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Developmental Status of Adopted Chinese Children in
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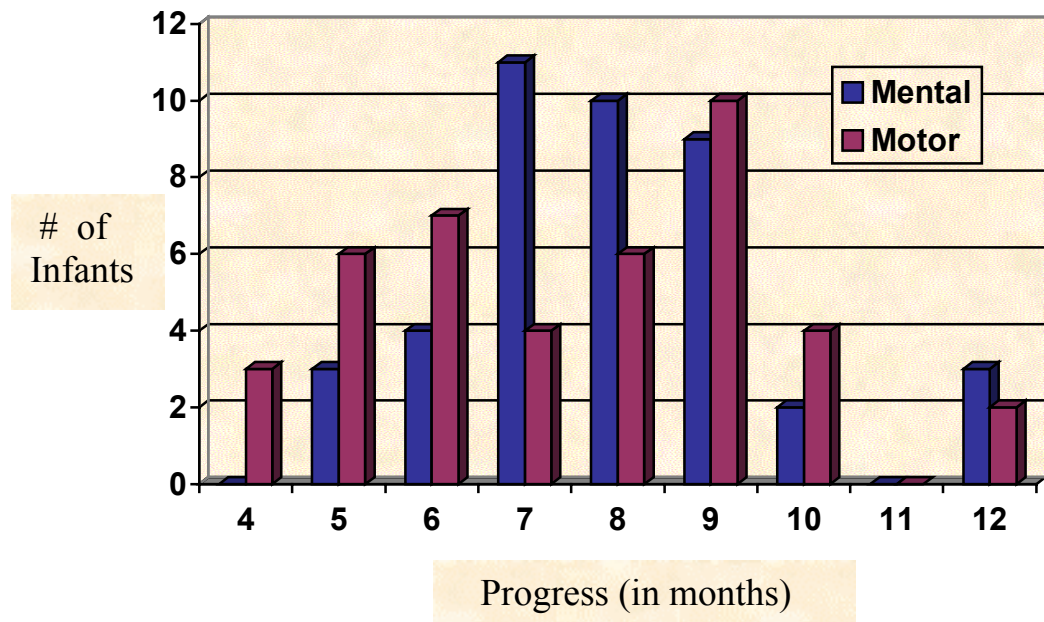
Intercountry adoption has changed dramatically since I was adopted 26 years ago. At that time, adopting from abroad was relatively uncommon. During my school years, I was the only Asian child with a Caucasian name and I never met another adoptee like myself until my mid-twenties. To hear about a family adopting from abroad today is no longer uncommon and adoptive parents have many more professional and social resources available to them. Many pediatricians are familiar with the health status of orphan immigrants and adoptee playgroups and parent groups provide needed social and cultural support. However, little is known about the developmental course of ex-institutionalized children postadoption, specifically Chinese infants of whom over 4,000 are adopted into American homes every year. Only a handful of current research studies are devoted to internationally adopted children, with even fewer focusing on Chinese adoptees. Adoptive and prospective adoptive parents, agencies, and early childhood professionals need knowledge about the developmental status and progress of exinstitutionalized Chinese infants in order to develop realistic expectations about their children's development. In light of this need, I conducted a study at DePaul University in Chicago to provide the adoption community with empirically based information about Chinese infants' developmental status upon arrival to the U.S. and short-term follow-up status.

The 54 infants in my study came from 22 orphanages in China covering a wide geographical spread. The average age at time of arrival to the U.S. was 12 months (range, 7 to 21 months). Only 15% of the infants were reported to have health problems upon arrival and these were generally transient and treatable. The majority of adoptive parents were first-time parents and consisted of two-parent dyads while 12 parents identified themselves as single mothers. The average age for all adoptive parents was 42 years (range, 26 to 54 years). Adoptive parents were predominantly Caucasian and worked in professional and semi-professional occupations. The three major questions I investigated included: (1) What was the average developmental status of Chinese infants at the time of their arrival to the U.S.? (2) What was the average rate and range of progress made by infants six months postadoption? (3) What are some of the factors related to more favorable developmental status both at time of arrival and six months later? To measure developmental status, I used the Bayley Scales of Infant Development-2nd Edition, a well respected Piagetian-based procedure used to study mental and motor development (including expressive and receptive language). A great asset of the Bayley includes determination of an infant's developmental age, which provides important information when compared to chronological age in terms of assessing the presence or severity of a delay. In addition to giving the Bayley, I collected information on the infants' background (e.g., age of

adoption, length of institutional and/or foster care), health status upon arrival to the U.S., and their physical growth (height-for-age, weight-for-age, and head circumference-for-age) at both arrival and follow-up.

The overall findings are optimistic. As expected, upon arrival to the U.S. most infants showed delays in their mental and motor functioning and physical growth. However, during the first six months with their adoptive families, they made significant progress. For example, upon arrival, approximately 25% showed mild mental delays and 34% displayed significant mental delays with their average performance placing in the Mildly Delayed range. Motor delays were more prevalent with approximately 25% and 64% of infants were identified with mild and significant delays respectively with initial average motor performance placing in the Significantly Delayed range. At follow-up approximately six months later, infants' average mental performance was well within normal limits. Approximately 23% showed mild mental delays and only 10% displayed significant mental delays. Similarly, infants' average motor performance fell in the Mildly Delayed range with approximately 27% identified with mild motor delays and 27% with significant motor delays. Additionally, the average rate of progress six months later was 8 months (range, 5 to 12 months) for mental performance and 7.5 months (range, 4 to 12 months) for motor performance. Individual differences were shown as the range of developmental progress varied from as little as four months progress up to 12 months progress.

Rates of Developmental Progress
Among 42 Chinese Infants 6-Months Post-Adoption



Infants identified with significant delays at arrival showed slower rates of progress at follow-up and this may likely be due to the greater developmental deficits they had to overcome. Infants' physical growth was compared with two sets of norms: the National Center for Health Statistics (NCHS, 1982), which is used predominately by U.S. pediatricians and (2) Chang et al's., 1965 norms obtained from a large-scale study of immigrant Chinese children. At time of arrival, the average percentile score for height-for-age was 17.7% (NCHS) and 26.1% (Chang et al.) and weight-for-age was 8.1% (NCHS) and 26.4% (Chang et al.). At follow-up, percentile scores were 25.8% (NCHS) and 45.2% (Chang et al.) for height-for-age and 23.5% (NCHS) and 59.3% (Chang et al.) for weight-for-age.

Head circumference-for-age scores were 12.2% on arrival and 20.6% at follow-up (NCHS only). Significant and favorable physical growth occurred between arrival and follow-up on all measures. These figures suggest that the adopted children were somewhat small stature even after six months in their adoptive homes but were generally within normal limits.

Further analyses identified some of the factors related to more favorable developmental status (as measured by the Bayley). Infants who were adopted at a younger age, spent less time in the institution, and were more physically robust were more advanced in their mental development at arrival and follow-up. These measures also were related to motor performance at arrival. However, after infants had been in their adoptive homes for six months, only head circumference-for-age was related to motor performance. Adoption at younger ages decreases exposure to adversity related to institutionalization. Lastly, and of particular interest, infants who experienced foster care while in China were more advanced in both their mental and motor development at both time points. Preadoptive foster care experience appeared to serve as a developmental buffer against the negative effects of institutionalization, though it is possible that bias exists in the selection of infants who receive fostering.

There are likely other factors that may contribute to developmental status that were unable to be examined in this study, such as the quality of institutional care, caretaker-child ratio, and consistency of caregivers, among others. However, based on the findings from my study, adoptive and prospective adoptive parents can develop some realistic expectations about their newly adopted Chinese child's developmental course.

1. Upon meeting your child it is likely she will show both mental and motor delays and relatively small stature. This is expected and understandable given her less than optimal preadoptive environment. Although you will know her chronological or estimated chronological age, during this initial period, it may be more useful to understand her behaviors using her developmental age. By doing so, you will have the opportunity to adjust your own behaviors and expectations appropriately in order to maximize parent-child attunement and adaptation. For example, monitoring your child's development can lead to informed decisions about early intervention, education (e.g., school readiness or placement), social experiences, and parenting.

2. Within the first six months in your naturally enriching home, your child will likely show rapid mental and motor (and physical) progress known as catch-up growth. However, mental and motor status is not necessarily consistent. Background variables can effect mental and motor development differently. This is even true for infants without institutional histories. While your daughter may be focused on gaining specific motor mastery (e.g., pulling to stand) for several weeks, at other times, she may appear nonmotorically driven because she is focused on the process of acquiring a new cognitive milestone (e.g., object permanence).
3. How much your child progress within the first six months postadoption can vary. The average rate as mentioned was about 7 ½ to 8 months. However, the range in my study varied from as little as 4 months up to 12 months. You will benefit from familiarity with the basic early childhood milestones to observe your child's development, though your pediatrician and a developmental specialist can assist in determining whether a slower rate of progress needs specialized attention and intervention. Generally, the more severe the delay the more time and resources will be needed to address it.
4. Many infants in this study showed near normal levels of development at follow-up six months post adoption. Additionally, catch-up growth is likely expected to continue several years postadoption as shown from preliminary findings from a second follow-up on a random selection of 21 of the 54 children.
5. Individual differences are important to keep in mind. In this study infants showed differences in developmental performance, progress, and physical growth, which likely contributed to differing patterns of rates of recovery. Though infants with specific factors, adoption at a younger age, briefer duration of institutional care, more robust physical growth, and foster care experience showed more favorable development, infants without these relative advantages can thrive postadoption as well (for example, I was adopted after five years of institutional care with the absence of fostering and was physically very small).

This study highlights the significance of institutional rearing and the persevering resiliency of the developing child when supported by a family and a home. **Correspondence:** Dr. Rebecca I. Nelson at rinelson@attbi.com Additional research at DePaul University (Chicago) looking at the developmental status and emotion communication of adopted Chinese children is taking place. If you live in the Chicago area, you would be able to take part. Contact Dr. Linda Camras at lcamras@wppost.depaul.edu