Clinical Challenges following Intercountry and Transracial Adoptions

A Neurodevelopmental Perspective

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Introduction

Throughout history, humankind has used adoption – both "legal" and informal – to maintain and sustain family, community and culture. There are many factors that contribute to the choice to adopt but, in its current manifestations, a primary factor remains the powerful positive emotional and social features, including empathy. The act of "adopting" - caring for the child (or offspring) of another parent as if they are your own – is a remarkable manifestation of love and empathy. Other species adopt; indeed, there are examples of cross-species adoption in the natural world (see Holland, 2011). A central feature of adoption – in humans and other animals – is the expression of mutual, reciprocal affection. The adopter and adoptee both give and receive pleasure from the relational interactions. The mutual capacity to envision, manifest and grow a powerful emotional connection is at the heart of successful adoption. This process – forming and growing a sustaining love – can be challenged by many trauma and neglect related effects on the development of the adopted child. Unfortunately, children who are adopted have often experienced maltreatment and other developmental adversities that impact the relational capacities of the child. This chapter will examine the impact of these developmental adversities on the neurobiological development of the child and explore the clinical implications of these adverse experiences in context of intercountry and transracial adoption.

Scope and Context

Between 1999 and 2005, intercountry adoption became increasingly common in the United States, with 142,409 children identified as internationally adopted by the US Department of State (2014). It is estimated that 70 to 90% of internationally adopted children are transracial adoptions (Lee, 2003). As will be discussed later, earlier adoption is associated with better outcomes; unfortunately, fewer than 20% of intercountry adoptions take place before age one (Johnson, 2002). Between 2006 and 2012, rates of intercountry adoption slowly decreased with only 99,530 children adopted within this seven-year span. This decrease in rates may be related to increased regulatory hurdles such as intercountry adoption regulations fees, and, in part, to an increased awareness of the difficulties faced by families who have adopted internationally.

1. Pre-adoption Adversity

The majority of intercountry adoptees have experienced some form of adversity during development. An estimated 85% of internationally adopted children were institutionalized at some point (Loman, Wiik, Frenn, Pollak, & Gunnar, 2009). Early studies of institutionalized children documented less-than-ideal developmental environments (Spitz 1945; Spitz, 1946; see Mason & Narad, 2005). Although each institution was somewhat different, well-intended but developmentally destructive practices were common, and in some settings remain so. Historically, orphanages were disease-ridden and to minimize the spreading of disease,

children were kept from playing with one another and frequently left alone in cribs, rarely handled by caregivers except for during feeding and changing. Rocking, touching, and speaking to children rarely occurred. Institutions tended to be devoid of social interactions, relying upon consistent routines with very low ratios of caregiver to child (e.g., 1 caregiver for 30 infants or higher). These practices persist in many settings. A recent study by Groark, McCall, and Fish (2011) evaluated the characteristics of several Central American orphanages. Most were found to be clean but had minimal staff to child interactions. The interactions that did occur lacked emotional responsiveness to the individual needs of the children. Staff worked long hours and frequently rotated between wards, leading to a lack of consistency in caregiving, all with minimal physical and sensory input. Children were also not encouraged to play together, further decreasing social interactions.

While not a certainty, many institutionalized children have had other developmental challenges – such as prenatal exposure to alcohol, neglect, traumatic stress and attachment disruptions (see Bakermans-Kranenburg et al., 2008; Johnson, n.d.; Juffer & van Ijzendoorn, 2005; Loman et al., 2009) – all of which are known to impact the development of the brain and lead to a range of complex cognitive, emotional, behavioral, social and physiological problems (see Anda et al., 2006; Perry, 2008). The risk of in-utero exposure to stress hormones and teratogens, such as alcohol and drugs, is estimated to be close to 60% (McCarthy, 2005). Further, the probability that the immediate perinatal period prior to institutionalization was in a chaotic, higher risk environment with less than idea attachment experiences is also high. These early risks for attachment development are compounded in children who then transitioned to spend their first months or years in institutions with poor staff-to-child ratios and the socially sterile environments described above.

2. Functional Consequences of Developmental Adversity

The emotional, social, cognitive and physiological consequences of this kind of complex and multidimensional developmental trauma are significant and heterogeneous (for review see Perry, 2002; DeBellis, 2005; Nelson et al., 2011). When examining 'international' adoptees as a group, statistically significant risks are seen for a host of problems. It is difficult to take general findings from grouped data, however, and apply to the individual child. Each child has a unique set of genetic gifts (or challenges) and epigenetic, pre-natal, perinatal and early childhood experiences; the behaviors of one institutionalized child may greatly differ from that of another. Following adoption from an international institutional setting, some children may have problems with attention, but many will not; some children may have problems with learning, but many will not; and some children may have difficulties with relationships, but many do not. This complexity requires a careful examination of the individual's developmental history (as well as it can be determined) and current set of strengths and vulnerabilities (see Perry, 2009).

With this caveat, taken as a 'group', a range of behavior problems and social skills deficits has been found in this population. These behavior problems are inter-related with cognitive challenges (Groark et al., 2011 & Loman et al., 2009). Cognitive flexibility is often undeveloped in these children. These executive functioning impairments are common in

maltreated children (Moffit et al., 2011; Piquero et al.,2010). Some institutionalized children have been described as having "institutional autism" due to their difficulties reading and interpreting social nuances, mimicking the emotional responses of others, and with primitive self-soothing (see Rutter et al., 1996; Rutter et al., 1998;). Many issues may not become evident until adolescence (Johnson, 2011), and can be confusing to caregivers who have generally seen typical development in their adopted child prior to this.

Many institutionalized children may exhibit behavioral paradoxes (see Clinical Challenges section below; Maclean, 2003; Kreider, 2007). In one moment, the child may demonstrate independent or even "parentified" behaviors and prefer to self-soothe, feed himself (or hoard food), and avoid physical affection while in the next moment he may act completely infantile and seek physical comfort; rocking or even bottle-feeding. Other children may seem to require affection at all times and exhibit separation fears and an inability to complete tasks independently.   Impairments in self-regulation, or the ability to self-soothe when stressed, transition between novel tasks, persevere when challenged, and make adaptive behavioral choices will likely exist but will differ depending on the task and the context. For example, many children may find situations with high intimacy expectations, such as family time, to be highly dysregulating and thus exhibit poor self-regulation in the home while they are able to excel in less intimate school or daycare environments (see Clinical Challenges below).

3. Neurodevelopmental Consequences of Developmental Adversity

One of the fundamental principles of neurodevelopment is 'activity dependence' – basically, neural networks (and the functions that they mediate) develop, organize, and function optimally when they receive 'appropriate' nature, timing, and pattern of experience. While there is much to learn about the timing and nature of optimal versus necessary experiences required to express functional potential, it is clear that extremes of neglect, chaos, distress and traumatic experiences can lead to a range of neurodevelopmental problems (see Anda et al., 2006, Perry, 2008).

The mechanisms by which experience influences development takes place at multiple, often parallel, interactive systems, ranging from genome to neural network to whole organ systems to family and community. For example, an overwhelming traumatic experience can 1) alter immediate release of neurotransmitters at a range of neural networks associated with the stress response and influence synaptic dynamics leading to changes in local synaptic density and structure; 2) these immediate "adaptive" changes resulting from sensing and processing threat, in turn, working at a "micro" level, can alter gene expression via a variety of epigenetic mechanisms and lead to long-term changes in gene expression; and 3) working at a "macro" level will alter widespread neural systems in complex ways (e.g., by creating new "associations" between sensory cues simultaneously present during the traumatic experience); and, ultimately, these complex mechanisms can mediate long-term alterations at the level of the epigenome, neuron, neural network, broader stress response systems, multiple organs and, ultimately, the individual, family, community and culture. Experiences – both good and bad - have echoes deep, wide and long; deep into our biological core, and so it is with the group of intercountry adoptees.

With the heterogeneous nature of the developmental experiences of intercountry adoptees, it is not surprising that the few studies examining neurodevelopmental functioning in this population have found significant (but varied) differences from comparison populations (e.g., O'Connor et al., 2000; Rutter et al., 1998; 1999). Among the findings are altered local brain activity in various cortical areas (Chugani et al., 2001); decreases in brain size and head circumference in extreme total global neglect (Perry, 2002); altered 'connectivity' between key brain regions (Eluvanthingal et al., 2006); neuroendocrine regulation differences (Bruce et al., 2009); altered hippocampal, amygdala and corpus callosum size (Mehta et al., 2009); and various measures of brain 'electrical activity' (Vanderwert et al., 2010). DeBellis (2005) and Nelson and co-workers (2011) provide reviews of this small but growing body of research.

The Clinical Challenge

Twenty-five years ago many adoptive parents and their consulting medical teams had minimal understanding of the complex effects of early life adversities on development. While landmark studies describing some of the adverse effects of neglect, institutionalization, "psychosocial dwarfism," and adoption existed (e.g., Spitz, 1945, 1946; Dennis, 1973; and, especially Money's excellent book from 1994) these were not widely incorporated into routine medical or psychological training. Indeed, dissemination of these important learnings continues.

These early learnings about the potential challenges of intercountry adoption were certainly not part of the common understanding and awareness of the majority of adoptive parents. Over the ensuing years, the emotional, behavioral, learning, and physical health problems seen in adopted children and youth have stimulated more research and an increase in public awareness of these issues. Again, with the caveat against over-generalizing to all intercountry adoptees, there are several key clinical areas where a neurodevelopmental perspective can be very helpful.

1. Altered Stress Response Systems

There are two major and interactive adaptive response patterns to significant threat: the arousal response and dissociation. The arousal response activates the individual and prepares them to flee or fight (see Perry et al., 1995; Perry, 2008). Dissociation is less well characterized and is engaged when there is a perception that fighting is futile or fleeing impossible; the dissociative response is more internalizing an, is hypothesized to help the individual prepare to survive injury. Peripheral blood flow decreases, heart rate goes down, and the release of endogenous opioids and dissociation at the cognitive and emotional level occurs. In many cases both of these adaptive responses will be activated during the same complex traumatic experience. Both response patterns can become 'sensitized' such that future stressors or challenges will activate the most common adaptive pattern used in a similar situation in the individual's past (e.g., an infant physically abused in context of a caregiving relationship who utilized a dissociative response to survive that inescapable, painful event may, ten years later,

'tune out' when the teacher raises his voice in frustration).

Sense of Time	Extended Future	Days Hours	Hours Minutes	Minutes Seconds	No Sense Of Time
Arousal Continuum	REST	VIGILANCE	RESISTANCE *Crying*	DEFIANCE *Tantrums*	*AGGRESSION*
Dissociative Continuum	REST	AVOIDANCE	COMPLIANCE *Robotic*	DISSOCIATION *Fetal Rocking*	FAINTING
Regulating Brain Region	NEOCORTEX Cortex	CORTEX Limbic	LIMBIC Diencephalon	DIENCEPHALON Brainstem	BRAINSTEM Autonomic
Cognitive Style	ABSTRACT	CONCRETE	EMOTIONAL	REACTIVE	REFLEXIVE
Internal State	CALM	ALERT	ALARM	FEAR	TERROR

Table 1. State-dependent Functioning: Different individuals may have different styles of adaptation to threat depending upon a wide range of factors, including age, nature of threat, history of previous exposure to trauma and gender (see Perry et al., 1995; Perry, 2008). Some use a primary hyperarousal response, others a primary dissociative response. Most use some combination of these two adaptive styles in any typical 'traumatic' experience. If a child develops in an unpredictable, chaotic or threatening environment, her stress response systems become sensitized (see Figure 1 below).

As a child moves along the arousal/dissociative continuum in the face of novelty or threat, their internal 'state' shifts. Different networks in the brain activate while others de-activate. While clearly over-simplifying the process, the more threatened the individual feels, the more their functioning shifts from higher, more complex and mature cortical networks to lower and more reactive networks. In the fearful child, this may manifest as a defiant stance. This is typically interpreted as a willful and controlling child. Rather than understanding the behavior as related to fear, adults often respond to the 'oppositional' behavior by becoming angry and more demanding. The child, over-reading the non-verbal cues of the frustrated and

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angry adult, feels more threatened and moves from alarm to fear to terror. This process may result in children ending up in a primitive "mini-psychotic" regression or in a very combative state. However, the behavior of the child is actually reflecting their attempts to adapt and respond to a perceived (or misperceived) threat.

Regression, a 'retreat' to a less mature style of functioning and behavior, is commonly observed in all of us when we are physically ill, sleep-deprived, hungry, fatigued, or threatened. During the regressive response to the real or perceived threat, less complex brain areas mediate our behaviors. If a child has been raised in an environment of persisting threat, the child will have an altered baseline such that the internal state of calm is rarely obtained. In addition, the traumatized child will have a 'sensitized' alarm response, over-reading verbal and non-verbal cues as threatening. This increased reactivity will result in dramatic changes in behavior in the face of seemingly minor provocative cues. All too often, this over-reading of threat will lead to a 'fight' or 'flight' reaction - and increase the probability of impulsive aggression. This hyper-reactivity to perceived threat can become a major problem in the home and classroom, impairing both social and cognitive development.

2. State-dependent Disruption of Healthy Developmental Experiences

The whole process of development involves the sequential and iterative process of being exposed to new experience, leaving a 'comfort zone,' and ultimately making the once unfamiliar familiar. This process requires activation of the stress response systems; all novel stimuli will cause the stress response systems to activate until the new stimulus is categorized. Simply stated – all development and all learning requires doses of stress activation. In typical, healthy developmental circumstances these tiny doses of stress activation play a role in helping build resilience. Unfortunately, in children with previous developmental adversity, chaos, or trauma, their stress-response systems have become so sensitized that even minor challenges result in major activation; the transition from play to lunch elicits a response that would be appropriate for a serious threat; the whisper becomes a shout, and "not now" becomes "NEVER". The result is a confusing emotional and behavioral over-reactivity that often confuses adults, peers and the child.

The Developmental Window: State Dependence

Terror	
Fear	
Alarm	
Alert	
Calm	

Challenge   Distress   Extreme stress
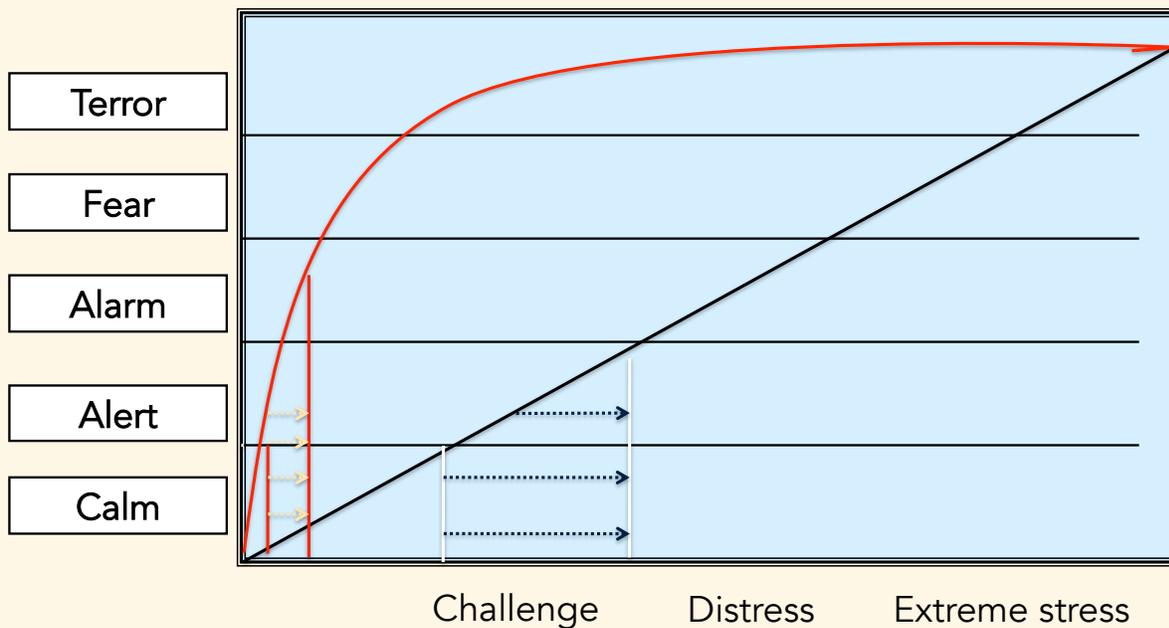
www.ChildTrauma.org   Bruce D Perry, MD, PhD © 2010-2013

Figure 2. The Developmental Window: This figure illustrates two stress-reactivity curves; the black line indicates a neurotypical relationship between the level of external challenge, stress or threat and the appropriate proportional shift in internal state required to adapt, adjust, and cope with the level of stress; with minor stressors, there are minor shifts in the internal state and with major stressors a larger shift in internal state is required. The red curve illustrates the distorted, sensitized stress-reactivity curve that results from patterns of extreme, unpredictable or prolonged stress activation such as is seen in many children from intercountry adoptions. In this case, there is a significant over-activity at baseline and an over-reaction even in the face of relatively minor challenges. All learning – social, emotional, behavioral, or cognitive – requires exposure to novelty; a novel set of experiences that will, with repetition, ultimately become familiar and then 'internalized' or learned. The hatched bars indicate the Developmental Window where enough – but not too much – stress activation occurs to promote optimal learning. Too little novelty would lead to little stress activation and minimal learning, while too much activation leads to distress and inefficient internalization of information.

The major neural networks involved in the heterogeneous stress responses (see above) can become 'sensitized' with patterns of activation that are unpredictable, extreme and prolonged. This pattern of stress activation is common in maltreated and traumatized children – including many children from intercountry adoptions. When this occurs, the major adaptive

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style used by the infant, toddler or child – either the hyperarousal (activate) or dissociation (shut-down) or, in some cases, both styles – becomes over active and overly reactive. The results are profoundly disruptive for subsequent development, as these over-reactions to novelty and stress will inhibit and distort the accurate processing of new experiences even if the new experiences are predictable, consistent, nurturing, and enriching. A major consequence of this sensitization is that it 'shifts' the state-dependence curve and narrows the 'developmental' window (also known as the learning or therapeutic window). Simply stated, in order to acquire new capacities (i.e., make new associations in neural networks), the individual has to be exposed to novel experiences that, in turn, create novel patterns of neural activity. For optimal development (or learning or therapeutic change), this novelty has to have a "Goldilocks" effect – enough novelty to challenge and expand the existing comfort zone (the set of previously acquired and mastered capabilities) but not so much novelty (or demand) that the capacity of the individual to process and assimilate is overwhelmed. When someone has a sensitized stress-response system(s), exposure to any novelty or unpredictability can rapidly move the person from active-alert to a state of fear, thereby interfering with the process of learning. The more sensitized the stress response, the narrower this therapeutic or learning "window" is and the less likely it will be that the child can benefit from typical or even optimal developmental experiences. The end result is a profound frustration from the seemingly endless number of repetitions required for a child to master a concept or learn a behavior. The key to addressing this problem is to ensure that the child is regulated prior to expecting her to internalize any new social or cognitive content. A sense of safety is the key to beginning to overcome the sensitized stress responses that can disrupt development; in turn, the most powerful sense of safety comes from the sense of belonging: being part of a relationship, a family, community and culture. Unfortunately, this is one area significant challenge for many intercountry and transracial adoptees; a core sense of belonging is linked to the fundamental capacity to form and maintain relationships.

Clinical Example

Edith is a 7-year-old Native American girl who was fostered from age 4 by a Caucasian mother and an African American father and then adopted by them at age 6. Key developmental adversities included prenatal exposure to alcohol, marijuana and nicotine. She was removed from her biological mother following severe neglect in the first three months of life and lived in a dozen kinship and temporary shelter care and foster care settings during this time. The biological father was never involved in her life. Episodic efforts to establish and support the biological mother failed and kin (all of them with significant challenges themselves) were unable to cope with the severity of her behavioral problems. During these many placements, Edith experienced additional chaos and trauma, including sexual abuse by an older foster child in one foster home. At the time of entering her ultimate adoptive home (age 3), she was non-verbal, unsocialized and still in diapers. She had severe sleep problems and hypervigilance with a profound behavioral reactivity to any challenge, frustration or transition. Edith demonstrated a set of primitive self-soothing behaviors

including rocking herself, biting and sucking her thumb, rhythmic humming and hoarding of food. Despite her chronological age she was developmentally below the 18-24 month level in most domains (i.e., cognitive, social, motor and emotional) as determined by a set of standard developmental metrics and the Neurosequential Model of Therapeutics Metrics (NMT: see Perry, 2013).

During the first year in her adoptive home (age 4 to 5), a series of early intervention services were initiated; this included an occupational therapy evaluation with sensory "diet" recommendations, a specialized therapeutic day program (trained in the NMT). She required significant somatosensory soothing from caregivers and her foster/adopt parents; this typically involved rocking, swinging, therapeutic massage (multiple times during the day for 8 to 10 minutes). She required a very structured nighttime ritual that involved the use of bathing, brushing teeth, having her hair dried and combed, reading, stories and a 10-12 minute backrub. Despite this she continued to wake during the night several times a week, requiring significant soothing. She was easily upset (especially when she did not have 'control' or when there was an unpredictable change in her routine. These episodes occurred multiple times a day on most days in the beginning but decreased to a rate of several times a week by age 6. The duration of these episodes ranged from 20 minutes to three hours. The carers could not identify specific 'triggers' on most occasions – aside from the word "no" – or "not getting her way." Edith entered public school and left the NMT-trained pre-school setting at age 6. As she got older, the density of the somatosensory interventions was significantly decreased and her parents and school expected her to start to be more responsive to verbal direction, school and household rules, age-typical social activities. She seemed to get worse; the rate of severe episodes increased. Consultation with mental health professionals resulted in diagnoses of ADHD and Oppositional Defiant Disorder and she was placed on a series of medications with no apparent positive impact (as is often the case, these clinicians did not view any of these symptoms through a 'trauma-informed' lens). After a year of continuing severe symptoms and expulsion from her new school, the family consulted The ChildTrauma Academy.

On initial consultation with her family and clinical team (at age 6.5), we viewed this profound over-activity and over-reactivity in regulation as a predictable result of her chaotic, traumatic earlier life (see Table 1 and Figure 1) and related developmental adversities. Her resting heart rate at this time was 120 (significantly elevated and consistent with a child in a persisting high alarm state (see Table 1). In addition, Edith's reactivity (see Figure 1) was such that minor frustrations (such as "no") were able to precipitate major behavioral outbursts; transitions were very challenging. Her ability to benefit optimally from the positive cognitive and social experiences provided in the home and school was compromised by her high arousal and high reactivity. As she

matured cognitively and developed improved communication skills she asked if she "belonged" to mom or to dad and raised other questions suggesting she was beginning to notice that she 'looked' different from both mom and dad.

With this re-framing of her problems, school and family resumed a more somatosensory rich, relationally mediated schedule of activities including a schedule of 10-15 minute hand and neck massages, frequent sensory breaks in school, elements of collaborative problem solving and pairing academic lessons (and therapeutic interactions) with rhythm such as music and motor movement (e.g., walking, rocking desk, jump rope). The medications were discontinued with no observed negative effects. Over the ensuing six months the rate and intensity of 'melt-downs' decreased; she resumed her earlier positive process of catching up in social and cognitive domains. She was capable of talking about her biological family, her multiple transitions and her new family. Key recommendations included re-connecting her with Elders and others in her tribe of origin.   The whole family was encouraged to participate in any tribal activities with the intent of creating meaningful cultural connections that could help her (and her family) negotiate and celebrate the complex and diverse cultural history that will be part of her life.
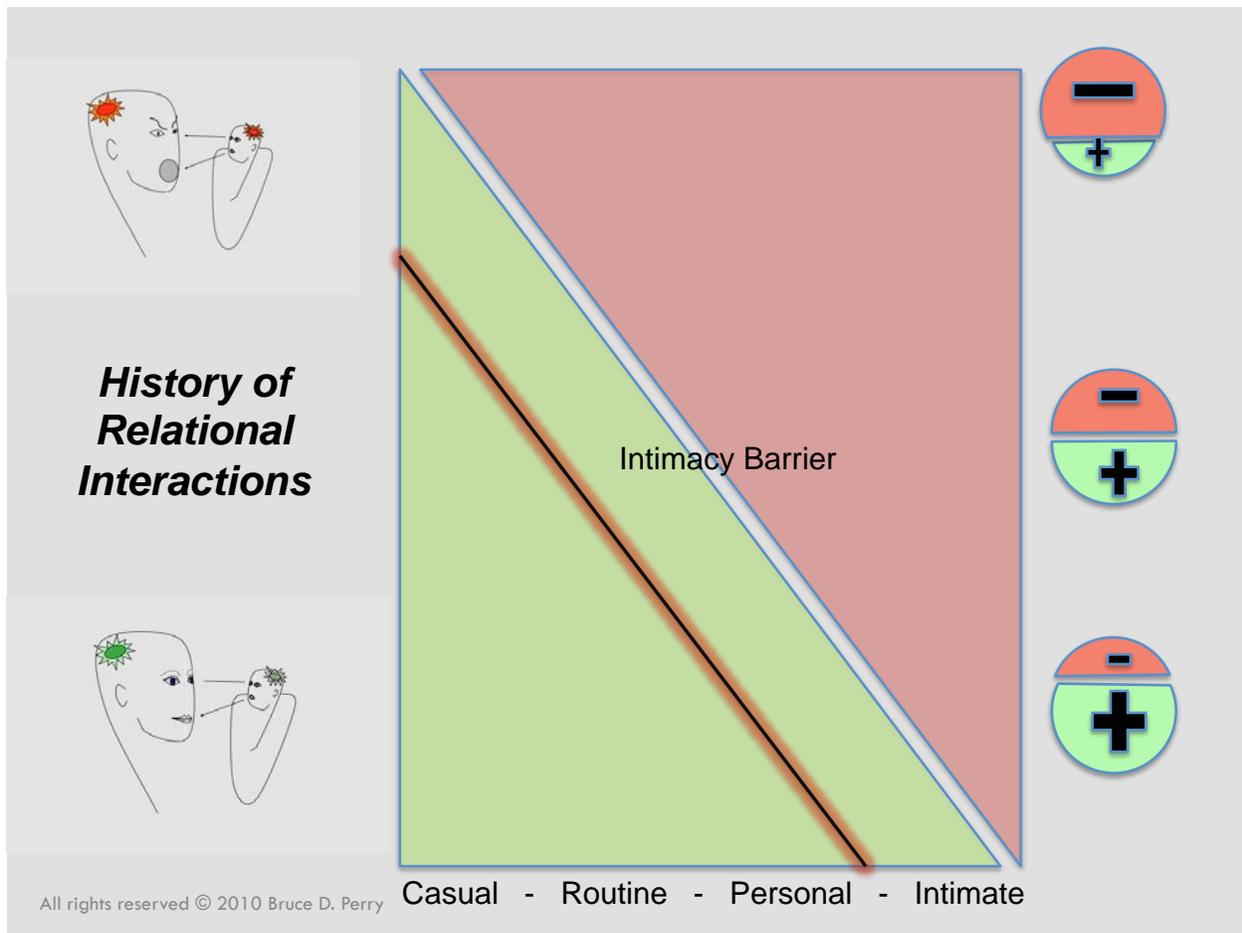

3. The Intimacy Barrier

Humans are a social species. We have survived and thrived on Earth because we can form and maintain relationships to create larger, more functional and flexible biological systems than just the individual – we create families, communities and cultures. Three of the most essential capabilities required for the survival of our species depend upon "relational" neurobiology: the ability to 1) survive, 2) procreate, and 3) protect and support the vulnerable. First and foremost, in order to survive, a human needs other humans. We are born very dependent and rely upon the attention and supports (emotional and physical) of the adults in our lives to survive. The relational nature of our very survival is obvious for infants and children but remains true even into adult life. Survival and a successful life depends upon the capacity to connect, collaborate, coordinate, communicate, and be part of our 'clan.' A single human can never be truly independent; we are once and always interdependent. There are very complex neurobiological systems that mediate this healthy interdependence.   Second, procreation, in turn, is obviously a relational activity that is required for our species to continue. And, finally, there must be some 'pull' for us to protect and nurture those in our family and clan who are more vulnerable and less capable of caring for themselves. There is some complex neurobiological 'pull' that motivates and sustains the exhausted mother as she once again wakes in the night to feed and comfort the crying, needy infant. Tens of thousands of times in the life of each of us, dozens of adults have given us time, energy, attention, and resources that have allowed us to survive and thrive.

These three core 'essential' functional capabilities involve the very same relational neurobiology involved in the core feature of adoption - the creation of a relational connection or bond. Our early experiences with others – especially carers – can shape our relational neurobiology in very powerful ways, both good and bad. When these bonds are characterized by mutual affection and love, the process of adoption is easier; yet many adoptions are complicated by challenges in the creation and maintenance of these loving bonds. For many adopted children, their earliest developmental experiences with parents, caregivers and other adults were characterized by inconsistency, unpredictability and, sadly, confusion, threat, pain, and overtly traumatizing experiences. These experiences can influence the development of the core neurobiology required to form and maintain relationships, thereby making future positive relational interactions more difficult to establish and maintain.

A complex set of associations between the stress response, reward and relational neural networks creates a three-part core of healthy human functioning. This triad of health and resilience is created through thousands of synchronous, mutual, relational interactions in the first year of life (see Szalavitz & Perry, 2010; Tronick & Perry, 2014). Through the patterned, repetitive bonding interactions of the attentive, attuned and responsive caregivers with the infant, sensory integration, self-regulation, relational, and cognitive capacities emerge. Early bonding interactions create core "attachment" capabilities and related relational associations. The fundamental neurobiological capacity to create these bonds is a product of our genetic gifts and how these gifts are expressed is a function of the nature, timing and pattern of relational experiences – especially when we are young.

One of the most interesting manifestations of these primary 'associations' created by our earliest relational experiences is that we will interpret emotions, particularly expressions of fear, in context of our culture of origin (Chiao et al., 2008). The sensory attributes (e.g., skin tone, vocalizations, expressions, facial features) of our family and 'clan' during our early life provide the relational templates through which we interpret all subsequent relational experiences. Thus, the sociocultural context changes a child's expectations for how to interpret their world – particularly signals of fear – and how to know when to come to the aid of a group member. Other research has shown that children have ingroup/outgroup biases, and that children will consider other children who look similar to them to be nicer and smarter than children who do not (Dunham, Chen, & Banaji, 2013; for more discussion of this see Szalavitz and Perry, 2010). This tendency to demonstrate bias is likely related to the long history of humankind's tribalism; throughout history, the major threat to humans was other humans. There was, and still remains, a need for "in group" collaboration to help survive "out group" aggression. The implications for transracial adoption are significant; the adopted individual – even when adoption occurs early in life – may not feel safe or accurately interpret emotional cues in the 'new' group. Basically, they may not feel as if they belong. This sense will be exacerbated if there is a history of adversity that involves security and attachment issues and impaired ability to interpret social cues.

Figure 2. The Intimacy Barrier: As social interactions shift from casual to routinized (e.g., a structured social setting such as a classroom) to more personal and then finally intimate, the individual will interpret the social interaction in context of the 'sensitivity' of their Intimacy Barrier. If the individual had generally positive early life relational interactions (lower "green light" figures), his Intimacy Barrier will be capable of tolerating casual, routine and personal interactions without feeling threatened and activating a defensive set of responses (see Figure 1). If, however, either the personal or 'emotional' space boundary is crossed without permission and a sense of control, even neurotypical individuals feel threatened (see Kennedy et al., 2009).

A useful clinical concept, similar to the concept of personal space in proxemics (see Hall, 1966) is the Intimacy Barrier (see Figure 2). As described above, the set of early developmental experiences with caregiving adults creates an internal catalogue of "associations" with human relational cues (e.g., tone of voice, eye contact, touch) and helps organize key areas of the brain involved in social affiliation and relational functioning, including the amygdala. The size of the amygdala in adult life, for example (a brain area very involved in interpreting and acting on threat related cues), correlates positively with the size and complexity of social networks (Bickart, Wright, Dautoff, Dickerson, & Barrett, 2011).

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If the primary carers were present, attentive, attuned, and responsive, the child creates positive associations between human relational cues intended to convey interest, warmth and comfort. Future positive social interactions with peers, teachers and carers will be regulating and rewarding as long as they do not cross an invisible "intimacy" barrier. All humans have protective 'boundaries' around specific emotional content, such as unsolicited conversation about your weight or sexual behaviors, and physical interactions, such as personal space and sexualized touch (see Hall, 1966).

When this 'intimacy barrier' is crossed without our 'permission' it is threatening. The stress response systems (including the amygdala; see Kennedy et al., 2009) activate, and the individual will engage in protective behaviors; a variety of stress-response strategies may be used depending upon 1) the sensitivity of the individual's stress response system (see Figure 1) and 2) the adaptive preferences the individual may have developed (see Table 1; Perry, Pollard, Blakely, Blake, & Vigilante, 1995). If the individual utilizes a 'freeze/flight/fight' response, when someone crosses this barrier, verbalizations (e.g., raised voice, profanity, threats) or behaviors (e.g., pushing, hitting) may be used to attempt to 'push' the offending person back across the intimacy barrier. If the predominant style of adaptation is dissociation, the child will avoid social interactions. If this is not possible, the child will passively disengage. It can be very confusing for peers, carers, and educators when their intended nurturing behaviors and words are met with either overt hostile and aggressive behavior or indifferent and dismissive attitudes.

For individuals with early life relational history of inconsistent or abusive care (all too common in intercountry adoptions), the set of relational associations created will 'push' the intimacy barrier out further than with 'typical' individuals (see the top set of figures with the "red light" in Figure 2). A person with a high degree of 'relational' sensitivity will often misinterpret neutral or positive social interactions from peers as threatening and respond by either avoiding or disengaging (which leads to problems with social learning and peer interactions) or, worse, by using aggressive, hostile or hurtful words or behaviors to push peers, teachers and parents away. In extreme cases, as the child grows up, this relational sensitivity can result in significant anti-social or even assaultive behaviors. For example, individuals in prison (90% of whom have histories of interpersonal trauma in childhood) have a much larger sense of personal space than the average person (Wormith, 1984), and will often respond to personal space violations with aggressive and violent behaviors.

Clinical Example: Relational Sensitization

Thomas is a 14-year-old boy adopted from an Eastern European orphanage at age four by a family in the United States who had two older biological children (9 and 12 at that time). In the first year in the US he was noted to be in good physical health and seemed shy and somewhat overwhelmed by his new home but there were no major behavioral problems. He was somewhat touch defensive (although he would occasionally spontaneously seek physical affection from his mother). From age four to six, his family provided much developmental enrichment with the intention of helping

Thomas transition to a new country, new language, and new home. He had a language tutor, many 'developmental' toys and video programs that he seemed to enjoy (possibly too much). He continued to be aloof to social engagement, had poor eye contact and frequently rocked and quietly hummed when he was in social situations. The family viewed him as quiet and shy. His preference was to watch his 'developmental' enrichment videos or play educational games on the computer. He was indifferent to peers in free-play situations and actively resisted their attempts (or adult encouragement) to socialize. His only major behavioral problems occurred when he was forced to stop his video games or when another person (adult, sibling or peer) attempted to re-direct his self-absorbed play. He was able to simply tune out verbal direction or interactions when he was engaged in an activity.

When in social interactions such as playing a game with a sibling his behavior and mood were appropriate as long as he was in control - the game was of his choosing; he could change the rules to suit him; he could order his partner around (and the partner would comply). Initially the siblings and parents tolerated this style of play. As he grew older, however, their efforts to teach him to share or follow the rules of the game precipitated odd and disruptive behavior (e.g., screaming, holding his hands over his ears and rocking). When adults attempted to stop this, he would become very aggressive - biting, kicking, crying and hitting. If left alone, these odd behaviors would last between 10 and 15 minutes, after which he would seem 'fine' and act as if nothing had happened. When an aggressive episode was precipitated it would take over an hour to get back to baseline.

Thomas entered school at age six. A long-lasting and serious deterioration ensued and his developmental progress plateaued. The episodes grew in frequency and intensity (as the social environment and relationally-mediated demands of the teachers, aides and carers increased). If left to his own devices his behaviors were odd but acceptable; he would make academic progress but in a pace and direction of his own choosing. He responded to imposed structure, re-direction and any physical proximity with a profound meltdown; when the teacher or staff attempted to physically withdraw him from the class (or physically comfort him) he would get aggressive both verbally threatening and physically attacking them. He was expelled from school after school. Behavior at home deteriorated as well; he began to threaten his mother, especially when she attempted to be comforting or nurturing. Over time the family felt as if they were "walking on eggshells" – never knowing what would trigger Thomas and when he might have an aggressive meltdown.

A long history of failed placement at specialized schools, multiple mental health assessments, a parade of diagnoses (over 12 DSM diagnoses were assigned to him by various clinicians by the age of 13; more than 20 medications were used during this time, many simultaneously administered), and ultimately admissions to psychiatric hospitalizations and placements at residential

treatment centers ensued. Along the way, any observed progress was short-lived. He was maintained in a series of out-of-home placements from age 8 to 14. At age 14 his treatment team consulted The ChildTrauma Academy.

Review of his history resulted in a re-formulation of the traditional mental health perspective to a developmentally sensitive and trauma aware view. Among other core issues (he did demonstrate sensitized dissociative and hyperarousal behaviors: see Table 1) was a profound relational sensitization. Physical and socio-emotional interactions that might be considered 'typical' and tolerable to most people were essentially evocative cues to him (see Figure 2 and text on the Intimacy Barrier). These well-intended social and physical interactions provoked very reactive responses (see Table 1 and Figure1). When the staff and family learned more about these processes and created parallel, predictable, patient and regulated interactions where Thomas was given control over the frequency and intensity of intimate social and physical interactions, the number of aggressive episodes decreased and ultimately stopped. With a combination of regulating and relationally mediated educational, therapeutic and enrichment experiences, Thomas made significant progress over the next six months and was able to return home with special in-home services supported by a developmentally-informed school.

The tragic reality is that the maltreated child desperately wants to belong, to be loved, and to be connected; however, personal and intimate interactions elicit fear not comfort. Unless the child initiates and controls the interactions, he or she will feel threatened. And, if the child also has a sensitized stress response system, even small 'violations' of the emotional or personal space can result in extreme behaviors – including threats to kill or injure the parent.

The irony is that the more nurturing and 'loving' the behaviors, the more overwhelmed the child feels. These children rarely threaten to go kill a stranger – they threaten to kill the people or person who has been most caring and nurturing. Further, when the threatened adult leaves or attempts to disengage from the disturbing interaction, the child (even as they say they hate the caregiver), will follow the adult and become even more dysregulated. This is likely due to the fact that they are not just sensitized to relational intimacy; they are sensitized to unpredictable abandonment. They want carers present, but not too close; and, if physical or emotional intimacy is to be introduced, they want to be in control. They want to play the game their way; they want to get a hug when they want it; they want to talk about something overwhelming when *they* bring it up. The primary clinical strategy is to be present, parallel, patient and persistent – a much easier thing to say than to do day in and day out with a challenging child. The consequences of this complex and somewhat distorted set of relational associations can be destructive for the creation of the mutual loving bonds required for successful adoption.

These complex interpersonal dynamics are complicated by the additional challenges posed by being from "different" – by virtue of ethnicity, race, culture or country – than the adoptive family. Adopted children "will likely simultaneously occupy multiple positions within the socio-cultural-political and structural fabric of society" (Ortega & Faller, 2011, pp. 31). These intersecting group memberships will likely affect quality of life given that adoptive children may struggle more than other children to form an identity, particularly during adolescence, and that they may feel conflicted between identifying with a culture that feels "right" or "natural" and the culture in which they are raised. Bicultural children have been shown to arrive at self-judgments by using different parts of their brain when primed by stimuli associated with one culture versus stimuli associated with another (Chiao et al., 2009); transracial children are often balancing multiple views of themselves and trying out which self-representations are most adaptive in which environments. Despite the fact that this balancing and fluctuating may be ultimately adaptive, it is likely stressful and adds complexity to the social experience. Teasing and bullying by peers may be increased and further confirm that the world the child lives in is not safe or that the child may not express certain parts of themselves in certain environments. Children may even feel reluctant to share these experiences with their adoptive parents given the perceived stress it might cause their family (Docan-Morgan, 2011).

Children are more adept at detecting emotional cues of people with similar backgrounds (Chiao et al,. 2009), suggesting that children primed to be hypersensitive to threat may increasingly misread signals from unfamiliar cultural groups and potentially perceive threat when it doesn't exist. Just as institutionalized children have been described as having to learn English as their "second first language" (McCarthy, 2005, p. 9) given that they have language deficits in their native language and then are asked to learn a new language once arriving in the United States, children who have been transracially adopted may have similar struggles when "reading" emotional cues. Their ability to naturally interpret both threat and relational cues may be impaired due to a history of trauma, neglect, and/or institutionalization, and this impairment is exacerbated by difficulties interpreting facial expressions of unfamiliar racial or ethnic groups. Challenges for these children their families under these circumstances can be considerable; the question remains what can we do to help?

What can Caregivers and Professionals do to Help?

One of the most important things we can do is give families hope; ultimately, 90% of adoptive parents of institutionalized children are pleased with their decision to adopt and would consider adopting again (Pearlmutter, Ryan, & Johnson, 2008). The vast majority of intercountry or transracially adopted children will make significant developmental progress when provided with attention, enrichment, nurturing, and developmentally informed early intervention services. Improvement in cognitive capabilities is seen in foster care and following adoption (Nelson, Zeanah, Fox, Marshall, Smyke, & Guthrie, 2007). Many intercountry adoptees receive early intervention services; this may account for the observation that some internationally adopted children may not be at greater risk of developmental adversity than domestically adopted children (Juffer & van Ijzendoorn, 2005). The Bucharest Early Intervention Project (BEIP) was designed to understand how effectively early cognitive deficits can be

remediated (Zeanah et al., 2003), and followed 200 children from birth. Some remained in institutions and others were placed into a foster care system that was created by intervention developers. The average age of placement in foster care was 21 months. The study also employed a control group of children raised with biological parents. Results indicated that foster care led to increased IQ and scores on developmental screeners compared with the children who remained institutionalized. However, both groups performed more poorly than children raised with biological parents. Results also showed that results were best for children who were removed at earlier ages. Similarly promising outcomes have been found in other studies (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2008; Vanderwert et al., 2010).

Adoption has also led to improvements in cognitive functioning (van IJzendoorn, Juffer, & Poelhuis, 2005) compared to non-adopted biological siblings. Findings have suggested that adopted children's cognitive abilities may "catch up" to environmentally matched peers following adoption. Yet, regardless of increases in IQ and performance superior to non-adopted siblings, institutionalized children consistently performed less well in school than environmentally matched peers and had an increased prevalence of learning disorders. In short, special education services remain indicated for institutionalized children many years post-adoption, despite post-adoptive gains in cognitive functioning. Again, gains in IQ can occur irrespective of gains in social, emotional, and behavioral domains – and difficulties in these domains can mask cognitive gains. What is perhaps most difficult for caregivers to do is to understand why their child functions well in one domain and poorly in another, or well in one context in a certain domain and not another. This patchwork of developmental strengths and weaknesses can be confusing and frustrating, especially when emotional age does not match the child's cognitive or developmental age (see Perry, 2009).

Finally, a fundamental ingredient of all successful development is a sense of safety. For the child from a transracial or intercountry adoption this can sometimes be elusive; the potential trauma-related factors discussed in this chapter can certainly make this difficult. However, even without significant trauma-related issues, there often remains a sense of being different or in some ways an outsider.

This sense of 'difference' can be powerful and painful for the child. Children growing up in transracial households may constantly feel pressure to acculturate and adopt cultural norms that are not their own. Helping the child learn about their country and culture of origin is important, as well as allowing and encouraging peer and mentor relationships with other children who share similar racial, cultural or ethnic backgrounds as the adopted child (e.g., Ortega & Faller, 2011). Simply being in a parenting or caregiving position confers power, and self-reflection and cultural humility is important to model in order to create a climate of acceptance and respect that can help children feel fully embraced (Tervalon & Murray, 1998). Family members who are equally interested in learning about, respecting, and, in some cases, adopting their child's cultural norms and traditions – even if the child is still learning those norms and traditions– could decrease stress on the entire family system. This can occur if family members are motivated to "instill the practice of adopting the client's values as their norms" (Fong, 2001, p. 5) in an effort to create a safe and inclusive environment that promotes the child's healthy development.

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