

Attachment and Context: Evolving Perspective in a Clinical Realm

Monisha Akhtar, Ph.D. and Sumedha Gupta Ariely, Ph.D.

INTRODUCTION TO ATTACHMENT

The role of attachment is central to the understanding of human development. The clear patterns of distress in seven to nine month old babies almost everywhere when separated from caregivers suggests there are universal features to the strong affectional and adaptive ties characterizing attachment. Building on Freud (1940/1964), Erikson (1963), Lorenz (1981) and others' emphasis on the importance of maternal-child bonds as the basis for adaptive survival and then later relationships, John Bowlby, conducted seminal studies of homeless and orphaned infants and their relationship to their caregivers, which served to fuel substantial research on attachment behavior and its patterns. Combining a variety of perspectives, from ethological, information- processing, systems control and psychoanalysis, these studies have contributed to a growing body of literature that examines how mothers and infants develop attachment bonds as well as the impact of these bonds on long-term social adjustment and interpersonal relationships. At the heart of this research is Bowlby's initial formulation of an infant's desire to be proximally close to its mother. Subsequent to Bowlby's initial findings, Mary Ainsworth and others (Ainsworth et al, 1978; Main, 2000) elaborated upon different patterns of attachment between mothers and infants. Ainsworth's observations conducted first on Ugandan Infants (Bowlby, 1969/1982), then predominantly on American children, led to the categorization of attachment into healthy (secure attachment) and unhealthy or maladjusted (insecure or disorganized attachment) patterns. The subsequent vast development of studies on

attachment theory began to draw a link between vulnerable and marginalized children to insecure attachment (Spitz, 1945, 1946;) and long term impaired social adjustment. The infant's capacity to develop 'secure attachment' was increasingly seen as being quintessential to healthy development.

As might be expected, in addition to postulating normative attachment patterns, research on the devastating impact of institutionalization on orphaned and separated children (OSC) pushed for policy interventions, especially as global concerns regarding the fate of orphaned and neglected children continued to increase. Buttressed by a growing body of literature on attachment, longitudinal studies of orphaned institutionalized children, worldwide, began to emerge. Their findings painted a rather dismal picture of the long term adjustment of these children (Dozier, Zeanah, Wallin & Shaffer, 2011; Spitz, 1945, 1946, Zeanah, Smyke, Koga, & Carlson, 2005;). Significant distortions in affect regulation and affectional bonds with resulting impairments in exploration, learning, and psychological growth were reported. For the most part, this research was conducted on children of European heritage who had been institutionalized under severely neglected conditions. Guided by the overarching model of 'secure attachment' and its positive impact on long-term adjustment, these researchers advocated for and promoted more universal guidelines of healthy attachment behaviors (Dozier, Zeanah, Wallin, & Shaffer, 2011).

Researchers also examined the physiological effects of institutionalization as it pertained to the background of the children in the institutions (Dozier, Zeanah, Wallin, & Shaffer, 2011). Children coming from traumatized backgrounds including, disrupted attachment, sexual, physical and emotional abuse, and other grief and loss histories were often predisposed to impaired pituitary gland functioning which played an important role in their development (Dozier, Zeanah, Wallin, & Shaffer, 2011; The St. Petersburg-USA Orphanage Research Team, 2008). The emerging picture of attachment continues to illustrate the complexity of variables involved in the development of attachment bonds and later psychological impact. Within the global context, this picture became even more nuanced when sociocultural contexts were introduced into the clinical picture.

ATTACHMENT, PSYCHOANALYSIS AND SOCIOCULTURAL CONTEXT

Despite Bowlby's significant contributions, psychoanalysts for the most part remained rather distant from attachment theory and its findings for many years (Marrone, 2014). With advances in contemporary psychoanalytic theory and technique however, and growing recognition that trauma and early disruptions in attachment has a profound impact on the developing mind, (van IJzendoorn et al., 2011) analytic inquiry examining points of convergence and divergence between these two theories began to emerge (Fonagy, 1999; Levy & Blatt, 1999). Today, informed by both psychoanalytic case studies and developmental research, the nuance and complexity of the infant-caretaker relationship continues to expand to include the intergenerational transmission of attachment patterns (Fraiberg, Adelson, & Shapiro, 1975; Steele, 1990) lending further credence to earlier observations of the critical role of the caregiver's emotional attunement with the infant in the development of attachment patterns. The infant's relationship with a caregiver can be jeopardized for a variety of reasons (from neglect to abuse, to loss of caregiver, abandonment, parental mental illness, etc.). Parents' own working models of attachment should theoretically influence caretaking sensitivity and responsiveness, in turn effecting child attachment security. Research studying caretaker's state of mind and parental attunement (Slade et al., 2005; Steele et al., 2003; van IJzendoorn, 1995) has found general support for the intergenerational transmission of attachment, though the mechanisms through which that transmission occurs and the long-term repercussions are still uncertain (Slade, et al., 2005; Cassidy, Jones, & Shaver, 2013).

The implications of this type of research for child clinical work and OSC policy can be profound (Steele et al, 2003; Department of Health, 2002) and may have helped give momentum to the global push for de-institutionalization of OSCs. Undoubtedly, the variety of factors thought to be important to secure, insecure, and disorganized patterns of attachment such as stress in the rearing environment, adult sensitivity and responsiveness to child, and parenting styles within a group can be

sub-optimal in orphanages and institutions. However, it is not clear that the other family care environments that OSCs worldwide have access to are systematically better (Whetten et al., 2014). The lack of empirical clarity on how predictive early ecological contexts are to later development or in what ways they lead to specific consequences have made policy prescriptions in the global context especially difficult. For example, while caregiver sensitivity to distress seems clearly important (e.g., Diener, Nievar & Wright, 2003; Kochanska & Kim, 2013; McElwain & Booth-LaForce, 2006), only modest relationships are often found between sensitivity or caregiving style and attachment security (De Wolff & van IJzendoorn, 1997; Madigan, et al., 2006). Likewise, if attachment is thought to be an internalized working model of life experience, it stands to reason that on-going changes in circumstance should influence internal attachment models and external behaviors.

Evidence that attachment styles can vary across time and situations (Baldwin et al., 1996; Gillath & Shaver, 2007) supports an ethological and constructivist approach to development and highlights the fact that many factors can link rearing environment to attachment security and long-term developmental outcomes. Furthermore, while categorization of mother-child attachment patterns as developed by Ainsworth show remarkable commonality across cultures (Behrens, Hesse, & Main, 2007; Posada et al., 1995; Posada, 2013), there are clearly important variations across and also within cultures (Rothbaum et al., 2000, 2001; van IJzendoorn & Kroonenberg, 1988; Keller, 2013;) that make the psychological significance of what interactions patterns imply or how they can be used to predict future functioning as yet indeterminate. The factors that lead to caregiving sensitivity or ‘harmonious relationships’ a la Ainsworth are also likely different depending on what values and socialization traits are idealized within a cultural or family group (Carlson & Harwood, 2003; Rothbaum et al., 2000; Valsiner, 1989). Thus, whether or how inter and intra group variations in the categories of secure/insecure/avoidant/ disorganized attachment behaviors across groups lead to mal-adaptation remains a central question for clinicians, policy makers, and researchers. Elaborating on this primary question, Harwood, Miller and Irizarry (1995) in their book “Culture and Attachment” write:

the mental health meanings of certain behaviors must be examined in the context of larger environmental demands, as well as differences in parental behaviors and socialization goals. Ontogenetic adaptations may have culturally specific relevance and the meanings of those adaptations can therefore be evaluated only in the context of their fit with the larger family and sociocultural settings. (p. 14)

These authors go on to identify two major approaches to a cross-cultural study of attachment behavior in the scientific community. The first approach focuses on “cultural adaptationism” (Keesing, 1981, as cited by Harwood, Miller, & Irizarry, 1995, p. 21) which emphasizes the socializing context of the child serving as the eco-system in which the “physical environment, modes of production, social organization and belief systems are all viewed as functionally interdependent and coexisting in an adaptive equilibrium” (p. 22). Expanding on this approach, Whiting and Edwards (1988) provided an extensive cross-cultural study of the child in which they examined maternal profiles in six cultures and noted differences in maternal control and training to accommodate varying sociological and ecological constraints. As argued above, this supports a general constructivist approach to development (Valsiner 1989; Vygotsky, 1978) in which children and their caregivers fashion a range of relationship types depending on environmental demands, life circumstances, and individual strengths, weaknesses, and histories, and those relationship types serve adaptive functions, leading to relatively defined positive or negative pathways and outcomes.

The second approach to the cross-cultural study of the child focuses on the “centrality of symbolic meaning systems for understanding and interpreting human behavior” (Harwood, Miller, & Irizarry, 1995, p. 24). This approach believes that meaning is constructed through a mutual cultural system, with language being a significant symbolic indicator. These two approaches to cross-cultural studies of attachment have important implications for investigating attachment behaviors in institutionalized children in a developing world. Investigative efforts can be directed to understand how children placed in institutions adapt and

function in general (as in their attachment to key figures in their life) as well as understanding through qualitative explorations of case studies, the complex interplay of social and emotional cues and language in their attachment styles. Both approaches provide valid avenues for the exploration of context specific attachment styles in such children.

With this foundational basis, the ongoing longitudinal research on orphaned and separated children (OSC) in a low-middle income countries (LMICs) provides data to examine impact of context on the organization, function, and development of attachment patterns in a vulnerable population. Including the role of a variety of child care providers and significant others, such as mentor mothers, who serve as volunteers in the immediate environment, also continues to appropriately expand focused study of attachment from a primary attachment figure to configurations that involve multiple attachment figures.

Examining the complexity of attachment bonds in a social context involving multiple parenting models, Keller (2013) provides an alternative explanatory model to account for cross-cultural variations in attachment styles and its relation to later outcomes. According to Keller (2013), the original definition of attachment as an emotional bond between an infant and his or her caregiver(s) is “rooted in the conception of the self as a separate individual and a mental agent who ‘owns’ cognitions and emotions that are distinct from those of others” (p. 185). Keller (2013), along with others, stress that from both anthropological and cultural psychological accounts, there is considerable evidence that different cultural ecologies result in different views of the self with resulting consequences of perceptions and experiences of attachment relationships. Keller (2013) further stresses “mind-mindedness” (p. 185) as a quintessential recent phenomenon of the Western world. Expanding on this, she writes, “it is related to the ‘inward turn,’ which is seen as a consequence of the decline of fixed traditions and the loss of power of societal institutions. Thus, as a consequence of the ‘disembedding’ of society’s ways of life, identities can no longer be defined to the same extent by social group membership” (p. 185).

Keller (2013) states that co-constructed, communal, and hierarchically organized relationship patterns may be more representative of

Non-western cultures where multiple caregiver arrangements are normative and culturally syntonetic with child rearing.

While there seems to be stability across attachment categories cross-culturally, this does not mean that attachment insecurities as identified in some groups necessarily leads to negative outcomes or psychologically has the same meaning in different sociocultural contexts. Early attachment researchers have always acknowledged that children can use multiple attachment figures as a secure base (Ainsworth & Marvin, 1995; Bowlby 1969/1982), and that children can form selective attachments to multiple persons. One aspect of the current debate centers on whether the quality of attachment to a principle person (most often, but not always the mother) differs from that of other attachment figures. Likewise, questions persist as to how to measure and understand which relationships with multiple persons are meaningful attachment relationships going beyond superficial interactions, even if they are habitual, to create lasting psychological impact.

Conceptual questions also persist around the ways in which multiple attachment figures coordinate together in influencing on-going development and psychological outcomes. Examples of models include: monotropy or hierarchy of attachment, a la Bowlby, in which a primary figure is preferred and has more critical psychological influence, an integrated model of attachment across multiple figures in which all coalesce into a general representation with no one figure necessarily more important than another, and an independent model, in which different attachment figures can differentially influence outcomes (Bowlby, 1969/1982; Howes & Spieker, 2008; van IJzendoorn, Sagi, & Lambermon, 1992). Evidence for all three models is found in the literature depending on what outcomes are focused on and which care providers are included. There is also the possibility that combinations of these models are available to be employed.

Whether or how multiple attachment figures are organized to help construct on-going functioning could depend on the internal characteristics and ecological supports and challenges experienced by the individual child. Given the socio-ecological complexity and human systems' plasticity, it is not surprising there is difficulty in systematically

predicting child and adult developmental outcomes (cognitive, emotional, and relational) from attachment classifications. Theoretical models helping to structure how and why different types of social relationships meaningfully influence immediate and later psychological functioning are still needed.

The tendency to give prescriptive policy recommendations, for example, on housing options for OSC, based on notions of the primacy of certain types of attachment structures and without careful formulation of positive or negative outcomes as they emerge in diverse global settings, makes building a literature on culturally sensitive formulations of what constitutes adaptive attachment in different social contexts a critical goal. This paper describes work on attachments in a vulnerable population. In examining the care and psychological needs of institutionalized children in a LMIC country, we see the continued need for ecologically sensitive discourse on the normative and prescriptive aspects of attachment theory as it relates to institutionalized children and vulnerable populations.

INSTITUTIONALIZED CHILDREN IN A SOUTH ASIAN CONTEXT

The picture of attachment in institutionalized children in the developing worlds is a complex one. It is generally believed that children raised in institutions suffer long term from a variety of social and behavioral problems, though level of negative consequences and ability to recover depends on the type of orphanage and pattern of immediate and later developmental experiences (Dennis, 1973; Hodges and Tizard, 1989; Wolff et al, 1995; Groark et al, 2005). The literature regarding these issues in the developing world, however, is still sparse. For the most part, findings from Western driven explorations of children raised in institutions have provided the foundational structures on which several non-Western countries have designed and implemented programs for the OSC population (Bailey, 2012). These studies attest to the increased incidence of psychological and psychiatric disturbances in institutionalized children (Beckett, Maughan, Rutter, Castle, Colvert, Groothues et al., 2006;

van IJzendoorn et al., 2011; van Londen, Juffer, & van IJzendoorn, 2007). From difficulties in developing intimacy, to cognitive difficulties, to problems in the child's social and emotional development, the list of psychological problems is extensive. Several research studies exploring the long-term impact of institutionalization on the developing child conclude for the most part that a home environment, whether it be through foster care or adoption remains the best alternative for vulnerable children (van Londen, Juffer, & van IJzendoorn, 2007). It is important to note that studies currently following OSCs in LMICs have begun to provide information suggesting that institutionalized OSCs in these settings do not necessarily differ from OSCs raised in families, when assessed on various measures of cognitive, emotional, and social functioning (see Whetten et al., 2014). However, these large, multi-country, longitudinal studies remain few, and more studies in the same vein are needed for comprehensive understanding of policy implications for the institutional world.

Unfortunately, the foster care and/or adoption models found in the West that are often presented as better options for institutionalized OSCs in LMICs, are far from ideal themselves, and are clearly not readily available or practical in resource constrained societies which have the largest and growing number of orphans in the world. More specifically, the number of orphaned children in India continues to grow at an alarming rate. In 2014, the "Institutionalized Children: Explorations and Beyond" journal was launched to publish articles pertinent to the care and management of vulnerable children in the core countries that form the South Asian Association for Regional Cooperation (Afghanistan, Bangladesh, Bhutan India, Nepal, Maldives, Pakistan, Sri Lanka). A disproportionate number of orphaned children and adolescents live in these countries, either in institutions or on the streets. They remain at risk for sex trafficking, for juvenile delinquency, and for other forms of abuse and neglect. When a form of disability enters the picture, the findings are even grimmer.

It is a growing imperative for the global psychological and psychoanalytic community to understand the care and management of these children within their cultural contexts so that best practices of care can

be developed and implemented to ensure long-term adjustment and healthy functioning. Given the regional basis of this journal, the implications for cultural systems impacting attachment patterns is of significant concern as many of these countries are steeped in cultural practices with widely varying parenting and familial patterns and societal issues (Kakar, 1993, 1996) that may not necessarily be predictive of our commonly held assumptions for healthy attachment outcomes. It is imperative that an eco-centric discourse enters the psychoanalytic attachment field so that culturally sensitive patterns of care and management can be examined and explored.

CASE STUDY

The variables of culture, gender and caregiver take on different forms and become more complex in an institutionalized setting where girls and boys as orphans are raised in separate homes. The following case study illustrates how these variables interact and can be understood in an orphanage setting in New Delhi, which houses approximately two hundred boys and girls.

Udayan was established in 1994 to provide institutional care to girls and boys between the ages of five and eighteen. The orphanage, through Udayan Ghars Programmes and Aftercare Services, has evolved as a family-type regulated support system with long-term mentors, to help children transition from institutional care into independent living. Udayan Ghars operate on a Living in Family Environment (L.I.F.E.) model in which they create familial relationships, consistent living circumstances, and social/educational support systems necessary to move towards independent adulthood. This model developed out of a carefully researched model of group foster care. Its primary objective is to recreate the warmth and security of a home and family for orphaned children. Small groups of children, usually twelve in number and of the same gender, live in home like settings, which are located in community settings. Udayan's childcare model is based on the principles of familial relationships, consistent living circumstances, and a social/educational support system and care planning. Children separated by age and gender

live in homes in the community and are nurtured by mentor mothers who as lifetime volunteers, serve as consistent attachment figures. In addition, each home has at least two caregivers who provide twenty-four-hour supervision and contact for each child. Udayan homes also have long-term leases and maintain a consistent standard of living. Education is also an important part of each child's life. Since the homes are established in middle class localities, the children attend the schools of their community. Educational achievement is viewed as an essential prerequisite to later social adjustment and prosperity in life.

Despite the orphanage's obvious intent to provide the best 'family like' environment for these abandoned and neglected children, a variety of problems were noted in the children, especially as they approached their adolescent years. These problems ranged from self-mutilating behaviors, to depression, excessive anxiety, running away, aggressive behaviors and a failure to adhere to group norms and requisites. In addition to a series of mental health workshops to address the educational needs of the social work staff, a research pilot project was also initiated in 2012 to examine the attachment bonds in these children. Attachment in about thirty children, ranging in age from 5 to 18, was examined using a variety of attachment measures in conjunction with measures of trauma, ego-resiliency, self-concept and psychopathology. One of the preliminary findings from this pilot study (Dyette & Nayar-Akhtar, 2015) suggests that institutionalized children develop stronger bonds of attachment to peers versus their attachment to mentor mothers and caregivers.

In 2014, a longitudinal study was initiated using a subset of measures from the pilot study, examining attachment, self-concept, trauma, depression, and psychopathology in a larger sample. The project was developed primarily to help Udayan Care better understand the psychosocial needs of the orphaned and separated children and young adults within their care and improve services (Ariely et al, 2015). The following describes a summary of some of the findings obtained during the 2014 and 2015 data collection period. By examining mental health profiles of children and caretakers over time, we highlight the need for understanding physical and mental health changes longitudinally and for

considering the biopsychosocial forces that present strengths and challenges in vulnerable populations.

METHODS

PARTICIPANTS.

The summer 2014 and 2015 project focused on eleven of the thirteen Udayan homes spread across Delhi, excluding the two homes in Jaipur and Kurukshetra. After taking into account two subject characteristics, age and gender, a randomized subset of the 143 children living in these eleven homes was used to select a sample of 81 children. All children in the youngest age group (ages 5-8) were included in the sample. In addition, Udayan Care has almost double the numbers of girls than boys, but staff felt it important to have more comparable numbers represented across gender, therefore the sample recruited more boys proportionally to their total numbers. Approximately half of the children from each home were represented in the final sample. Of the eleven homes, four were boy's homes and seven were girl's homes. Depending on home size and resident capacity, each home had one to two caretakers who resided with the children, and one to two mentor mothers who were established members from the broader Delhi community and provided guidance, financial support, and motivational mentoring to the homes. More than one child usually shares a mentor mother, whom they see on a weekly basis, and whose role is to inspire Udayan Care children to see the opportunities that lie outside the residential care home, reflect on future hopes, and motivate them to aspire for achieving goals. The resident capacity of the homes varied, ranging from 7 - 20 children, with most serving approximately 12 children. Home assignments are determined by availability, location of a home closest to where a child was first brought for services, and accommodations needed given a child's educational and mental health background.

Table 1 provides general sample characteristics and numbers of children participating across 2014-2015 and those for whom longitudinal analysis across both years is possible.

Table 1:
Numbers of Participants A 14 Across Two-Years of Data Collection

Sample Descriptors	Total across 11 Delhi Homes	2014 Sample	2015 Sample	Two-year Longitudinal Data Presented Here
Number of Children	143	89	82	75
Females	99	52	51	46
Males	44	37	31	29
Age 5-8	14	12	14	8
Age 9-12	61	36	22	21
Age 13-17	68	41	46	46
Alumni and Aftercare young adults (Age 18- 29)	≈40	6	32	N/A

CONFIDENTIALITY

The project was approved by the IRB at Duke University and by the Udayan Care Board. All Udayan social workers and study staff were participants in developing and implementing confidentiality over the full duration of data collection. Information gathered during the interviews were recorded on paper copies of the measures, without audio or video recordings. Participant's responses to measures were only identifiable via randomized identification numbers. Physical survey data and consent forms were secured in approved locked cabinets. While data was being gathered and stored, interview sheets were kept separated from the consent forms and any other identifiable information to help maintain anonymity of participants. Once all data was entered, all response sheets were burned. Electronic data and master code sheets were stored on password protected encrypted computers. Informed consents were brought back to Duke University in Durham, North Carolina to keep on file.

MEASURES AND PROCEDURES

Data was collected between May and August in 2014 and 2015 in each of the eleven Delhi homes. Time for data collection at each home ranged from one to three days and an average of four participants were interviewed per day. Individual interviews with study participants were conducted in a private, secure room in each home. Udayan Care social workers helped schedule and oversee data collection. The team applied measures, used by Udayan Care and the 2013 pilot study, and supplemented additional constructs as resource and time constraints allowed. The selected questionnaires used in 2014 and 2015 were piloted, translated and back translated both in the United States and on the ground in India. Language and potential cultural and contextual issues with measures and constructs are of particular importance to this work and are of particular interest to the authors. The team spent considerable time consulting over wording and construct development of the instruments, noting areas where constructs may not transfer to the Udayan Care context. Discrepancies in translations and construct understanding were discussed and checked on an ongoing basis, and if possible resolved.

Table 2 lists the measures used across six mental health constructs, though our discussion here will focus on attachment in ages 9-17 via the Inventory of Parent and Peer Attachment.

Table 2:
Whole Sample Constructs and Measures Used in 2014 and 2015

Constructs	Measures
Self-concept	Piers Harris Self-Concept (age 4+)
Attachment	Randolph (age 4-8) Inventory of Parent and Peer Attachment, IPPA-R (age 9- 17)
Trauma	Trauma Symptoms Children's Checklist TSCYC (age 4-8); TSCC (age 9+)
Ego-resilience	Devereux Student Strength Assessment, DESSA (age 5-11) Ego Resilience Scale, ER-89 (age 12+)

Depression

Center of Epidemiological Studies Depression Scale for Children, CESD-C (age 6+)

Psychopathology

Childhood Psychopathology Measurement Schedule, CPMS (age 4+)

Resident caretakers filled out measures for children younger than nine, and those nine and above answered questionnaires for their age group in interview format. Children were invited to ask questions as they arose. If the interviewer felt that the child did not fully understand a question after further explanation, the social worker was brought in to clarify any misunderstandings. The measure employed for assessing attachment in children nine and above was the Inventory of Parent and Peer attachment revised (IPPA-R). The IPPA-R is a self-report measure of attachment (Armsden, 1986; Armsden & Greenberg, 1987; Armsden et al., 1991) developed to measure a child's attachment to their parents and close friends and designed to assess the cognitive and affective dimensions of how these social others support psychological security. Three attachment qualities are assessed: degree of mutual trust, communication quality, and degree of anger and alienation. The IPPA-R is comprised of 25 items on a 1-5 likert-scale, in each of the parent and peer sections yielding separate attachment scores. The IPPA-R is scored by reverse scoring negatively worded items and summing response values across each section to provide a global attachment security score, and separate subscale scores for the three dimensions. The IPPA-R is significantly correlated to well-being scores, such as life satisfaction, and has some predictive value in expected directions such as relations to depression, anxiety, and alienation (Armsden and Greenberg, 1987; Guarnieri, Ponti, & Tani, 2010). Just as a note, in our sample, Pearson correlations between our participants' IPPA-R guardian and peer scores and their scores on the above measures of Depression, Ego-resilience and Self-concept were all moderate to strong ($r > 0.4$), significance ($p < 0.01$), and in the expected directions (negative for depression and positive for ego-resilience and self-concept). There was no relationship between either guardian or peer attachment and trauma in our sample as measured by the TSCC.

Before filling out the IPPA-R for guardians, child participants were asked to pick the guardian (mentor mother or caregiver) they felt closest to in order to answer the guardian attachment questions. There were similar numbers of Mentor Mothers (MM) and Caregivers (CG) chosen by the participants each year (see Table 5 below) and for the most part across the eleven homes.

RESULTS

Table 3 shows the breakdown in sample by year, age and gender for the IPPA.

Table 3:
Numbers for IPPA Across Participant Characteristics

IPPA SAMPLE	2014 SAMPLE	2015 SAMPLE	LONGITUDINAL
# OF CHILDREN	71	68	60
FEMALES	40	42	36
MALES	31	26	24
Age group 2 (9-12)	28	22	17
Age Group 3 (13-17)	43	46	33

We focus our results here on three main areas of interest: Guardian/Peer, Age and Gender related trends in attachment across 2014 and 2015 for participants, aged 9 – 17. Results focus on descriptive trends, with means and standard deviations used to help describe some initial characteristics of attachment in this population. While significance testing is occasionally given via simple Students T-tests, just as a check on trends, meaningful inferences will require looking at long-term patterns, supplemented with qualitative measures to help illuminate the underlying quality of the relationships children in residential care are forming. Nevertheless, there are some current outcomes that are interesting across two years, which give us some

basic insight into the current state of these children's attachment relationships.

GUARDIAN AND PEER ATTACHMENT

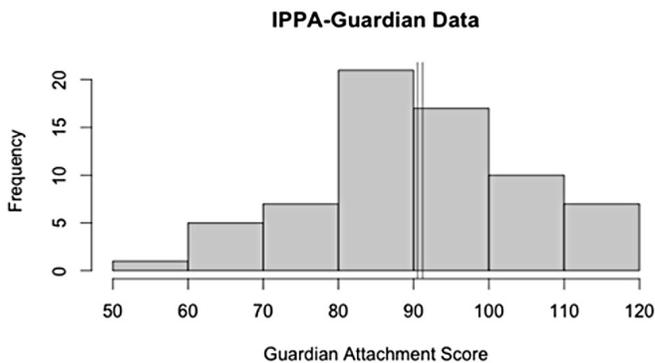
Overall, judging by range and distribution of scores, our sample total attachment scores showed moderate to high attachment levels to both guardians and peers.

Table 4:
IPPA Total Score Range Across Two Years

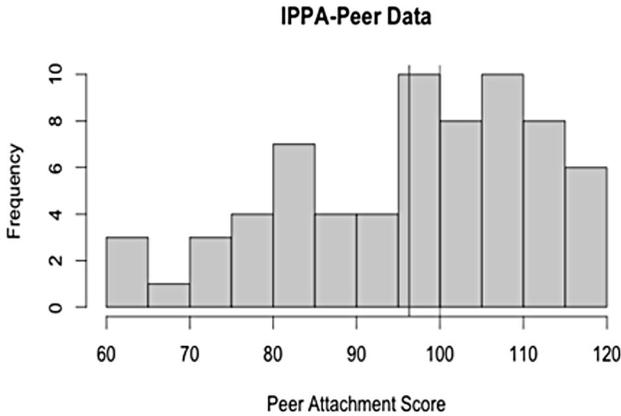
IPPA SUMMARY

Total-Scores	2015-Guardian	2015-Peer
MIN	57	61.96
Q1	82	84.78
MED	90.5	100
Q3	100.2	107.9
MAX	118	119.6
MEAN	91.21	96.29

IPPA-Guardian Data [bar graph]



IPPA-Peer Data [bar graph]



Ability to form and sustain attachment patterns to adult mentors and care providers are clearly key areas of concern to health care providers and attachment researchers, and the project team had various open-ended hypotheses about which type of adult the child residents could and would become closest to – those who may be of higher status, have more financial and mentoring experience, and a more middle-class caregiving style, but less availability on a day to day level (Mentor Mothers), vs. those who provide direct daily care, but without the same power or status within the broader Indian community or micro environment of the homes (Resident Caregivers). While participants had higher attachment scores to Mentor Mothers than Caregivers for both years, attachment scores were similar (see Table 5). In addition, attachment Means to both guardian types decreased between 2014 and 2015 (See Table 6 and Graph 1). Differences are not large or significant across either of these trends (between care-provider type or differences across year).

**Table 5:
Mentor Mother and Caregiver IPPA-R Attachment Scores Across
2014 and 2015**

Mentor Mother vs. Caregiver- Cross Sectional

	2014 Means (st.d)	N=72	2015 Means (st.d)	N=68
Mentor Mother	97.5 (12.1)	N=39	93.6 (12.3)	N=35
Caregiver	91.6 (16.1)	N=33	88.7 (14.8)	N=33

Table 6:

Mentor Mother and Caregiver IPPA-R Longitudinal Trends

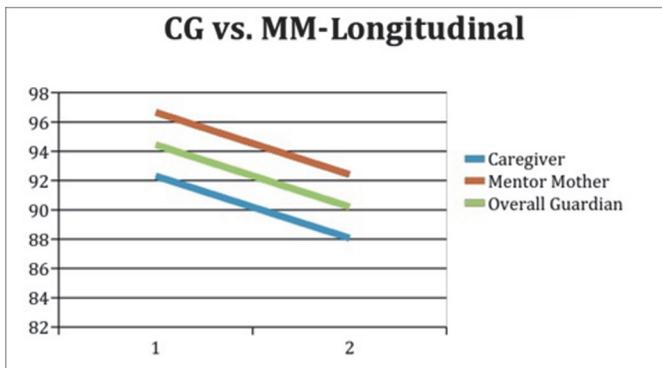
Mentor Mother vs. Caregiver- longitudinal

	2014 Means	2015 Means	
Mentor Mother	96.7	92.4	N=33
Caregiver	92.3	88.1	N=28

Graph 1:

Caregiver and Mentor Mother Longitudinal Changes 2014-2015

CG vs. MM-longitudinal



**CAREGIVER MENTOR MOTHER
OVERALL GUARDIAN**

Peer attachment and its relative standing to adult attachment is a second important point of interest, especially in displaced and vulnerable populations. As seen in Table 7 and Graph 2, peer attachment was higher than guardian attachment across both years and significantly so ($t(134) = 1.98, p=0.005$; $t(133) = 1.98, p=0.04$) respectively. Both peer and guardian attachment decreased from 2014 to 2015, and significantly so, [see Table 8 and Graph 2 ($p<0.01$)].

**Table 7:
Peer vs. Guardian Attachment**

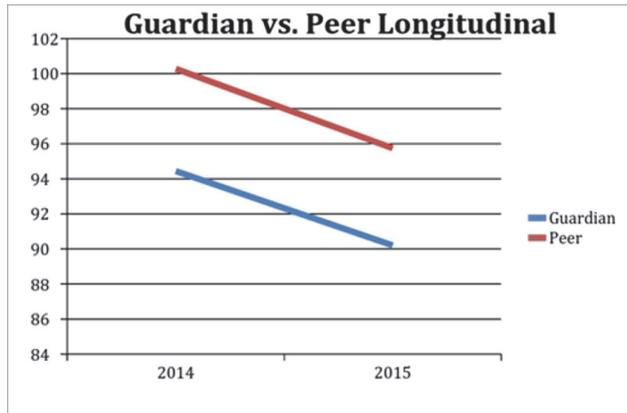
	Peer vs. Guardian - Cross Sectional			
	2014 Means (SD)	N=142	2015 Means (SD)	N=136
Peer	100.8 (11.4)	N=71	96.3 (15.0)	N=68
Guardian	94.6 (14.3)	N=71	91.2 (13.7)	N=68

**Table 8:
Changes in Peer and Guardian Attachment across Two Years**

	Peer and Guardian - longitudinal		
	2014 Means (SD)	2015 Means (SD)	
Peer	100.3 (11.9)	95.7 (14.6)	N=60
Guardian	94.4 (13.8)	90.2 (13.8)	N=60

Graph 2:

Guardian and Peer Changes Across 2014 and 2015



AGE BASED ATTACHMENT DIFFERENCES

We speculated that attachment quality would be different in younger vs. older age groups, especially for guardian attachment, and cross sectionally. This generally looks to be the case. Younger children (ages 9-12) had higher mean guardian attachment scores than the older 13-17 year old group across both years (see Table 9) with Mean differences approaching significance ($p=0.056$ and 0.071) respectively, across years. However, both younger and older groups had more similar peer attachment Means across both years (see Table 10).

Longitudinally, looking at children who stayed in the same age group across the two years, guardian attachment decreases across both younger and older age groups, but much more for the younger age group. Likewise, longitudinal analysis in peer attachment show interesting patterns, with peer attachment decreasing across the younger age group, but increasing over time in the older age group (see Graphs 3 and 4). Of course, longitudinal and time-point analysis across smaller age grouping and across each year, coupled with models that take into account length of time children have lived in each home, and quality of caregiving style and peer relations is needed to understand the changing dynamics of attachment patterns, and requires significantly more data. However, in as much as earlier peer and

adult attachment relationships influence on-going and future social bonds, these results provide a starting base to monitor how peer and guardian attachment patterns may change over time, and especially as OSC children enter young adulthood.

Table 9:

Age 9-12 vs. Age 13-17 Guardian Attachment- Cross Sectional

	2014 Means (SD)	N=71	2015 Means (SD)	N=68
Age 9-12	98.2 (9.7)	N=28	95.1 (10.5)	N=22
Age 13-17	92.3 (16.3)	N=43	89.3 (14.7)	N=46

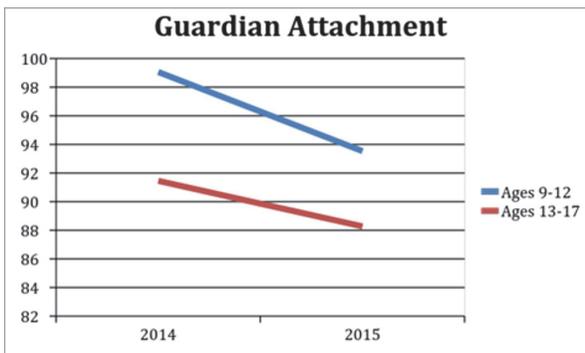
Table 10:

Age 9-12 vs. Age 13-17 Peer Attachment- Cross Sectional

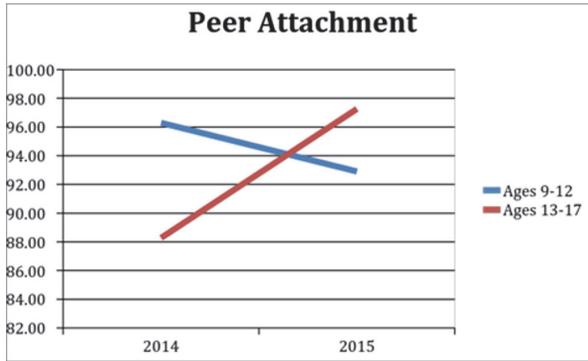
	2014 Means (SD)	N=71	2015 Means (SD)	N=68
Age 9-12	99.5 (15.0)	N=28	94.9 (15.4)	N=22
Age 13-17	101.7 (9.4)	N=43	96.9 (15.0)	N=46

Graph 3:

Longitudinal Changes by Age group in Guardian Attachment



Graph 4:
Longitudinal Changes by Age group in Peer Attachment



GENDER BASED ATTACHMENT DIFFERENCES

Across the whole sample, males have higher attachment Means than females for both guardian and peer attachment both years (see tables 11 and 12), but not by large margins, though in 2015 the Mean differences are getting larger. Longitudinally, across the two years, males (N=25) and females (N=36) decreased in guardian attachment significantly and females also decreased significantly in peer attachment (see Graph 5 and 6).

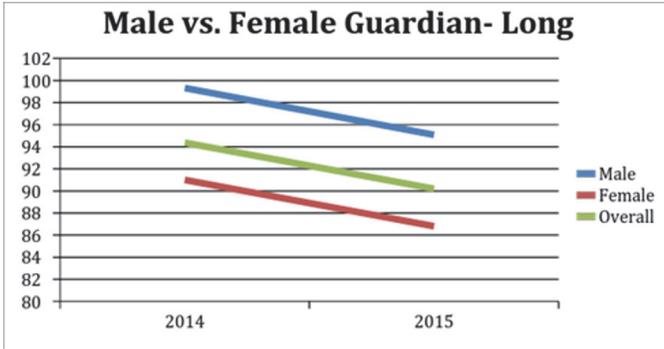
Table 11:
Males vs. Females Guardian - Cross Sectional

	2014 Means (SD)	N=71	2015 Means (SD)	N=68
Males	97.7 (13.3)	N=31	95.3 (15.2)	N=26
Females	92.3 (14.8)	N=40	88.6 (12.2)	N=42

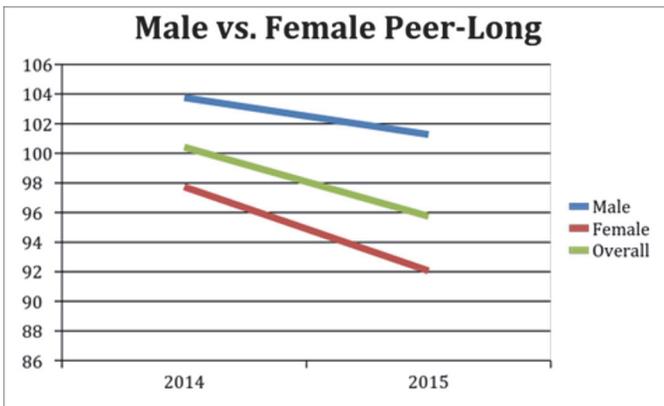
Table 12:
Males vs. Females Peer - Cross Sectional

	2014 Means (SD)	N=71	2015 Means (SD)	N=68
Males	103.6 (13.3)	N=31	101.9 (12.5)	N=26
Females	98.7 (10.2)	N=40	92.8 (15.5)	N=42

Graph 5:
Longitudinal Changes by Gender in Guardian Attachment



Graph 6:
Longitudinal Changes by Gender in Peer Attachment



DISCUSSION

Taken together, these preliminary results provide some cause for hope and some hints for areas of intervention and support. First, on average, participants across gender and age seem to be able to form stable attachment relationships as measured by the IPPA-R. While there are differences between care-provider type (MM and CG), participants show similar levels of attachment to both across two years, giving some indication that OSC children can and are forming positive relations within the homes, feel connected, and feel reasonably secure in those connections.

The fact that almost half of the participants nominate MM, who they do not live with and see less frequently as their primary adult attachment figure, as opposed to the caregivers they do live with, is interesting. The fact that children nominating MM also present with similar levels of attachment to MM as those nominating caregivers present with, further emphasizes the need to understand whether the quality and level of attachment to the types of guardians OSC have access to endures over time and leads to internalized models of trust and self-worth.

Similarly, the finding that peer scores are higher than guardian scores may be surprising, troubling, or expected depending on one's theoretical perspectives on child and adolescent attachment development in OSCs. Given the group home environment, we believe it is expected that peers will play an important role in attachment quality, and it is encouraging that peer attachment scores are on the moderate to high end of the scales. As discussed earlier, while the attachment literature supports the general idea that adult-child attachment is protective for later well-being, and parental attachment, especially strong, sensitive maternal attachment, can mediate a variety of later positive psychological functioning, including development of close friendships, romantic connections, and life satisfaction, it is not clear that adult attachment is the only pathway through which transient and vulnerable populations find opportunities for developing functionally stable relationships.

Complex organisms can developmentally adjust, making continual on-course corrections to adapt to changing conditions and stressors.

Whether adult attachment disruptions, severe or not, constitute too great a deviation for what the human system has evolved to optimally adapt to is still much debated. It is clear, however, that socio-ecological context, parenting style, and preferences for how social interactions should be conducted and made sense of, vary greatly across societies and even within families in the same cultural group, making the meaning of attachment constructs less prescriptive than we may like. Likewise, potential for recovery in both human and non-human primates from physical and social trauma is remarkable (Harlow and Suomi, 1971; Suomi, Delizio, and Harlow, 1976), and speaks both to the malleability of sensitive periods in development and the complexity of the physical and semiotic material from which the psychological system can draw for recuperation.

The finding that peer and guardian scores are at similar levels and range speaks to the importance of understanding the influence peer relations have for OSC and residential home populations and of looking carefully into the ways peer and adult relationships can independently and together support positive psychological growth in vulnerable groups. Likewise, the observation of what looks like a possible decrease in attachment over time in this group, across age groups in both peer and guardian scores, and also across gender, could be either concerning or expected, especially as it comes in the middle childhood to young adult period, when negotiations towards independence and changing peer and guardian roles are already in developmental transition. These trends further highlight the importance of following OSC longitudinally and qualitatively to understand the developmental course of intimate relationships for transient groups and the potential support systems they have or do not have to make use of to construct positive outcomes.

Regarding the gender differences noted in this study, the trend which suggests decreasing peer related attachment in the second year of the study is interesting as is the finding that boys demonstrated a higher level of attachment than girls. Mary Ainsworth (Ainsworth et al., 1978) reported no gender differences and it is globally believed that attachment styles are neither gender specific nor culture specific (Pierrehumbert et al.; 2009; van IJzendoorn et al., 2011).

However, when age, socioeconomic status, and family configuration is

introduced, research findings become more complex (van IJzendoorn et al., 2011). For example, current attachment literature on gender differences suggest little or no difference when examining two parent families. However, when the research was extended to single or divorced families, boys were found to be significantly less secure and more disorganized than boys from intact families (Carlson, Cicchetti, Barnett, & Braunwald, 1989). Using narratives to examine attachment styles, researchers also found girls demonstrating more caring behaviors than boys who depicted more violent themes in their enactments (Page & Bretherton, 2003). However, there are few explorations of culture-specific research on attachment styles and gender differences. It is possible that the developmental tasks of adolescence are far more complicated, especially in relationship with female caregiving figures, and in communities where gender based preferences can be explicit. Further exploration of this finding and its implications for care and long term adjustment, with institutionalized children and within a South Asian context is therefore warranted.

Longitudinal observations of normative development (Steele, 1990) are therefore fundamental to understanding developmental processes. Cross-cultural perspectives on normative developmental processes suggest considerable variance in child rearing and parenting patterns. Co-constructed communal hierarchically organized patterns (Keller, 2013) of definitions of self are more normative of the Non-western world. Investigating attachment patterns of boys and girls raised in institutions in the developing world provides us with data on how these complex attachment patterns vary, and impact internal psychological processes. It is now increasingly stated that attachment should be viewed through the perspectives of attachment, maturation and context (Crittenden, McKinsey, & Claussen, 2000). In the edited volume on this topic, Crittenden, McKinsey, & Claussen (2000) emphasize the need to examine the effects of maturation and experience on the organization of attachment beyond infancy. The socio-cultural context of this maturation and the capacity to develop attachment bonds beyond infancy is of central concern to developing countries in particular, who face the challenge of a growing orphaned population every year.

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