes “on” or “off,” resulting in altered genetic expression (epigenetics) that influences numerous complex neurobiological processes that form the underpinnings of behavior (Champagne, 2018; Perry, 2002). The field of epigenetics has documented mechanistic pathways by which gene expression is altered by the environment, including how parenting in the first years of life directly or indirectly change the expression of genes. Environmental factors can make alterations directly on the genome (the genetic code), and/or environmental factors can change the composition to other parts of the cell, including nongenetic material such as chromatin, histones, and microRNA (Bale, 2015). Changes to chromatin and histone produce changes at an epigenomic level, that is, genome-wide changes in gene expression, altering not just one single gene but large sets of genes (Bale, 2015; Sweatt, 2013). Further, these epigenetic modifications can persist into adulthood, yielding lifelong changes to physiological health, psychological functions, and behavior (McEwen, 2019; Weaver et al., 2004). Stated simply, epigeneticists are mapping the causal pathways by which environmental factors, specifically the type of care received in early life, change and

shape numerous parts of cellular and genetic material, all important building blocks of health, and social and moral behavior.

In light of infant immaturity, great malleability of gene expression, and lengthy schedule of development, humanity evolved a particularly intensive caregiving system designed to match a child’s maturational schedule in order to optimize development (Hewlett & Lamb, 2005; Konner, 2005). This partnership or companionship system is called the evolved developmental niche or evolved nest (Narvaez et al., 2013). The evolved nest is provisioned by a community (cooperative breeding; Hrdy, 2009) and includes practices such as long-term breastfeeding, extensive positive touch, responsive care that keeps an infant optimally aroused, soothing perinatal experiences, extensive free play in the natural world with multi-aged mates, social support (for mother and child), and a positive climate (for reviews, see Hewlett & Lamb, 2005; Narvaez, Panksepp, Schore & Gleason, 2013). We briefly describe these components and their effects. See Table 1 for a summary.

Table 1. Evolved Nest Components, Descriptions and Sample Evidence

| Evolved Nest Component | Description | Sample Outcomes |
|--------------------------------|--|---|
| Soothing perinatal experiences | The infant and mother are given the freedom to follow the natural cycles of gestation and birth. | Increased success of breastfeeding (Moore, Bergman, Anderson, & Medley, 2012) Greater cognitive development and executive functioning at 10 years (Feldman, Rosenthal, & Eidelman, 2014) |
| Breastfeeding | On-request, begins immediately at birth with high frequency (estimate every 20 min); continues anywhere from 2 to 5 years or longer (Hrdy, 2009) | Reduces child risk of diarrhea, meningitis, ear infections, diabetes, and externalizing behaviors, including hyperactivity (Girard, Doyle, & Tremblay, 2018; Stuebe & Schwarz, 2010) Reduces maternal risk of breast cancer, ovarian cancer, endometrial cancer, metabolic syndrome, hypertension, myocardial infarction (heart attack), type II diabetes, premature maternal death (e.g., Louis-Jacques & Stuebe, 2018) Promotes child’s immune system, circadian rhythms (through “chrononutrition”) (Hahn-Holbrook, Saxbe, Bixby, Steele, & Glynn, 2019) |

| | | |
|---------------------------------------|--|---|
| Physical closeness and positive touch | Kept physically close at all times, in close contact with their mothers and/or others, including night/nap times | Facilitates optimal arousal and protects against Hypothalamic-pituitary-adrenal axis dysregulation (stress reactivity) (e.g., Hofer, 1994) Causal pathway protects against anxiety development (e.g., Cascio, Moore, & McGlone, 2019) |
| Responsivity | Warmly perceiving the infant's/child's need and then promptly and appropriately responding to that need | Promotes right-brain regulatory systems, which facilitates emotion regulation and prosocial morality (Kochanska, Boldt & Goffin, 2019; Schore, 2003, 2015) |
| Self-directed free play | Play that is unstructured, with other children of different ages and if possible, in nature | Overall brain development, resilience to stress, adaptability, and prosociality (Burgdorf, Kroes, Beinfeld, Panksepp, & Moskal, 2010; Burgdorf, Kroes, & Moskal, 2017; Panksepp, 2018) |
| Allomothers or alloparents | Individuals who provide nurturing, responsive care in addition to mothers (Hrdy, 2009) | Promotes responsivity of parents, acts as social support to buffer stress, facilitates involvement of older generations (grandmothering hypothesis; Hawkes, O'Connell, Blurton Jones, Alvarez, & Charnov, 2017; Hrdy, 2009; Narvaez, Gleason, et al., 2013; Narvaez, Thiel, et al., 2016) |
| Positive home climate | Child feels appreciation, being cherished and loved rather than continual feeling of humiliation, fear, sadness, and anger | Builds open-hearted orientation vs self-protectionist (domination) orientation (Bethell, Jones, Gombojav, Linkenbach, & Sege, 2019; Narvaez, Thiel, et al., 2016) |
| Nature connection | Free to explore, develop relationships with natural entities | Develops nature attachment, sense of being part of ecological system (Berry, 2013; Louv, 2005) |

Soothing Perinatal Experiences

Perinatal experience (before, during, and immediately following birth) consistent with the evolved nest follows the natural rhythms of the mother and child (Narvaez, Panksepp, et al., 2013). When the infant and mother are given the freedom to resonate with the natural cycles of gestation, birth, and postnatal bonding, they have a better chance to develop a mutually responsive relationship with greater breastfeeding success. Soothing perinatal experiences protect the infant and the mother against stress that can disrupt numerous neurobiological processes and can stunt the child's growth (Szyf, 2009; Vaiserman, 2015). For example, in a randomized controlled trial (Mörelus, Örténstrand, Theodorsson, & Frostell, 2015), infants in a neonatal intensive care unit

($n=37$) were assigned to either continuous skin-to-skin contact with parents (24 hours a day) for one week, or standard care (parents were allowed skin-to-skin contact at will, or not, with no measure of what they did). At one month of age, infants in the treatment group had significantly lower cortisol levels (an indicator of stress), and parents themselves reported less stress. At four months of age, mothers and infants in the treatment group had greater cortisol concordance ($r = 0.65$, $p = 0.005$) compared to the control group ($r = 0.14$, $p = 0.63$). That is, mothers and infants in the skin-to-skin condition had cortisol levels that significantly correlated with each other, suggesting that their bodies were more synchronized.

When examining effects of skin-to-skin contact across studies, a meta-analysis by Moore, Bergman, Anderson, and Medley (2012) that included 38 randomized controlled trials, with a total of 3,472 mother-infant dyads, found that skin-to-skin contact immediately after birth increased breastfeeding duration, stabilized infant blood glucose and temperature, and decreased incidents of crying. Finally, in a longitudinal study by Feldman, Rosenthal, and Eidelman (2014), premature infants who received increased skin-to-skin touch for 14 days following birth (undressed infants were placed between mother's breasts for 1 hour each day), in comparison to a matched control group who were placed in incubator care, were evaluated over a ten-year period. The control group was matched based on demographics, medical conditions, birth weight, gestational age, gender, medical risk, maternal and paternal age and education, maternal employment, and parity. The intervention group demonstrated significantly better cognitive development and physiological health, as measured by autonomic functioning. At 10 years of age, children in the skin-to-skin group had better vagal tone and decreased cortisol reactivity, signs of physiological wellbeing. The researchers also assessed cognitive development throughout the first year, and executive functioning at five and ten years of age. Children in the treatment group outperformed the control group at all time points, with benefits persisting for the ten years studied. The convergence of findings underscores the importance of touch in the perinatal period.

Positive Touch and Physical Closeness

Physical closeness, keeping in physical contact with mothers and/or others, facilitates healthy growth in early life (Field, 2014) but also is important throughout childhood. Positive touch throughout life is beneficial, triggering oxytocin release which is generally related to calming (Feldman, 2012). Empirical investigations with animals over decades show that maternal physical closeness is critical for the normal development of offspring (Harlow, 1985; Barnett, 2005). Many biological systems are regulated by the physical touch of the mother, such as the stress response—the hypothalamic-pituitary axis activity or HPA axis (Hofer, 1994). Negative touch (e.g., corporal punishment) is detrimental to child development (Gershoff, 2013). Positive touch in childhood (before adolescence) with a simple gesture on the shoulder can decrease anxiety, especially for a socially anxious child (Brummelman et al., 2019).

Breastfeeding

Breastfeeding facilitates infant growth in all systems and protects the child from numerous illnesses (including psychopathologies). Each of the more than 4,000 mammalian species produces its own specific kind of milk (Beck et al., 2015). Human milk is thin (more lactose than fat, unlike predator species' milk), so young infants need to suckle frequently, on average every 20 minutes in the early days. Because of its ingredients needed for brain and body building, ethnographic researchers have documented that breastfeeding in our ancestral context lasts on average for 2.5-8 years (Hewlett & Lamb, 2005; Hrdy, 2009), the lower end representing a minimal ideal (Prescott, 1996). Human milk contains numerous macro and micronutrients that are tailored to the needs of the child, changing as warranted. Hahn-Holbrook, Saxbe, Bixby, Steele, and Glynn (2019) examined “chrononutrition,” changes in milk throughout the day. During morning hours, human milk has energy-boosting elements, whereas during the evening and throughout the night (when infants also expect to suckle), it contains

soothing macromolecules. For example, the hormone cortisol is three times higher in morning milk than in evening/night milk, whereas melatonin, which facilitates sleep, rises in the evening and peaks around midnight. In addition, there are greater amounts of immune-enhancing components such as immunoglobulins IgA, IgM, and antibodies during diurnal periods compared to evening and night milk (Franca, Nicomedes, Calderon, & Franca, 2010). In short, breastmilk is designed to provide infants and children with extra immune boosting components during the day, at a time when they would need them most.

Breastfeeding can be viewed as a microcosm of the nest because it provides children what they need at the precise time they need it, even on an hourly basis. In this way, breastfeeding is more than simply conveyance of nutrients; it is more like a coordinated gift sharing, a partnership, in which the members of the dyad physically and psychologically respond to each other's movements, gestures, and needs. Besides being the most beneficial source of nutrition for an infant, breastfeeding involves intimate mother-child contact, social bonding, and physiological attunement within the dyad (Fouts, Hewlett & Lamb, 2012).

Responsivity

Responsive care for infants and young children means that caregivers attend to the needs of the child promptly in the moment and in an attuned way that appropriately matches the need. In other words, responsive care in the early years is never intentionally delayed or withheld; it refers to being warmly respectful of infants needs and then promptly and appropriately responding (Landry, Smith, & Swank, 2006). Decades of research demonstrate that rapid response supports the development of right-brain affect regulation, and stabilizes many developing physiological systems (Hofer, 1994; Perry, 2009; Schore, 2001; 2015; 2003). Responsiveness in infancy facilitates optimal arousal, mitigating distress or under-arousal, during a time when the brain is growing rapidly (Kaiser et al., 2018; Kim, Wang, Shen, & Lin, 2016; Wall, 2018). Only through the presence of calming caregivers can infants and children learn to

manage adaptively their physiological and emotional reactions to a constantly changing environment.

Free Play

The type of play that forms part of humanity's mammalian heritage and the evolved nest is self-directed free play, play that is active, spontaneous, whole-bodied, and social (Gray, 2013). Free play promotes overall brain development and resilience to stress, and may mitigate attention-deficit/hyperactivity disorder (ADHD; Burgdorf, Kroes, Beinfeld, Panksepp, & Moskal, 2010; Burgdorf, Kroes, & Moskal, 2017; Panksepp, 2018). Free play helps children learn flexibility, the ability to shift and change actions when unexpected events take place, both in terms of relationships and in life events (Spinka, Newberry, & Bekoff, 2001). A recent policy statement from the American Academy of Pediatrics concludes that "developmentally appropriate play with parents and peers is a singular opportunity to promote the social-emotional, cognitive, language, and self-regulation skills that build executive function and a prosocial brain" (Yogman et al., 2018, p. 1). Put in other words, play has the power to build the brain, developing systems that help the child manage life well (e.g., executive functions), in addition to relational skills of sociality and emotion regulation.

A Village of Social Support: Allomothers or Other Nurturers

The nest components make it clear that young children need responsive care 24/7 to grow well, which "takes a village" to fulfill. Humans evolved to raise children together; those who provide nurturing, responsive care in addition to mothers are referred to as allomothers, alloparents, or helpers (Hrdy, 2009). Having a set of loving caregivers creates a supportive social system around the child, increasing the likelihood that the type of care he or she receives will be warm and responsive; social support, in turn, increases the mother's responsiveness to her child (Hrdy, 2009). Cooperative child rearing also supplies training in parenthood (de la Chica, Corley, & Fernandez-Duque, 2018). For example, young relatives learn how to nurture infants and children by

observing and helping older and wiser caregivers such as grandparents. These experiences safeguard parents from being novices when they first have their own children. In traditional societies, community members help with child nurturing in part because they understand they are building a human being (Morelli, Ivey Henry, & Foerster, 2014). Older generations (grandparents) also benefit from play and engagement with younger generations, sharing their wisdom (Hawkes, O'Connell, Blurton Jones, Alvarez, & Charnov, 2000).

Positive Social Climate

Providing a positive home climate means that the child is immersed in feelings of love and appreciation most of the time, rather than humiliation, fear, grief and/or anger. The baby's brain development is marinated in optimizing biochemistry. Throughout childhood, having experiences that are predominantly positive fosters a sense of security and allows the child to experience friendship within the family, building an openhearted rather than defensive and self-protective worldview (Narvaez, 2018b). A study by Bethell, Jones, and Gombojav (2019) examined the impact of positive home climate on mental health outcomes for 6,188 adults. After accounting for adverse childhood experiences (ACEs), they found that a positive climate in childhood provided a dose-response association with mental health and emotional support. That is, after controlling for the number of ACEs, adults who reported high emotional and social support in their adult life had 3.53 times greater odds of having more positive climate experiences in their childhoods. Meaning, adults who reported 6 to 7 positive home climate childhood experiences had a 3.53 increase in odds of also reporting high emotional and social support, compared to adults who reported 0 to 2 positive home climate experiences in childhood. Their findings indicate that promoting a positive climate in childhood supports mental and psychological health, even with exposure to adverse childhood experiences.

Nature Connection

Children are oriented to connecting to the natural world, to other than human entities, as long as they are able to immerse themselves outdoors, free to roam and explore. This orientation can build a sense of being part of a living ecological system. Even though ecological attachment can develop with ease in childhood, several scholars have point to nature disconnection as a primary cause of the current ecological crises (Amel, Manning, Scott, & Koger, 2017; Berry, 2013; Louv, 2005). Societies that promote nature connection live sustainably. They provide guided experiences that offer respect and honor towards the living world (Medin & Bang, 2014). These educational conversations can take place in the family, with simple expressions of gratitude from parents or grandparents regarding the gifts and beauty of the natural world, and the need to respect living things, with narratives about connectedness to others than humans (WindEagle & RainbowHawk, 2003). Animism is making a comeback, freed from the colonialist baggage assigned to it in recent centuries (Harvey, 2005). Animism is the view that there are no individuals, only relations and actions of relating among sentient beings, many of whom are not human (Harvey, 2005). Most human societies through history have expressed such a nature connection.

In summary, each component of the nest has scientific evidence to support its importance for physical health and overall development. The species-typical nest provides the best environment for neurons to grow, connect, and differentiate, supporting healthy development (Shonkoff et al., 2012). The nest also supports the shaping of prosocial moral capacities.

THE EVOLVED NEST AND SOCIOMORAL DEVELOPMENT

To be human is to be highly social and cooperative, characteristics that were adaptive for our human ancestors (Hrdy, 2009). Nested children, those who are gifted with the nest, thrive from being loved and cherished, building capacities that will enable them

to care for both existing and future generations. From the first moments of life, these children feast on deep interconnectedness and trust, an experience that continues throughout development into adulthood. Similar to other behavior outcomes, social and moral capacities are shaped through dynamic interaction between environmental (the nest) and genetic factors (Kundakovic & Champagne, 2015). In this way, we see a double effect. The young children experience an abundance of nurturing love, and this builds the neurobiological systems required to later give and receive nurturing love as an adult. A partnership cycle of nurturant gifting and feasting is generated.

In our team's work, we have looked beyond the physiological health effects of the nest to examine its relation to child sociomorality, after controlling for responsiveness. *Responsive* care predicts cooperative child socialization (Kochanska, 2002; Kochanska, Boldt, & Goffin, 2019) through various mechanisms, including adaptive responses to arousal and stress (Haley & Stansbury, 2003; Liu et al., 1997; Schore, 2003), such as healthy vagal tone (Porges, 2011), an important component of prosociality, compassion, and open-heartedness (Carter, Harris, & Porges, 2009; Goetz, Keltner, & Simon-Thomas, 2010). In our empirical work, responsiveness is always significantly related to positive child outcomes (wellbeing, happiness, low anxiety and depression, social attunement, empathy, conscience, and self-regulation) and so we always use it as a control variable (along with demographic variables) to see if other nest components matter as well. The sociomoral benefits of *breastfeeding* are still being explored, but converging evidence underscores the importance of breastfeeding for numerous self-regulatory capacities. In our research, we found that in a Chinese sample, breastfeeding length was related to young children's greater conscience development and inhibitory self-control (Narvaez, Gleason, et al. 2016). Greater affectionate *touch* in infancy was related to young children's empathy and inhibitory self-control in the US and China (Narvaez, Gleason, et al., 2016). Among US adults reporting on their childhood experiences, greater affectionate touch and less corporal punishment was related to a more open-hearted moral orientation and less self-protectionist moral orientation, including greater social perspective-taking (Narvaez, Wang, & Cheng, 2016; Narvaez,

Wang, et al., 2019). *Self-directed free play* facilitated healthy vagal tone in young children (Tarsha et al., 2019), correlated with young children's moral feelings and behavior in China (Narvaez, Wang et al., 2013) and with young children's empathy in the USA (Narvaez, Gleason et al., 2016). Regarding *social support*, using a longitudinal dataset, mothers reporting more social support at children's six months of age had children who were more prosocial at two and three years of age (Narvaez, Gleason et al., 2013). In an adult study, adults reporting more social support in childhood tended to be less socially withdrawn or emotionally detached but instead communally engaged with others (Narvaez, Thiel et al., 2016). *Positive home climate* refers to a greater prevalence in the household of positive (joy, serenity, expansiveness) rather than negative emotions (e.g., sadness, fear, anger and humiliation). Adults who reported more positive climate in childhood were more secure, mentally healthier, less distressed and less likely to have a self-protective morality. A negative home climate in childhood predicted self-protectionism in social situations (e.g., withdrawal, opposition, sense of superiority, viciousness; Narvaez, Woodbury, et al., 2019; Narvaez, Thiel, et al., 2016).

The characteristics of the nest may appear strikingly odd or foreign to those from societies where nest provision is rare (e.g., mainstream Western culture), making it sound like a new idea. Some will retort that humanity has evolved away from those needs, or we would all be providing them. However, over many millions of years, humanity's developmental biological needs have not changed; we are still social mammals who need nested care to develop well. Children's needs for secure, relational attachment, responsivity, and nurturing has remained steadfast. Nevertheless, many children today do not experience much of the nest. Unnested experiences and their effects are discussed next.

UNNESTED SOCIETIES

We focus now on nest characteristics that are often missing or degraded in industrialized nations. These nations have also been characterized as WEIRD (Western, European, Industrialized, Rich, Democratic; Henrich, Heine, & Norenzayan, 2010). Psychology studies typically use WEIRD samples as the normative standard. The fact that many of the WEIRD samples are also *unnested* means that using them to set norms for human functioning shifts the baseline for understanding human nature and narrows assumptions about what flourishing can look like (Narvaez & Witherington, 2018).

When first hearing of the evolved nest, some protest that they did not experience it themselves and they are fine. The data suggest otherwise. Illbeing is increasingly common in places where less of the nest is provided, such as in the US, whose illbeing was noted earlier. We mention a few known effects of missing nest components below.

Non-soothing Perinatal Experiences

Medicalized birth is common in industrialized countries, and is designed for the convenience of medical personnel and for economic reasons instead of for the wellbeing of mother and child (Wagner, 2006). Many perinatal medical practices began during a time when medical practitioners assumed that infants felt little pain and would not remember their experiences; these practices have continued in many hospitals to this day. Painful or detrimental procedures include separating mother and child, circumcision, spanking the infant, exposing the infant to bright lights and noxious odors, and using sucrose solution to keep babies quiet from being in pain (which is not an effective analgesic but undermines development; Ang, Gluncic, Duque, Schafer, & Rakic, 2006; Liu et al., 2007; Rosman et al., 2018; Slater et al., 2010). Routine medical practices separate mother and infant which means that, worldwide, fewer than half of newborns experience skin-to-skin and suckling in the first hour of life (Cadwell, Brimdyr, & Phillips, 2018). The World Health Organization's Baby-Friendly Hospital Initiative supports keeping mother and baby together after birth, to facilitate

breastfeeding success (United Nations Children's Fund and World Health Organization, 2009).

Infant Isolation and Lack of Positive Touch

Recall that children expect and need almost continual positive affectionate contact in the first year of life, and plenty of carrying and closeness in the early years. In economically wealthy nations, physical closeness has decreased; e.g., only 14 percent of infants in the United States regularly sleep near caregivers (National Institute of Child Health and Human Development, 2013). Contemporary practices of caring for young children include numerous obstacles that stifle physical contact and closeness, such as strollers, high-chairs, cribs, and car seats. Touch deprivation causes anxiety and has long term effects even into subsequent generations (Cascio, Moore, & McGlone, 2019; Fish et al., 2004; Franklin et al., 2014). Negative touch often replaces positive touch in the life of a child, impairing development (Prescott, 1996).

Minimal if Any Breastfeeding

In many Western countries, breastfeeding for several years is uncommon, including the United States, where only around 25 percent of women exclusively breastfeed their infants at six months of age and only 34 percent have breastfeed at all during the first year (Louis-Jacques & Stuebe, 2018). By not providing human milk, one deprives the infant of what is needed for health, increasing the risk of developing illness in the short and long term. Longitudinal studies show that breastfeeding significantly reduces the risk of numerous illnesses and pathologies, including diarrhea, meningitis, ear infections, diabetes, and externalizing behaviors, including hyperactivity (Girard, Doyle, & Tremblay, 2018; Stuebe & Schwarz, 2010). In addition, breastfeeding is beneficial for women, and reduces the risk of numerous illness including breast cancer, ovarian cancer, endometrial cancer, metabolic syndrome, hypertension, myocardial infarction (heart attack), type II diabetes, and premature maternal death (Louis-Jacques & Stuebe, 2018). Among U.S. mothers who breastfeed, 85 percent do not nurse

their infants or children directly from the breast. Rather, they pump and store breastmilk which, as noted above, can lead to feeding children milk produced at a different time of day, fueling the wrong kind of energy for the hour.

Lack of Free Play

Play is not superficial or superfluous, but rather is imperative for healthy development. Yet self-directed free play is missing in the lives of many children in the US. Deprivation of play in childhood is associated with a greater likelihood of altered social, sexual, and conflict interaction with peers, and the inability to handle the complexities of life (van den Berg et al., 1999; Panksepp, 2008). Children who do not play lose the opportunity to properly develop the brain's right hemisphere, which plays a significant role in self-regulation and prosocial behavior (Miller & Almon, 2009). Psychostimulants that are used to control attention in school reduce playful urges, even though play itself fosters attention capacities (Panksepp, 2018). Nevertheless, the type of free play described earlier can rehabilitate the brain. That is, an adult who lacked play in childhood can play as an adult, facilitating healing and growth, reawakening experiences of joy and creativity (Yogman et al., 2018).

Poor Support and Negative Climate

It is rare in industrialized nations for adults of different generations and children to live together, functioning and working together as a group and a community. Instead, parents and children are often on their own, leading to increasing stress among families in the US (American Psychological Association, 2012). In contemporary societies in which families are small, women and men often have not held or cared for a baby until they have their own. Lack of support from other adult caregivers can result in increased stress and potentiate a negative home climate. Animal studies examining the role of early life stress demonstrate lasting effects on neuronal development. A systematic review by Turecki and Meaney (2016) examined the role of social environment in early life on neurodevelopment and mental health. They collected 40 articles (13 animal and 27 human studies) published since 2004 that investigated early social environment using

measures of adversity, stress, and psychopathology. Across both animal and human studies, there was converging evidence for the methylation of the glucocorticoid receptor gene (one of the genes responsible for stress response) as a result of negative early life social experiences. Thus, there is growing, converging evidence that the impact of poor support and negative climate, most especially in the early years of life, influences basic functioning such as stress reactivity.

Missing Nature Connection

Richard Louv has pointed out the extreme loss of nature connection among U.S. children, and has suggested hundreds of ways to increase nature connection in children and adults (Louv 2005, 2016). For educators, a first step in facilitating nature connection in children is to become a nature teacher, immersing children in natural environments, taking on projects that better the environment, caring for species in the local ecosystem and greening the schoolyard or campus. For parents, Louv recommends modeling wonderment at nature and time immersed in the natural world. Parents can also set aside time for nature immersions with their child. Through positive relational experiences in natural environments, children organically forge a connection with the natural world.

In summary, the evolved nest represents humanity's developmental system, evolved to meet a child's basic needs (Noble, Kurth, & Narvaez, 2018a, 2018b). But when children's basic needs are not met, when children are unnested, the resulting stress stifles the development of many systems, including neurobiological systems dedicated to sociomoral development. Stressful conditions in early life yield dysfunctional neurological and behavioral changes that can last a lifetime (Goldstein, 2019; Hansen et al., 2015; VanTieghem & Tottenham, 2017). Activating a child's stress response routinely can lead to long-term changes in cognitive, emotional, and physical health (Ardiel & Rankin, 2010; Duhn, 2010; Field, 2014; McEwen, 2019).

Instead of feasting on nurturing care, unnested children are left with experiences of deprivation—both physical and psychological—in which they feel their needs are in competition with adult needs or, worse, are suppressed altogether. That experience is the antithesis of feasting, an impoverishment of relational support, a social poverty (Korten, 2015). Today, the landscape of family life aligns more with experiences of social famine, an everyday struggle to survive and live, rather than feasting on an abundance of care, support, and stability.

MEETING MODERN CHALLENGES TO PROVIDING THE EVOLVED NEST

Various books and parent advisers suggest child raising approaches that are contrary to the nest. Business has created products to replace aspects of the nest (e.g., artificial formula) and much of child raising advice is corrupted by profit makers (Braden & Narvaez, in press). The first thing to keep in mind when discussing research in regards to the nest is that we cannot conduct experiments on babies. It is unethical. Thus, publications that suggest that there is little research to support one nest component or another not only use limited methods but are not credible counters to these millions-of-years-old components. Second, in a way, evolutionary processes have conducted the experiments on nest components as they helped our ancestors survive, thrive, and reproduce—so much so that nest components did not vary until recently, with civilization and industrialization.

Civilization moved away from band society's pleasurable, egalitarian existence with its high social interaction and extensive leisure, with little effort made for food (on average 2-4 hours daily; Lee & Daly, 2005; Sahlins, 1968). Instead, civilization forced individuals to work the fields or become experts in specialized knowledge systems, putting human wellbeing second to maintaining the hierarchical system. Then, industrialization moved the center of life away from the family home to factories and other work sites. Because of the pressures of industrialization, culture, and profit-making, many children today are not provided with the nest, and are even punished for

their desires for it. There are numerous challenges to providing the nest in modern industrialized societies where work is a priority. Clearly, societal supports need to be shifted to honor children's needs, educating the populace on their importance and normality.

Here are a few suggestions. Few doctors have ever seen a natural birth and so assume that medicalized birth is the norm, despite the fact that medicalized birth is often traumatic and dangerous (Wagner, 2006). Giving doctors exposure to natural birth will help them learn to empower mothers prior to and during birth. Stopping routine infant circumcision and its profit making also is vital. Co-sleeping and bed-sharing are part of our mammalian heritage, and there are safe ways to do it with a young baby (McKenna, 2007). Wearing babies throughout the day can be done with support from workplaces and families. To enable lengthy breastfeeding for mothers who work outside the home, workplaces will need to allow mothers to bring their babies to work. Work locations will need to have nearby child care centers and allow mothers the freedom to contact their child throughout the day. Societies will have to control efforts to make money from alternatives to the nest when unneeded (e.g., artificial formula) as the World Health Organization (1981) attempted to do. For children, play is work. They are constructing their brains and skills in social play, and so free play should be embedded in everything a child does. Finally, emphasizing social connection and cooperative interaction should replace the emphasis on work and competition. Media can have powerful effects and, instead of showing disconnection and violence as normal, can show the benefits of nest components.

THE PROMISE OF PARTNERSHIP COMMUNITIES

When societies operate by means of domination principles, they act from fear and greed, as many modern societies do, an unsustainable approach to living (Fry & Souillac, 2017; Eisler & Fry, 2019). When children are deprived of what they have evolved to

expect, analogous to a starvation diet, susceptibility to ill health results, and sociomoral capacities are hindered. A social starvation environment is marked by scarcity, leaving children to feel empty, afraid, and untrusting of others. The child's stress response can become highly activated, sometimes to the point of chronic stimulation, resulting in long-term pathologies that affect both cognitive and emotional functioning. Children become oriented towards withdrawn and/or aggressive behavior in social relationships, including the other-than-human world (Narvaez, 2014, 2016a, 2018a). Individuals become prone to supporting and participating in domination systems as a means to feel safe.

The longstanding alternative, partnership societies, represents most of human experience on the planet. The evolved nest is part of humanity's cooperative heritage, still apparent in indigenous societies that have not been forced into globalized capitalism's interests. We can still see the results of such partnership systems around the world. Small-band hunter-gatherers (SBHGs) may be the quintessential example of human partnership and cooperation. SBHGs represent the type of society in which humanity lived for 99 percent of its existence (Fry, 2006). According to reports by explorers, visitors, and ethnographers, adults in these societies demonstrate enhanced socio-emotional regulation, perspective taking, empathy, intelligence, and, some argue, greater consciousness (Diamond, 2013; Wolff, 2011). They practice inclusive, humble, and egalitarian behavior, and value non-coercive relationships and generosity (Gray, 2013; Ingold, 2005; Kelly, 2013; Montagu, 1978). These outcomes may be shaped by their provision of the evolved nest (Narvaez, 2013; 2014).

In partnership societies that provide the evolved nest, social attunement is supported from the earliest moments of life, forming *companionship* caregiving that optimizes human potential and leads to an orientation of cooperative virtue (Narvaez, 2014, 2015). Children are innately prepared for the development of prosociality and compassionate morality, but require constructive social experiences that shape social engagement and communal imagination in everyday life (Narvaez, 2016b; 2019).

Companionship care recognizes children as valuable members of the community who need additional love, support, and care in order to learn the how's of relational living.

CONCLUSION

Eisler and Fry (2019) suggest that societies can transform themselves into partnerships. One place to start is the evolved nest. When the nest is provided in infancy and childhood, neurobiological systems are nourished and supported with the right nutrients: love and supportive, responsive care as denoted by nest components. Similar to a healthy nutrition plan, when we feast on the right ingredients, we become and feel healthy. When children feast on love and responsive care—the type of care they have evolved to expect—they develop into happy, healthy, and well-tuned members of society.

Transformation of families and communities from starvation to feasting begins with humility, upholding the dignity of each child and their needs as outlined in the nest (Narvaez, 2019). Respecting children by providing the evolved nest fits with the first cornerstone that Eisler and Fry suggest for returning to partnership societies, respecting the dignity of children and attending to their needs. Adopting the nest can transform homes and communities, a sociomoral health plan satiating the needs of children and giving them the freedom to flourish. Children then can grow into adults who readily practice compassion, empathy, and communal orientations—the ancient patterns of sustainable partnership societies.

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