

University of Minnesota

International Adoption Project

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Greetings from Professor Gunnar



We are sending you this newsletter as a way of thanking you for participating in research with the Minnesota International Adoption Project (MnIAP). This newsletter is being sent to all families of internationally adopted children who have participated in our research and/or are on our participant registry. It is also being sent to all the parents who have participated in our research with their children who were born and raised in Minnesota. We want to thank you all for giving your time so generously to this work.

In 2002, the MnIAP began working to obtain grant funds to study the brain and behavioral development of children adopted internationally. Because early deprivation can impact brain development, we were especially interested in finding information that would help improve outcomes for children adopted from orphanages or other institutions. However, we also knew that children who are from minority ethnic groups have challenges in adapting in the U.S. as they may experience discrimination. For this reason, our colleague Professor Richard Lee is devoting considerable efforts to understand how parents can help support their internationally adopted children who are ethnic/racial minorities in this country.

We are happy to report that the federal government, through the National Institute of Mental Health (NIMH), continues to provide financial support for MnIAP research. We are just completing a 5-year NIMH grant that allowed us to examine many aspects of emotional and cognitive development in internationally adopted 8- through 11-year olds. While we are still collecting and analyzing data from this work, we do have a number of results to share with you from this grant. We have just received another 5-year NIMH grant to study the transition of post-institutionalized internationally adopted children as they enter their families and rebound from their pre-adoption experiences. We describe what we hope to accomplish in the Transition Study in this newsletter. The MnIAP has also received a grant as part of collaboration with a group studying genes and brain development in New York. The larger study is supported by an NIMH Center grant to our New York colleague, Dr. BJ Casey. In addition, we also have funds from a Canadian research organization to support a number of other studies addressing the development of children who started their lives under challenging circumstances. Much of our research on internationally adopted children also helps us gain insight about children at high risk in the US. We describe some of this work in this newsletter. We gain additional support from the Center for Neurobehavioral Development at the University of Minnesota and the "Infancy Core" of the General Clinical Research Center in the University of Minnesota's Health Science Center. Finally, through collaborations with our colleagues in the International Adoption Medicine Program, we are able to help in work that contributes to understanding physical health issues in internationally adopted children.

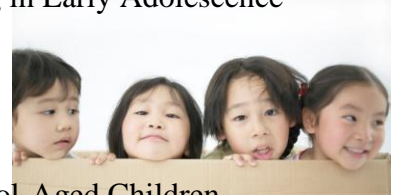
But it is the families and children who allow this work to continue. Thank you again for your help and on-going support.

~ Regents Professor Megan Gunnar & the Minnesota International Adoption Project Team

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Development and Well-Being of Korean Adoptees

Although there is an increase in studies on the adjustment of internationally adopted children, researchers still know very little about the lives of adoptees and their families as they mature into adolescents and young adults. One of the more salient issues to emerge during this period is the role of ethnicity and race in identity development, family relationships, and well-being. The Race, Ethnicity, Migration, and Mental Health (REM-MH) research group, directed by Psychology Professor Richard Lee, is specifically interested in the types of cultural experiences that benefit adopted children and adolescents and what efforts parents are making to promote a positive view about ethnicity and race in their internationally adopted children.

The purpose of this study was to begin to fill this gap in the research by looking at specific aspects of cultural socialization associated with the psychological and behavioral development of adopted Korean children and adolescents. Using the Minnesota IAP research registry, 595 families with children adopted from South Korea between the ages of 5-18 years-old were identified. These families were mailed surveys back in March 2007. Parents were invited to complete one or more survey depending on the number of Korean children and adolescents they had adopted. Adolescents (13-18-year-olds) also were invited to complete a survey. All participants who completed and mailed back a survey were compensated with a \$20 gift card to for their time and effort. The following results are based on preliminary analyses from this study.

Our Parent Sample

The response rate from adoptive parents with Korean American children was very positive. Over 70% (433/595) of the families completed at least one survey. Parents filled out 566 surveys on individual children for an individual response rate of 70%. The majority of respondents were mothers with an average parent age of 48 years. Almost all of the respondents were White (98%), as were spouses (96%). Nearly one-third (29%) of the families had adopted more than one child from South Korea.

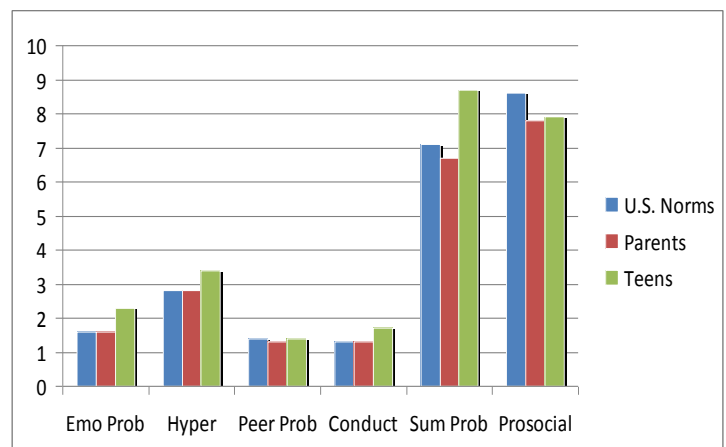
Our Adolescent Sample

One of the unique features of this study was the opportunity to directly survey the adopted Korean American adolescents. Of the 348 eligible adolescents, 248 returned a completed survey for a response rate of 75.61%. The sample was fairly evenly divided between boys (48%) and girls (52%).

Behavioral Development of Korean Adoptees

Prior to examining the cultural experiences of adopted Korean American children, we first examined their behavioral development, as reported by adopted adolescents and their parents. We have not yet analyzed the behavioral development of younger-aged adopted children.

Most adoption studies find that internationally adopted children are at slightly greater risk for developing behavioral problems due to exposure to pre-adoption adversity. However, we expected that Korean adoptees might be at less risk because they are adopted at younger ages and exposed to less pre-adoption adversity. Figure 1 shows that adoptive parents reported very similar levels of behavioral problems compared to published U.S. norms for adolescents. By contrast, adopted adolescents reported slightly higher emotional problems, hyperactivity problems, and total sum of problems compared to parent reports and U.S. norms.



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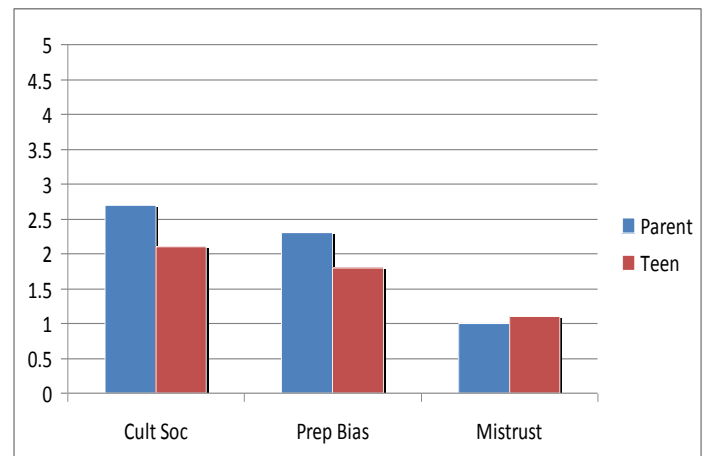
Similarly, adopted adolescents appear to engage in slightly less prosocial behaviors (e.g. kind to younger children, considerate of other people's feelings) than U.S. norms. It is important to recognize that these mean scores are still relatively low, suggesting that most of the children and adolescents adopted from Korea are doing fine and are not at high risk for behavioral problems. The group differences between parents and adolescents also may be due to a reporting bias.

Cultural Socialization of Children

After evaluating the behavioral development of adopted Korean American adolescents, we investigated the specific aspects of cultural socialization that occurs within adoptive families. Generally speaking, cultural socialization refers to the parenting practices that relay messages about race, ethnicity, and culture to children. Three components to cultural socialization were specifically measured using a 5-point scale (1 = never 2 = rarely 3 = sometimes 4 = often 5 = very often):

- 1) *Cultural Socialization/Pluralism*: Teaching about the history of Koreans and other minority groups; celebrating Korean culture and holidays; fostering relationships with other Asian or Korean children
- 2) *Preparation for Bias*: Teaching about discrimination, stereotypes, and racism against Koreans and other ethnic groups and races; how child's life may be affected by discrimination or racism
- 3) *Promotion for Mistrust*: Teaching a child to avoid others who might take advantage of him/her due to race

Figure 2 shows that adoptive parents reported engaging more frequently in cultural socialization/pluralism and preparation for bias than adolescents reported about their parents. There was no significant group difference in parent and adolescent reports on engaging in promotion of mistrust. This type of cultural socialization is less emphasized by adoptive families. Similar to the results on behavioral development, these discrepancies may be due to parents overestimating their actions, teens underestimating parent's actions, or both.



Summary

This survey study is one of the largest adoption studies on Korean Americans in which data was collected from both parents and adolescents about racial, ethnic, and adoption experiences and its association with development, well-being, and mental health. In the future, we intend to explore the reasons for the group differences between parent and adolescent reports. We also will examine these experiences in the younger-aged adopted children between 5-12 years-old. Most importantly, we will begin to identify key cultural variables that function as risk factors (e.g., discrimination) and protective factors (e.g., ethnic identity) for a variety of developmental outcomes, including behavioral problems, well-being, and competence. These findings will help us to better educate adoptive families, adopted individuals, and adoption agencies and service providers. Our long-term goal is to seek additional funding to conduct a longitudinal, follow-up study on the participants of this study.

We would like to thank all the families and teens who participated in this survey!



Emotional Functioning of Internationally Adopted Pre-Adolescent Children

Early experiences can have important influence on children's emotional functioning. Prior research has suggested that children who experience institutional/orphanage care in early life may be at increased risk for emotional and behavioral difficulties in childhood compared to their same age peers. However, despite this increased risk many children adopted from institutional care do not display serious emotional or behavioral difficulties. In addition, little of this prior research has considered perspectives of both children and their parents regarding the presence of emotional

problems. Therefore, it was the goal of this research to examine emotional functioning in internationally adopted children while considering both child and parent perspectives.

Participants

To examine the emotional functioning of children with different early life experiences we asked 225 children, 8 to 11 years of age, and their parent to complete questionnaires regarding the child's emotional and behavioral functioning. Participants completed these questionnaires during a research session at the University of Minnesota or at our collaborating research site at the University of Wisconsin – Madison. Children who participated in this study were recruited from 3 groups: 1) children internationally adopted at 12 months of age or older who had spent 75% or more of their pre-adoption life in an institutional/orphanage setting, 2) children internationally adopted at 8 months of age or younger who spent most of their pre-adoption lives in foster care and 3) non-adopted children.

The questionnaire included items regarding anxiety and depression symptoms (referred to as internalizing problems), oppositional, aggressive, and acting out behaviors (referred to as externalizing problems) and inattention/impulsivity symptoms. Parents and children were asked to rate the presence of behaviors ranging from never/not true of the child to very/often true of the child. A 3 point scale was used by parents and a 6 point scale was used by children. Analysis of parent and child responses indicated that parents and children often provided similar reports regarding the presence or absence of emotional difficulties.

Behavioral and Emotional Development

Overall, our findings showed that most of the children in all three groups were experiencing the level of behavioral and emotional issues that are normal for children of this age. We did find that both the post-institutionalized children and their parents reported more internalizing, externalizing and attention problems than were reported for non-adopted children. However, in some instances, the level of problems was high enough to be of concern.

What we found most interesting, however, was that when we correlated the children's self-report with the parents' reports, for the post-institutionalized children and the non-adopted children, parents and children agreed. This is interesting because some people have questioned how "self aware" children are who started their lives in institutional care. Our findings suggest that they are as aware of their emotions and behaviors as are children of this age who grow up in their birth families.

We were also interested in the behavioral and emotional issues of children adopted early from foster care. For both externalizing and attention problems, these children did not differ from non-adopted children of the same age. Parents and children in this group also agreed about the children's behaviors on the scales of externalizing and attention problems. What was interesting, though, is what we found for internalizing symptoms. These symptoms have to do with how the child feels inside (anxious, depressed) and parents have less access to this information than does the child. Our results showed that parents of children adopted from foster care saw their children as having more internalizing symptoms than did the parents of non-adopted children. In fact, they saw them as having as many symptoms as did the parents of post-institutionalized children. In marked contrast, their children reported no more

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Emotional Functioning continuation...

internalizing symptoms than did the non-adopted children. Of course, the children adopted from foster care may have been under-reporting their symptoms. However, this finding could mean that parents who adopt children from foster care are very alert to the possibility that their children are experiencing anxiety or sadness and perhaps weigh evidence of these feelings more heavily than do parents of non-adopted children or the children themselves.

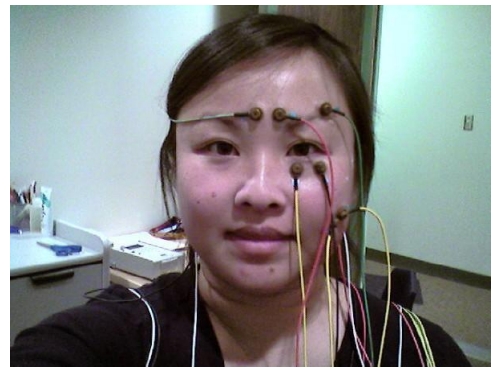
Does this mean that parents who adopt children early from foster care can worry a bit less about their children? Maybe. But we also know that the children we saw in this study were pre-adolescent. Other studies (*see the story on Korean Adoptees on page 3*) report that in adolescence, some children adopted from foster care actually report that they are experiencing more anxiety and worry than is noted when the parents answer the same questions about their children. Of course, keeping an open line to our children's thoughts and feelings becomes more and more challenging as they move into adolescence. This is just one reason that the MnIAP is beginning to increase our focus on the adolescent years.

Changes in Emotionality, Risk-Taking and Reasoning with Adolescence

Many of the studies we have conducted so far have involved children. As any parent will tell you, all bets are off once children become adolescents. Previous work by other groups has shown that there are many changes that happen to the brain during this time. For example, brain systems that find reward in risky activities become more active, while those systems involved in reasoning and self control are still developing. Work by our research group and others have demonstrated that our emotional systems change with puberty. We are learning that these brain systems become more "reactive" to emotional information.

The Adolescent Study

For these reasons, the Minnesota IAP team is exploring changes in the brain systems in adolescence in internationally adopted children as well as in birth children. In the Adolescence, Emotion and Reasoning study, we compare 12 and 13 year-old-children, who are pre- and post-pubertal, on simple tasks that tap different emotion and reasoning systems in the brain. Based on ours and others' earlier work, we expect that the changes which occur during adolescence, such as puberty, will shift the ways in which these brain systems function. What we don't know is whether children with difficult early histories will show larger shifts in reactions with pubertal development.



Participation

The Adolescence, Emotion, and Reasoning study is underway and we are thankful to all of the families we have worked with thus far. We are also looking for more 12 & 13 year-olds! *If you and your child are interested in participating, please give us a call at 612-624-2561.* Participants will be compensated up to \$40 in Target gift cards for their time and effort. Please feel free to pass our phone number along to your friends that might be interested as well. We are excited to learn more about the developing adolescent!

Social Communication Study



Face-to-face interaction with caregivers helps babies learn about how to relate to other people. “Face time” also gives babies the opportunity to learn about language, emotions, and paying attention. When children start out their lives in orphanages or foster care, caregivers may not be able to spend much time playing or talking with them, so there is a lot of social experience to catch up on once they get to their adoptive families.

The Social Communication Study looks at how social skills, including language, emotion, and attention skills develop over time in children adopted from overseas, some who had lived in orphanages and others who had lived in foster care. The study also includes children born and raised in their Minnesota families as a comparison. We first saw the children when they were 18 months old, and saw them again at 3 years of age. Now we are in the process of seeing the children at age 5 ½ years. By checking in on the children as they grow and change, we hope to learn more about the development of social skills in children once they have the opportunity to develop these skills in their adoptive homes. The results of this study are providing insights about what to study and how to measure it in the MnIAP new Transition Study (*see page 11*).

Here is an update on new things we have learned since last year’s newsletter:

- **“Overly Friendly” Behavior:** Sometimes children who are adopted are overly friendly with strangers. In the extreme, they may be willing to happily go off with a friendly person they have never met before. Of course, this behavior is of great concern to parents. Understanding what leads to this behavior is very important to be able to give parents guidance on how to intervene with overly friendly children.

People have argued that this behavior reflects problems in the children’s attachment relationships with their adoptive parents. We are not sure this is true. In a previous study, we found that it was related to problems of attention and behavioral control. To learn more about overly friendly behavior, we conducted a phone interview with parents when children were 2.5 years old, and a stranger interaction in the lab when children were 3 years old.

So far we have been examining whether measures collected at 18 months can predict overly friendly behavior at 2.5 and 3 years of age. We have found two measures at 18 months that are predictive: joint attention and brain wave patterns.

Joint Attention: Even before babies can talk, they get interested in sharing what they are thinking with us. For example, if the child sees something interesting, they may smile and point at it. They want us to look too. Why? Sometimes they actually don’t care whether we “look at it with them,” they just want us to give it to them. Psychologists call that “behavior regulation.” They are using their preverbal skills to regulate our behavior to get what they want. At other times, though, their only goal seems to be to “share” the experience with us to establish what psychologists call, “joint attention.” We have been interested in joint attention because we think it may serve as a stepping stone that helps adopted children develop more complex social skills. In a previous study, we found that children adopted at older ages (after 18 months) from institutions where they had little opportunity to “share” experiences with caregivers did not show much of this type of behavior soon after adoption. In this study, all of the children had been adopted by 16 months. Even so, we did find subtle effects on the frequency of joint

Social Communication Study continued on next page...

Social Communication Study continuation...

attention bids among the post-institutionalized children. And we found that the frequency with which the post-institutionalized children engaged in joint attention at 18 months predicted overly friendly behavior at 2.5 years. More joint attention bids predicted less overly friendly behavior later.

Brain Wave Patterns: At 18 months old, we measured brain wave patterns and found that some children who experienced deprived conditions before adoption showed patterns that were “young” for their age. We have now found that the children who showed “young” brain activity patterns at 18 months were more likely to be overly friendly to a stranger at age 3 years. This “young” brain activity pattern is also often seen in children who develop attention problems. Brain activity patterns are probably only one of many things that relate to whether children develop overly friendly behavior. At 5 ½ years old, we are examining brain activity patterns again, as well as testing attention and overly friendly behavior, so that we can look at changes over time.

• **Emotional Development:** At age 3, children participated in a task where a parent pretended to have injured their knee. The children adopted from deprived conditions showed just as much empathy and concern for the “injured” parent as did the non-adopted children. So it looks like the children have developed good empathy abilities in their adoptive families. Also, just like the non-adopted children, adopted children did more to help and comfort an injured parent than an injured staff member, showing that they have formed a special relationship with their parents.



Some children adopted from orphanages did have more difficulty when asked to label emotions in puppets or tell how a puppet would feel in various situations. But, their struggles with the puppet task probably had more to do with the language skills it involved. So, while children adopted from difficult situations may find it challenging to talk about emotions in the abstract, they do very well at demonstrating their emotional and social skills in the “real-life” situation of an “injured” adult.

Please update your contact information!

We want to be sure that we maintain current information for all of our registry families so that we can keep you apprised of new studies and results. If you’ve recently moved or have a new e-mail account address, please update your registry info by e-mailing IAP@umn.edu, calling [612-624-9322](tel:612-624-9322), or completing the enrollment form online at <http://www4.cehd.umn.edu/icd/IAP/enroll.htm>

You can access current and past newsletters on our website:

<http://www4.cehd.umn.edu/icd/IAP/default.html>

We are happy to provide a paper copy of the current newsletter upon request.

Thanks for your help in keeping our registry current!

Language Outcomes of Internationally Adopted School-Aged Children

Since parents of children adopted internationally have expressed concerns about their children's language development, several years ago the MnIAP sought out the help of colleagues in the University of Minnesota's Speech, Hearing and Language Science department and got them interested in studying the IAP population. Both Joann Benigno, who was then a post-doctoral student at the University of Minnesota and Professor Jennifer Windsor, who was the chair of the Speech, Hearing and Language Science Department came to our rescue. Joann Benigno is now an Assistant Professor at Ohio University, but she is continuing her work on the language development of internationally-adopted children. Professor Windsor is also continuing collaboration with us on questions of language development in internationally-adopted children. Below is a report from the **Language and Memory Project** started by Professor Joann Benigno when she was at the University of Minnesota.

First, I want to extend a heartfelt thanks to all of the families who participated in the Language and Memory Project over the past two years. My collaborators and I truly enjoyed working with and meeting all of you. At this point, data collection has shifted to my current institution, Ohio University, where we are collecting data on non-adopted same age peers who are between 8-12 years of age. Once we have this comparison group complete, we will have more definitive results to report. This research is very important since few investigators have systematically investigated the language and academic outcomes of school-age internationally adopted children. The comparison group will allow us to directly examine how children who lived in orphanage care and foster care compare to their same-age non-adopted peers on these skills.

Report from students' theses

As far as other updates on our research team, I am proud to say that two undergraduate students working on the project completed their honors theses based on a smaller subsample of children who participated in the study. Thus, the results that follow are preliminary and have not been examined with the entire population of children who participated. Joni Coleman examined parent-child conversational styles and how children's conversation skills were related to their parents' reports of their language skills. One of the primary findings of Joni's thesis was that parents' report of their children's language skills was related to their children's assertiveness during parent-child conversations about past events. Thus, as the complexity of children's language skills increased, so did their assertiveness in participating in the parent-child discussions. Clare Faulhaber examined the relations between children's language skills and their performance on memory tasks. Findings revealed that time spent in orphanage care was related to two measures of memory, including children's memory for reconstructing a sequence of nine events. In addition, children's language skills were related to their ability to remember the most recent item in a set of cards presented to them. Both Joni and Clare presented their results at the University of Minnesota Undergraduate Symposium.



Erika Hoyt completed her master's thesis which examined data from the 2001 MnIAP survey that many

Language Outcomes continued on next page...

Language Outcomes continuation...

of you took part in. She examined the survey data on language and academic outcomes of children who were school-age (6-11 yrs) at the time of the survey. Being a boy and being exposed to multiple risk factors, particularly for children reared in orphanage care for 12 months or longer, predicted children's language and academic outcomes following adoption.

Hearing Loss Study

In a further examination of the 2001 MnIAP survey data, Erika Hoyt, Professor Jennifer Windsor, Professor Megan Gunnar, and Professor Joann Benigno explored the rates of hearing difficulties and subsequent effects on language outcomes. The purpose of the study was to determine the rates of hearing loss in internationally adopted (IA) children and to identify factors that place IA children at-risk for hearing problems. Because children raised in orphanages face multiple risks for permanent or fluctuating hearing loss, we were curious to see if rates were higher in children raised in orphanage care. We also wanted to understand the relationship between hearing problems and speech/language delays in this group of children.

In order to answer these questions, we looked at the survey data from parents of over 2000 IA children adopted into Minnesota between 1991 and 1998. We found that 13% of parents reported that their child had chronic Otitis Media (ear infections) and an additional 3.5% reported hearing problems other than ear infections (i.e., some degree of hearing loss). A history of orphanage care and later age of adoption were related to increased rates of hearing problems. Within this at-risk group, over 7% of children were reported to have hearing problems, a rate three times greater than the national average of hearing loss in children (National Institutes of Health, 1993). In terms of how hearing problems affected children's speech and language development, we found that nearly 20% of children with chronic Otitis Media were also diagnosed with speech/language delays and 35% of children with hearing problems/loss had concomitant speech/language delays.



In summary, hearing problems (both chronic Otitis Media and hearing loss) can have a profound impact on children's speech and language development. It is critical that all IA children receive a hearing screening as part of their initial medical visit in the United States. Full audiological evaluations may be warranted for children in the high-risk profile (adopted after one year of age from orphanage care). Fortunately, with today's technology, early identification of hearing loss can allow for early intervention to maximize children's communication skills on par with their hearing peers.

Results from the Hearing Loss Study were presented at the American Speech-Language-Hearing Association Meeting in Chicago, IL in November.



Early Experience and Memory Study

We know that some children adopted from orphanages or other institutions struggle to do well in school. Many of our studies have focused on attention and attention regulation. In this study, we examined whether institutional care was associated with problems in putting information into and retrieving it from memory. There are two types of memory: memory for procedures (like riding a bicycle) and memory for specific events (like remembering what you ate for breakfast). The second kind of memory, termed declarative memory, relies on a brain structure called the hippocampus. This structure is highly sensitive to the types of nutritional and stress experiences we expect that some children experienced in institutional care or in less optimal foster care settings.

In our **Memory Study** we used a hippocampal memory task: the continuous recognition task. It required the children to look at pictures of objects that flashed on the screen one at a time. The child's job was to push a button when an object was repeated. The "repeated" objects always had other objects in between them and the child needed to keep several objects in memory as more than one would repeat in a string of objects. So the child might see: cup, doll, dog, cup, boy, train, dog, etc. In this example, the child should have pushed the button for the 2nd cup and 2nd dog in that string. While they performed this task we measured their brain wave activity. When they finished, we took a break, and then after 30 minutes we asked them to sort a set of cards according to whether the picture was one that we had or had not shown them during the task.



The children in the study were 9 through 11 years old. As usual, post-institutionalized (PI) children, children adopted early from foster care overseas (EAFC) and non-adopted (NA) children participated in the study. We are still analyzing the brain wave data. The behavioral data indicated that the EAFC and NA children performed comparably, indicating that being internationally adopted by itself is not related to differences in declarative memory. However, the PI children scored lower on the task, both initially and in the 30 minute delayed recall task. As usual, there was a great deal of variation among the PI children, with some scoring in the same range as the EAFC and NA children. The brain wave data should help us understand the neural basis for this variation. We are hoping that this information will provide insight into some of the academic challenges of PI children. After all, in school you not only have to remember what you are supposed to be doing, but you need to remember lots of facts. If some PI children struggle with declarative memory, then it may help to know that it is not that they are not trying hard enough, but that they need to learn strategies (mnemonics) to enhance their declarative memory skills.

Join the IAP registry! Get involved!

The IAP registry was established in 2002 to encourage researchers to write more grants and conduct research regarding issues of concern to families who had adopted internationally. More than 5000 children have been registered to participate in future adoption research. It is important that we continue to gather families who have recently welcomed home a child so that our registry continues to represent the current international adoption community.

If you know any family whose child has just come home or has yet to join our registry, we would appreciate your making them aware of this registry. The families do not have to live in Minnesota, nor do they have to have adopted in Minnesota in order to be included in this registry. Any family with a child up to the age of 18 is welcome.

To learn more about this registry, please contact us at 612-624-9322 or email us at IAP@umn.edu. Families can also now join the IAP registry online at <http://www.education.umn.edu/icd/IAP/enroll.htm>

Transition into the Family Study

When we first started working with children adopted from institutions, we conducted a small study in which we saw children in our research center two months after adoption. Parents in that study repeatedly told us that we should have seen their children when they first arrived as so many changes had already happened. Studies of children adopted after periods of institutional care indicate that the first two years after adoption is a period of very rapid change and rebound. This is also a period of challenge for families as they adjust to the rapidly changing needs of the child and manage any health and behavior problems that the child presents at adoption.



We have just embarked on a study of patterns of change over the first two years in children adopted from institutions between the ages of 18 and 36 months. We hope to characterize different trajectories of change over these initial years in the family and use these patterns to predict children's cognitive and emotional functioning as the children move into kindergarten and start formal schooling. Parents adopt different strategies to help their children make this transition into the family and we also hope to provide information on how or whether these different strategies influence recovery and later functioning.



We are tracking many different aspects of functioning over this transition period, including:

- Attachment formation and indiscriminate friendliness
- Positive and negative emotional reactivity and self control
- The “tone” of the sympathetic (arouse) and parasympathetic (calm) arms of the autonomic nervous system
- Patterns of stress hormone production



In this study, we will be seeing children and their parents in our research center four or five times in the first two years beginning 4-6 weeks after adoption. Parents also record information on child behavior and collect saliva samples for hormone measurement at home soon after each of these visits. Then we will see the children again at the University when they are 4.5-5.5 years old when we will collect information on brain functioning while children play games that assess different aspects of cognitive and emotional functioning. Finally, we hope to observe many of these children in their kindergarten classrooms.

We began enrolling the first families in this study in August and so far we have seen 15 internationally adopted children and 18 children born in Minnesota. This study may go slowly because there seems to have been a marked reduction in the number of children joining families through international adoption and we need to catch these children when they first arrive home.

If you know of a family who will be adopting an 18 to 36 month-old child from institutional care, please let them know of this study and have them contact us at [612-624-9322](tel:612-624-9322) or by email at IAP@umn.edu

Nancy Ward joins MnIAP

We would like to welcome our new staff member Nancy Ward! Nancy joined our team in April 2008. She is the Project Coordinator for the BDNF Gene Study. Nancy graduated from Wittenberg College with a degree in education and completed her Master's degree at Oakland University. Nancy has worked in the field of adoption for the past 30 years, the first 15 years in Michigan and then for 15 years at Children's Home Society. Nancy was a caseworker and supervisor of social workers in Children's Home's adoption program. She co-authored a book to prepare adoptive families for their experience with a child from a different culture. Nancy has done numerous trainings at national adoption conferences.



Gene and Resilience Study

Children adopted from depriving situations often are quite delayed at adoption but show remarkable capacities for recovery in their adoptive homes. Nonetheless, every study of post-adoption recovery reveals that some children are quite resilient and recover rapidly, while others continue to struggle years after adoption. Among the many processes that facilitate and constrain resilience, substances produced in the brain that protect neurons and support brain growth and repair likely are involved. One of these substances is called brain-derived neurotrophic factor or BDNF.

The MnIAP has begun a study on BDNF by examining whether variations in the gene that codes for this substance helps explain some of the variations in resilience in post-institutionalized children. Our study, which is being done in collaboration with Professor Kathleen Thomas at the University of Minnesota and other colleagues in New York, consists of two phases. In Phase I, parents of children ages 8-13 complete a questionnaire on their children's behavior and the children provide saliva samples from which we determine which versions of the BDNF gene the child has inherited. In Phase II, when the children are 12-13 years old, some of the children are asked to come in for a brain scan. During the scan we measure the size of brain structures involved in emotional learning and the activity of these brain regions when the children complete different learning tasks.

We began to recruit children for Phase I last June and are very grateful that families have been so willing to help with this study. So far we have complete Phase I data on 117 children and with many still in process. We hope to collect Phase I data on approximately another 270 children over the next 2 years. We started Phase II in July. This phase requires that we only test children who do NOT have braces or other metals in the body. We have seen 18 children in the scanner so far, and hope to see about 2 per week during the school months and more over the summer months for the next few years. By the time we are done, we hope to have good scanning data on 250 children. This will take seeing more than 250 children in the scanner because wiggling (which is really hard for kids not to do), makes for blurry brain pictures which we cannot use.

While we won't be able to report results for this study for quite a while, we are extremely grateful for the fact that parents and children are so willing to help with this study. This is a study where, even if we find no relations with BDNF gene variations, we will have a great deal of information about brain activity during learning and problem solving-- information that should be very helpful in understanding processes contributing to social and academic functioning in children adopted from institutions.

For more information on the BDNF Study please contact Nancy Ward at 612-626-8949.

Helping High Risk Children in the US

What we are learning about internationally adopted children not only indicates how and why some of these children face challenges as they grow up, it also tells us how much being adopted into a loving and supportive family can improve the development of children who start their lives under “risky” circumstances. Much of what we are learning about internationally adopted children helps inform our work on children born in the US who are struggling to develop under conditions of poverty and maltreatment. Here we report just a few of our findings in collaboration with colleagues studying high risk children in the US. The funds that support work with internationally adopted children do not support these studies, but the information we gain from the MnIAP does.

Homeless Children: With our colleague, Professor Ann Masten, and her graduate students, we have been examining stress hormone levels in preschoolers living in a homeless shelter in Minneapolis. All of these children’s families are economically challenged, of course, but they do vary in how many resources are available to them. Many of these families also are experiencing numerous emotional challenges and the children have been exposed to varying degrees of family distress and emotional trauma. One question we asked is, “which seems to be more important in predicting how much stress hormone the children produce, the family’s economic and other resources or the amount of emotional upheaval and trauma the child and family have been experiencing?” The answer is that it is the family’s emotional upheaval that impacts the preschool-aged child. Even for the families in the most dire straits, if the family and child have not been subjected to significant emotional upheaval and trauma, the children are not producing elevated levels of stress hormone. These findings are consistent with other work indicating that stress in young children is closely tied to the emotional stability or upheaval in their families.

Improving Outcomes for Preschooler’s in Foster Care: We have been working with colleagues at the Oregon Social Learning Center to help understand how a major intervention study they are conducting is improving outcomes in 3- to 6-year olds placed in foster care. Their intervention is targeted at supporting foster parents in effectively managing the children’s behavioral and emotional problems and in helping the children learn skills they will need as they move into formal schooling. The intervention program is helping to stabilize the lives of foster children, reducing the number of times they bounce back and forth between family and foster care. It is also helping to reduce their behavior problems. With our colleagues we have been examining whether it is also affecting the stress hormone levels the children produce. We now know that infants and preschoolers in foster care show atypical patterns of stress hormone production over the day. We also know that the intervention program helps to keep those stress hormone patterns from getting even more disordered over time in foster care. What we were less sure of is what specific aspects of the program were causing the stress hormone to stabilize in their intervention group. We have just completed an analysis that is giving us some clues. Unfortunately, when a child goes into foster care they often bounce from one home to another. This happens because they are reunified with their parents and if the reunification doesn’t work, then they are back in foster care. Or they are placed with one foster family and then end up needing to be moved to another. One of the major goals of the intervention program is to make these moves more predictable and less stressful by working with the current foster parents, the child, and the new placement (parental reunification, another foster family, or an adoptive family). When we analyzed the patterns of stress hormone production surrounding the first transition after foster placement, we found that the intervention program prevented the move from destabilizing the children’s stress hormone patterns. That is, following the first move, the children in regular foster care showed disorganized patterns of stress hormone production that got increasingly disorganized over time, while the children in the intervention program did not. This work is consistent with evidence that transitions in care are very stressful for young children, and that extra effort is needed to make these transitions smooth and less disturbing.

News from **International Adoption Medicine Program & Clinic**

The Minnesota International Adoption Project maintains close relations with the University of Minnesota's International Adoption Medicine Program and Clinic. Because this clinic and medical program is important to many of our international adoption families, we asked the clinic to provide information about changes and updates in this newsletter.

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NEW HIRE

Judith Eckerle Kang, M.D., (pictured left) joined the staff of the IAMP in September 2008. An adoptee herself (from South Korea in 1977), Dr. Kang brings a passion for international adoption medicine. She sees patients in clinic and does both pre-adoption medical reviews and consultations with families from all 50 states and from other countries who allow international adoptions. Her research interests include fetal alcohol effects and other predictors of cognitive functioning. Dr. Kang is also fast becoming a nationally recognized expert on issues of post-institutionalized children and has been an invited speaker or guest at a number of local, regional and national organizations.

GOODBYE AND FAREWELL

In August of 2008 our long-time colleague, Mary L. Chesney, earned her Ph.D. and concurrently accepted a position as a clinical assistant professor in the School of Nursing. Since 1996 her contributions to the clinic and the program were numerous—touching the lives of hundreds of families of international adoptees through her clinical care and parent education. Prior to her departure, Dr. Chesney developed a tool to measure discrepancies between parents' pre-adoption expectations and post-adoption experiences. She plans to use this newly developed tool to measure the effectiveness of a pre-adoption parent preparation intervention in the coming year.

STRENGTHENING CONNECTIONS IN ETHIOPIA

In partnership with Children's Home Society and Family Services and the pediatric residency program at the U of MN, our program sent medical resident, Dr. Sarah Frenning, to spend eight weeks (January-February 2009) in the care centers in Addis Ababa, as part of an international elective in her resident education. This was the first time our program has sent a medical resident abroad to develop knowledge of international health issues firsthand. Dr. Frenning was accompanied by Dr. Bea Murray, pediatrician and expert in the area of children with special needs, and our own occupational therapist, Megan Bresnahan, to Addis Ababa to help evaluate the development of children in the care centers, performing developmental exams and special needs interventions, and providing education for staff. Our collaborations and exchanges among faculty, staff and medical residents will ultimately help orphans—those who get adopted and those who do not—receive the best health care possible.

INFLUENCING INTERNATIONAL POLICY

Dr. Dana Johnson maintains his position on the board of directors for Joint Council on International Children's Services (JCICS), whose mission is "to advocate and protect the right of every child to have a safe, permanent and loving family," where he frequently informs that body about orphan issues. Also in 2008 he traveled to Eastern Russia to present on the detrimental effects of early childhood institutionalization and to Kazakhstan to help improve nutrition in orphanages there.

In May 2008, Dr. Kang and a delegation of former Korean adoptees in various professional positions from around the United States traveled to South Korea to participate in a panel advocating for children there who have been released for adoption. The goal of the panel was to emphasize the need for these children to find loving families and not to have to remain permanently in foster or institutional care, which is not in the best interest of these children. The panel addressed the South Korean Ministry of Health and Welfare, members of the Blue House, and adoption agency representatives. Dr. Kang will join this delegation on a second trip to South Korea in May 2009.

In 2008 the IAMP hosted discussions with visiting delegations from both Cambodia and Madagascar, where officials there came to learn about our widely-known research, education and patient care.

Stress and Growth Hormone Functions in Children from Institutional Care

Infants and young children growing up in orphanages or other institutions often are deprived of the physical (food, medical care) and social experiences that support healthy physical, cognitive and emotional development. We have been struck by the fact that, in addition to being delayed in their behavioral development, about 40% of children adopted from institutions are extremely small in stature (height) when they reach their adoptive homes. Because their weight is pretty typical for their height, we believe that their short stature is due to lack of sufficient attention and affectionate contact prior to adoption. We think that deprivation of attention and affection “tells” the growth hormone system to turn down its activity. Physical growth demands a lot of energy, and we think that slowing down the growth system may protect the child by keeping more energy in reserve to deal with the stressors of institutional life. Indeed, we know from other work by the MnIAP that children who are quite short in stature at adoption do have stress hormone systems that show the signature of chronic stress.

Once these “short stature” children reach their families, most begin to grow rapidly. However, some continue to show poor growth. The **Stress and Growth Study** is an attempt to understand two things: are there risks to rapid post-adoption growth and why do some of the children continue to grow poorly after adoption? Four researchers in the Department of Pediatrics and the International Adoption Clinic are working on this study: Dr. Dana Johnson, Dr. Maria Kroupina, Dr. Anna Petryk and Dr. Bradley Miller. They are examining stress hormones, growth hormone, and many “growth factors” produced by the children at adoption and over the next months and years after adoption. They are also examining how the nutrition the children receive after adoption impacts their growth patterns.

Participants

The children enter this study through the International Adoption Clinic. To participate, they needed to be 8 to 48 months old at adoption and come from Eastern European orphanages. A total of 122 children were seen for their first study visit 2-3 weeks post adoption. The second clinical research visit at six months after adoption has also been completed. These visits include both physical assessment (physical growth measurements, growth hormone collection, and cortisol collection) and a developmental assessment. Parents are asked to complete several questionnaires and to collect cortisol via saliva at one month and six months after their child’s arrival into the U.S. In collaboration with Dr. Judith Kang, a new faculty member in the Department of Pediatrics and International Adoption Clinic, children have begun returning for a two-year post-adoption visit. For this visit, parents are again asked to complete several questionnaires and collect their child’s saliva at home. Families also are invited for a physical growth follow-up and developmental assessment.

Rapid growth in children

In collaboration with Dr Michael Georgieff and Anita Fuglestad (graduate student in Institute of Child Development) this team has been exploring the impact of rapid physical growth on nutritional status in IA children. Physical growth is very demanding on the body. In particular, a growing body needs to produce larger amounts of blood to move nutrients through a larger body. More blood requires iron. When the body grows really rapidly the demand for iron can begin to exceed what is available in the diet. One question this study addresses is whether the amazingly rapid growth spurt of post-institutionalized children in the first months after adoption might challenge their iron stores. Based on the initial results of the study, it has been recommended that iron status in IA children be monitored by medical specialists during the first six months post-adoption. It is particularly important that medical specialists monitor IA children who experience rapid catch up growth. For the additional information and recommendations, please visit the IAC web side <http://www.med.umn.edu/peds/iac/research/home.html> or email us at iac@umn.edu.

Stress and Growth continued on next page...

Stress and Growth continuation...

Poor Growth

All of the children in the study with significant growth concerns after 6 months post-adoption are seen by an endocrine specialist team in the clinic and receive early intervention services. We are still in the process of learning about the factors that explain the growth of these children.

We are grateful to all the families who have participated in this study. As a result of this study, the International Adoption Clinic has adopted a new model for following-up children at six months and one year post-adoption to provide early intervention for physical growth and developmental concerns.

If you would like to know more about this research project and results, please check the IAC website at <http://www.med.umn.edu/peds/iac/clinic/eustudy/eupreliminary/home.html> or contact Dr. Maria Kroupina by phone at (612) 624-6609 or by e-mail at kroup003@umn.edu



Growth, Nutrition and Neurodevelopment in Internationally-Adopted Children

Dr. Michael Georgieff in collaboration with Dr. Maria Kroupina, Dr. Dana Johnson, and Anita Fuglestad are also launching a new research project. Due to high-risk pre-adoption environments, internationally-adopted children are at risk for nutrition deficiencies; however, nutrient status has not yet been studied in these children. Understanding the children's specific nutrient status and its role in their post-adoption development is of particular interest for the development of early intervention programs. Unlike many risk factors, nutrient deficiencies at adoption are amenable to intervention. Results of the study will be the first step in helping designing nutrient interventions in this population. For this study, we see children who are between 11 and 17 months of age at the time of adoption, are from China, Eastern Europe, or Africa, and are coming to International Adoption Clinic for their initial visit. Research funds cover comprehensive nutritional battery at the initial and six month clinical visit. Children who are identified as being at nutritional risk will be treated by the medical team. We are also assessing the children's neurodevelopment at 2-3 weeks and 6 months post adoption.

If you would like to know more about this research project, please check the IAC website at <http://www.med.umn.edu/peds/iac/research/nutritionstudy.html> or contact Anita Fuglestad by phone at (612) 624-3199 or by e-mail at fugle007@umn.edu

★ IAP Parent Board ★

We would like to express our gratitude to the members of the IAP Parent Board, for their input and support of our research projects:

Patti Bower

Kate Brady

David Casey

Jamalee Desmond

Amy Kusber

Cari Lee

Marc Markell

Kate Swensen



The International Adoption Project Fund

An opportunity to support our work through your tax deductible contribution

The University of Minnesota's International Adoption Project is dedicated to providing answers to families created through international adoption. Our registry currently holds more than 5000 internationally adopted children, giving researchers opportunities to explore questions specific to families created through international adoption. We have been very successful obtaining grants to cover the cost of research with internationally adopted children.

Unfortunately, those grants do not cover the costs of maintaining the registry and sending out the newsletter. If you would like to contribute to the support of these activities, please visit the University of Minnesota's foundation website for the International Adoption Project to make a tax deductible contribution:

https://www.foundation.umn.edu/pls/dmsn/online_giving.frames_broker?owner=IAP

Any amount that you are willing to give is greatly appreciated. Because the University Foundation is overseeing this account, 100% of your donation will go directly to maintaining the registry and providing the newsletter. Your contribution will be anonymous. We feel that providing this research information to families and adoption professionals is worth the cost and we hope you feel the same. Thank you for considering supporting our work through your tax deductible contribution. If you have any further questions about this fund, please feel free to contact us at 612-624-9322 or by email at IAP@umn.edu.

Thank you to all of you who contributed in the past!