



SUMMER 2019: NEWS FROM THE UNIVERSITY OF MINNESOTA

Gunnar Lab for Developmental Psychobiology Research



Greetings from Professor Megan Gunnar:

The Gunnar Lab research team studies stress and its regulation and the impact of early life adversity on children's development. We are very grateful to all of the families and children who have helped us in our work over the years. This newsletter contains stories about our current and on-going work. It also contains stories from our research partners in the work we do with internationally adopted children. These partners include [Distinguished McKnight University Professor Rich Lee](#) and his students in the [Familee Lab](#) who work with young adults who were adopted from Korea. Rich's work helps us understand the experience of international adoption as it relates to identity and mental health. Our partners also include [Judith Eckerle, M.D.](#) and the [Adoption Medicine Clinic](#) at [University of Minnesota Masonic Children's Hospital](#).

Again, thank you to all the families who have taken part in our research.



Regents Professor Megan Gunnar

Updates from Pubertal Stress Recalibration Study

By Megan Gunnar, Carrie DePasquale, and Melissa Engel

In our previous work, we found that the key stress system of the body learns about the world in the first year or so of life and sets itself to adapt to those conditions. If conditions are harsh and stressful, rather than remain reactive, it changes its regulation so that it does not produce high levels of cortisol, a powerful stress hormone. Remaining reactive might mean that, living in high stress conditions, it would frequently produce high levels of cortisol, which could be damaging to the developing brain and body. Opting to be hypo-reactive, though, also comes with its own problems. This is because part of the job of a cortisol stress response is to turn off and disrupt the activity of other stress-responsive systems like the immune system. When children grow up in safe and supportive environments, they can afford to have a reactive cortisol system, reaping the benefits of a stress response when it is needed.

Once set in infancy, can the cortisol stress system recalibrate if conditions change? We have seen that it stays set to a low level of reactivity for years after children reared in institution (orphanages) are adopted into supportive homes. Puberty, though, is a time the brain and body undergo marked changes. There is increasing evidence that during puberty the brain is more plastic,

Participants	
	142 internationally adopted
	179 non-adopted
<div>Ages 7-15 years</div>	<div>137 Boys</div> <div>184 Girls</div> 

changeable and responsive to input from the environment. We wondered whether with puberty our stress system wakes up and “tests the waters” again, asking, in a sense, “how harsh and stressful will my adult life be?” If so, then it might be that the stress system of children adopted from harsh conditions in institutions would “recalibrate” and become more reactive, like that of children who were born into safe, secure, well-resourced conditions.

To answer this question we studied 321 children and adolescents (142 adopted, 179 non-adopted) over two full years. We had three assessment points: when participants first joined the study, then a year later and a year after that. At each assessment, nurses assessed the participants’ pubertal status, we had participants collect saliva for cortisol analysis at home on three days once upon waking up, then 30 minutes later, and at bedtime. Participants



Saliva samples are collected during the research session in the Puberty Study.

also took part in a social stress test that involved giving a speech and performing mental arithmetic aloud in front of judges while being videotaped. We also conducted an intensive interview from which we derived a measure of current life stress. We assessed the last participant in September of 2018. Since then we have been processing the tremendous amount of information these families and participants have provided. We have learned some very interesting things that we are delighted to share with you.

The Cortisol Stress Response Does Recalibrate

Last year we reported on the first full year of assessment during which the participants were between 7 and 15 years old. Comparing across age (as opposed to the same participant over time), we did see evidence that the stress system might be recalibrating. Nonetheless, because it wasn't the same participants over time, we could not be truly sure that change was also taking place within each participant with puberty. Now that we have all three assessments, we are happy to report that the stress system does clearly appear to be "testing the waters" and resetting itself to the much more supportive conditions that the kids are now living in. It is as if the system is saying, "I can afford to be reactive, because my world is generally safe."

In the study, after the participants arrived in the research space we gave them some time to adapt to

When children grow up in safe and supportive environments, they can afford to have a reactive cortisol system, reaping the benefits of a stress response when it is needed.

being with us and then began the stress test while repeatedly taking saliva samples for cortisol. During the test, participants spent 5 minutes preparing to give a speech about themselves, then they gave the

speech for 5 minutes and afterwards did 5 minutes of mental arithmetic out loud all the while being judged and filmed and watching themselves in a mirror. The test was over in 15 minutes, but the cortisol stress system takes 25 minutes to reach peak levels, then it should start falling back to pretest levels. In Figure 1 below, the right panel shows data from the non-adopted kids. There really wasn't much change in the cortisol response as a function of pubertal stage. The left panel shows data from the adopted kids. Stage one (lowest level and lowest cortisol) is before puberty really starts. You see that the adopted kids are not showing any cortisol response at all. By stages 2 and 3,

however, we begin to see some response. By stages 4 and 5, the adopted youth cortisol response look very much like the non-adopted kids. This is the first clear demonstration that Dr. Gunnar's pubertal stress recalibration hypothesis holds and it also is good news, we believe, for children adopted from orphanages.

Impact of early and current stress on the body's alarm clock

It is hard to get up in the morning – so, our body has developed ways to help us. One aspect of the body's physiological "alarm clock" is the cortisol awakening response (CAR). We also examined this response in the Puberty Study. Cortisol is commonly referred to as the "stress hormone"; however, it is also important for activating our metabolic and mental resources, and helps us maintain our circadian rhythm (a.k.a. our body's internal clock).

The CAR helps us wake up in the morning by increasing cortisol production, particularly in the hour

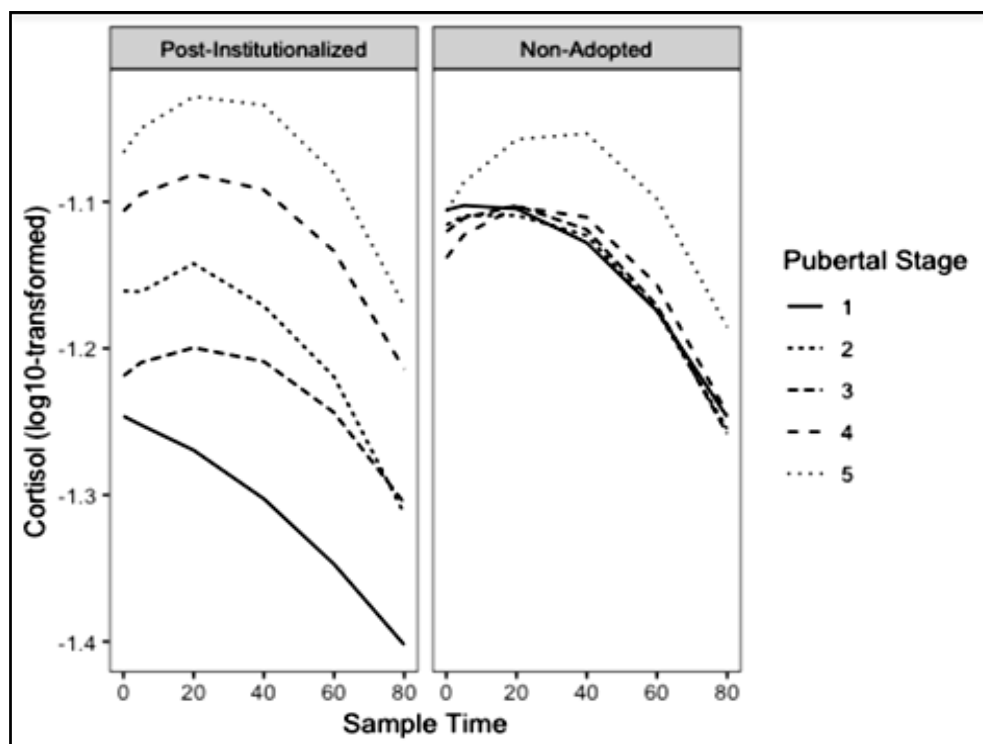


Figure 1. Evidence of recalibration in post-institutionalized children.

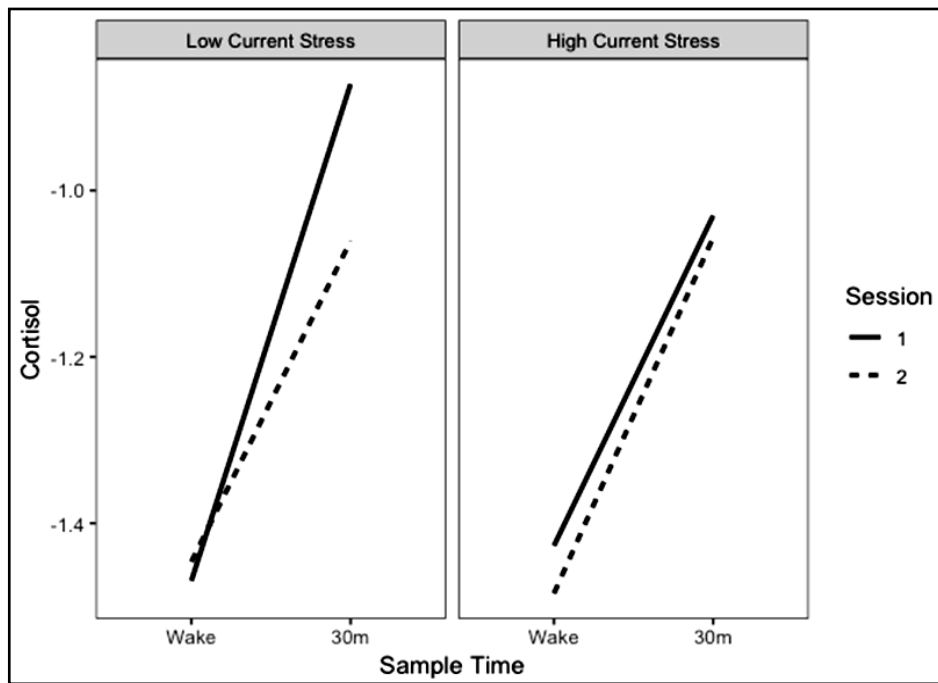


Figure 2. Each line represents the cortisol awakening response (CAR) at the first (solid line) or second (dotted line) time point. Adolescents (adopted and non-adopted) reporting the lowest current stress show a decrease in CAR over time, but the CAR of youth reporting higher stress does not change.

before and peaking 30-45 minutes after awakening. Some past research in our lab has shown that children adopted from orphanages show a less-pronounced (a.k.a. smaller increase) CAR compared to non-adopted children. However, we have suspected that puberty might be a window of opportunity during which aspects of cortisol regulation, including the CAR, could be “re-calibrated” to their current environment, which poses substantially fewer risks than the orphanage they experienced as an infant. For example, adopted children’s CAR might increase over time, to become comparable with non-adopted children’s CAR.

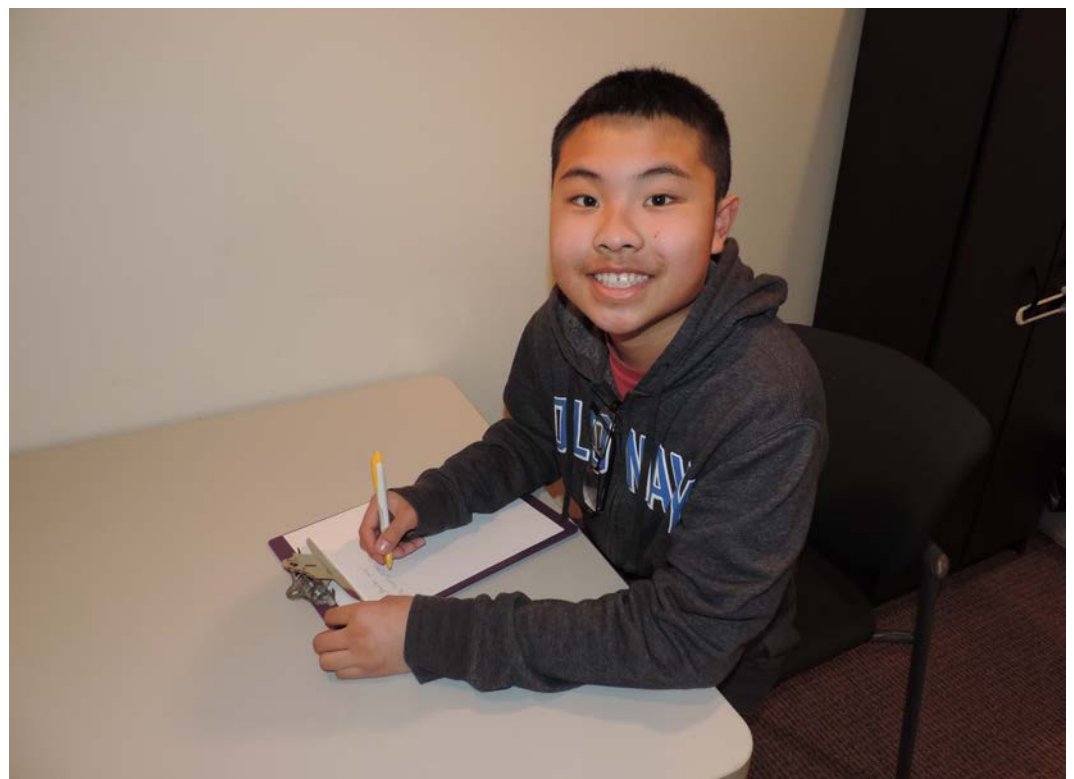
Last year we reported that the CAR was blunted for children and adolescents

who were adopted from institutions if they were adopted later (after 16 months), but not if they were adopted earlier. That is, we saw no evidence of recalibration. This year we focused instead on examining change in the CAR from the first assessment to the

second assessment. We did not find that this change differed for adopted and non-adopted children, thus so far we are really not seeing evidence that it re-calibrates. What we have found is that both adopted and non-adopted children show a developmental change in the CAR that interacts with current life stress.

Previous studies, not in our research group, reported that the CAR increases as youth progress through puberty. In our study, with many more participants, we found that the CAR actually decreases as children progress through puberty, as seen in Figure 2. The decrease with development is seen especially for the youth whose lives are currently low in stressful experiences, but shows less of a decrease for those who currently experience higher life stress. That is, the kids who are currently reporting conflict with parents, problems in academics, and/or conflict with friends show less of the normative developmental decrease in the CAR seen in the other children.

Furthermore, a decreasing CAR from the first to the second assessment was



predictive (statistically) of parents reporting less aggression and conduct problems. This supports the idea that, because cortisol functions as both a stress hormone and a part of our biological clock, moderate levels of cortisol (but not too high *or* too low) might be best for children's development.

Stay tuned next year to see the full results looking at all three years of CAR and the change across puberty!

Other Findings from the Puberty Study: The Discordance Analysis

The Puberty Study provided us with such rich data that we were able to run additional analysis, including one that examined the extent to which parents and children agreed on their reports of the child's anxiety and depressive symptoms. Anxiety and depression are internal states. Unless the child shares what they are feeling and thinking with the parent, the parent can only guess at how anxious

For both post-institutionalized and non-adopted youth, the more the parent's report differed from the child's report, the more stress children described in their lives.

or depressed the child is. This is why, especially as children become adolescents, psychologists rely increasingly on what the kids tell them about anxiety and depression. Nonetheless, discrepancies between parent and child reports of the child anxiety and depression suggest that the child isn't using the parent to help regulate these emotions, or the parent isn't understanding what the child is trying to convey. Either way, we might expect that child to report more stress in their lives because parent and child are not seeing the child in the same way.

We examined data from the first two assessments of the Puberty Study. At each assessment, we asked parents and children to complete questionnaires rating children's anxiety and depressive symptoms. We then looked at the absolute discrepancy between parent and child report measures. At each assessment, we also conducted a stress interview with the child.

As we predicted, the more discrepant the parent and child reports on the child's anxiety and depressive (i.e., internalizing) symptoms, the more stress the child described in their lives. This was true regardless of the child's age and it was true for both of the years of assessments. Adopted (PI or previously institutionalized) kids and their parents were more discrepant in their reports on anxiety and depression, but for both adopted and comparison (non-adopted, NA) kids, the more the parent's report differed from the child's report, the more stress children described in their lives, as seen in Figure 3.

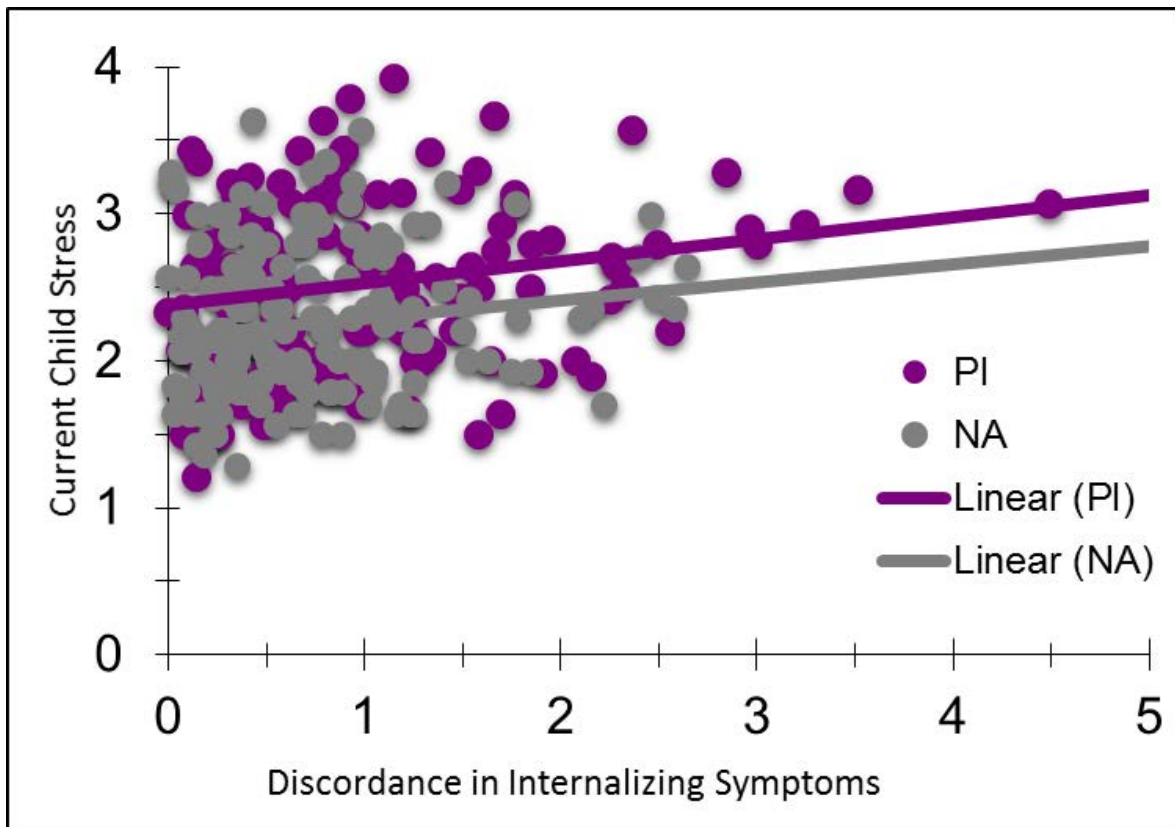


Figure 3. Parent-child discordance in reports of children's internalizing symptoms is significantly associated with child stress interview scores for both post-institutionalized and non-adopted youth.

Immune Study

By Brie Reid



Inflammation is a key part of our immune system: when our body experiences inflammation in the short-term, it helps our wounds heal and our body recover from some illnesses. Chronic, low-level inflammation is different, as it reflects the body's inability to return to a non-inflamed state. Chronic, low-level inflammation seems to play a role in a lot of different diseases such as type 2 diabetes, heart disease, Alzheimer's, cancer and, in some cases, depression. The theory is that adverse early care environments are believed to negatively impact the immune system and contribute to a pro-inflammatory state that is thought to increase risk of chronic, low-level inflammation as the individual ages. Youth who are currently living in harsh psychosocial conditions have been noted to show chronic increases in inflammation. However, it is difficult to know if the inflammation in individuals who have experienced adverse early care environments are due to the early care environments themselves, or due to continued and significant life stressors throughout childhood and adolescence. This is because most individuals experiencing adverse care in infancy go on to experience significant life stressors throughout childhood, making it difficult to isolate the impact of the infancy period. This is not the case for children adopted internationally from orphanages and other institutions. For them, harsh conditions end with adoption. We wanted to know if, under these circumstances, we would see a pro-inflammatory state in teenagers adopted from orphanages versus teens who were not adopted, but reared in families similar to those of the adopted teens.

The good news is that we found no evidence of chronic, low-grade inflammation in the adopted teens. When we examined their plasma, their levels of several indices of inflammation were no higher than those of the comparison teens and for both groups levels were in the normal range. To probe more deeply, we put the white blood cells in culture and

stimulated them with different pro-inflammatory challenges. On two of these challenges we saw no significant differences between the cells from the adopted and the comparison teens. More good news. However, on one of the challenges the cells from the adopted teens responded more. Thus, there may be some slight bias towards greater inflammation, but at least as adolescents, it is not pronounced.

One reason we may not be seeing a pro-inflammatory state in the youth adopted out of harsh early life conditions is that this state is highly associated with obesity and being overweight. Many youth growing up in poverty and chronic stress are also overweight. However, youth adopted from orphanages, as a group, are not. We found the expected association between body mass and chronic inflammation in both the adopted and comparison group, though on average the kids in both groups had healthy weight for their heights.

Orphanages are often breeding grounds for parasites and other viruses and pathogens. Many children adopted from these institutions have been exposed to high pathogen loads, relative to kids born into highly resourced homes in Minnesota. This means that their immune system had to work hard early in life. For many

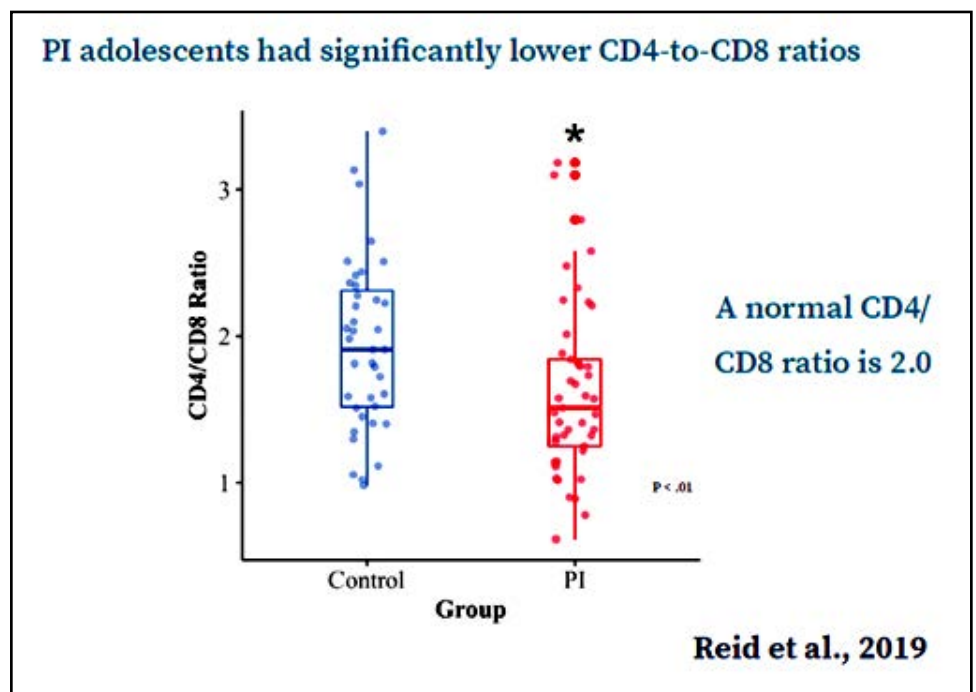
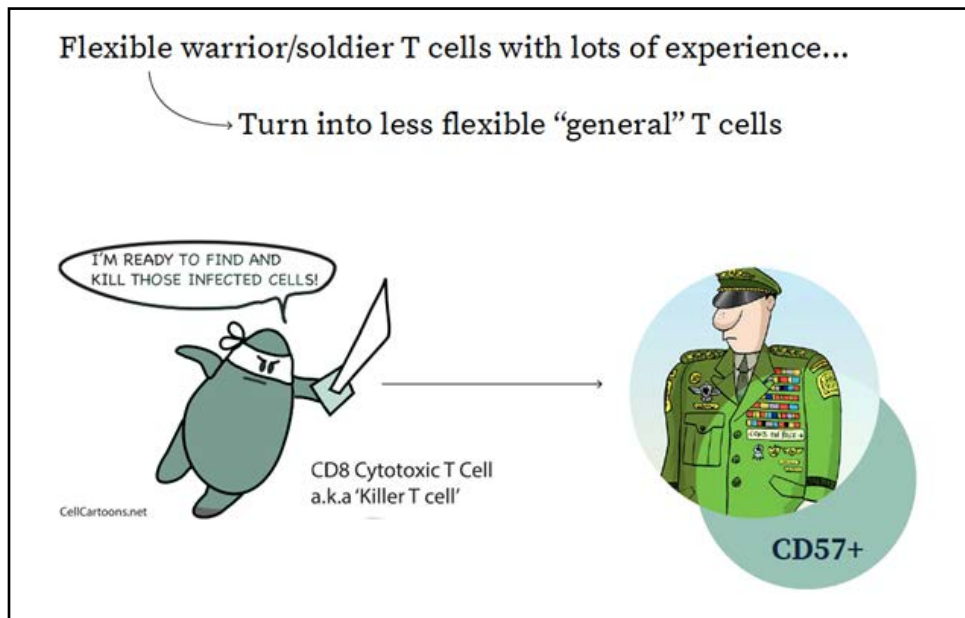


Figure 4. T cells CD4/CD8 ratio of teens adopted internationally (PI) and non-adopted teens (NA).

of these kids they harbor forms of the herpes virus that their immune system has to chronically fight to keep the virus in check. One such virus is the cytomegalovirus of CMV. By the time most people are old (e.g., 60 years or more) they have acquired this virus and are keeping it in check. Thus the virus is nothing to worry about. Acquiring it early, however, means that your immune system has had to work to check it for many more years. This may speed up the aging of the immune system relative to individuals who acquire these viruses later in life.



In the Immune Study, we found that most of the adopted teens had the CMV virus and were keeping it in check, while less than half of the comparison teens tested positive for CMV. We then examined two types of T cells, CD4 and CD8. Simplified, the CD4/CD8 ratio is a reflection of immune system health and a normal CD4/CD8 ratio is between 1 and 4. In much older populations, a ratio below 1 is indicative of immune insufficiency. In our study, neither adopted or comparison teens had a CD4/CD8 ratio below 1, but the teens adopted from orphanages had a lower ratio than their non-adopted peers. Figure 4 depicts what are called box and whisker plots. Each dot is a teen in our study. The line in the middle of each box is the average or mean, the top and bottom of the box are the 25th and 75th percentile and the whiskers indicate the highest and lowest score. Of concern, we did see some of our adopted teens scoring below one. There is very little normative data on healthy teenagers and all of the teens in this study were healthy. Thus it is not clear what a score below one would mean at this age. It might mean nothing, it might mean that a susceptibility to having a harder time fighting viruses and such. We do, however, have an idea why some of the adopted teens were scoring so low. They were the ones who had higher CMV levels.

Because chronically keeping CMV in check from early in life may age the immune system, we also examined T cells for the presence of a protein called CD57. T cells go through a life cycle. When they are first birthed from the thymus gland they are naïve. Then they encounter a pathogen and

start differentiating and maturing. At the last stage they become terminally differentiated and acquire this CD57 protein. Older people may have many terminally-differentiated T cells that are tagged with CD57, a sign of an aged immune system. One way to think

of this is like the young T-cells are flexible warrior or soldiers who are ready to learn to fight many types of invaders. But with each battle they fight they begin to get set in their ways. They become like generals with many medals who are good at fighting the old wars, but become less and less able to fight the new ones.

There's evidence of immune differences (in T-cell Profiles) in post-institutionalized adolescents, which is suggestive of accelerated immune aging, or immune senescence.

What we found in the Immune Study was that the adopted teens had more terminally-differentiated CD4 and

CD8 T cells that were tagged with CD57. These were far from the majority of their cells, but they had more of them than the comparison teens. The percentage of CD8+ CD57+ cells was predicted by the level of CMV in the blood. Thus, like the ratio of CD4 to CD8, chronically battling this virus since infancy seems to have produced a more mature, more experienced, and thus a slightly more aged immune system.

We can only speculate that had these teens not been adopted, had they remained in institutional care, we would have found even more evidence of immune aging and perhaps more evidence of chronic inflammation. Adoption likely halted the assault on the immune system, but still left a signature of what the immune system had to deal with when these teens were very young.

Toddler Attention Study

By Emily Reilly and Shanna Mliner



A child's ability to regulate their attention is critical for developing self-control, which becomes especially important when a child enters school. Therefore, early screenings of attention are essential for identifying toddlers that would benefit from interventions to improve their executive attention skills. However, there are no easily administered measures of executive attention for children under age 2. To address this, one of the goals of the Toddler Attention Study was to determine whether possible delays in attention development can be effectively assessed in the pediatric clinic during well-child visits using new tools.

We have been working on this project with the support of Children's Minnesota at their pediatric clinic sites in St. Paul and in collaboration with the Dr. Jed Elison's

Joint attention,
or paying attention to the same
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language development.

Research Lab here in the Institute of Child Development. We have learned a good deal about how to set up a tablet with a built in eye-tracker and be able to capture the child's eyes cleanly without the parent's eyes being detected. [Note, you cannot cover the parent's eyes because then the child turns around and is curious about

what is going on with their parent, ignoring what is playing on the tablet.] We are busy analyzing the data from the tablet task and should have an answer soon on whether we can use it in a clinic setting.

In this study we also used a "low tech" test to measure joint attention. Joint attention, or paying attention to the same thing as another person purposefully, is critical to language development. "That's a dog" only makes sense if both the child and adult are paying attention to the same thing, a dog. Our colleague, Dr. Jed Elison, developed a task that examines whether and how

consistently infants engage in joint attention with a researcher. We took this task into the clinic and found, as expected, that this skill gets better and more consistent with age from 9 through 15 months, as seen in Figures 5-6.

From a policy perspective, we are also interested in whether the large financial inequalities in our society

have implications for the development of executive and joint attention in children. For our next steps, we will look at whether toddlers in families with differing financial resources and differing levels of stress also differ in their executive or joint attention skills. If so, this has implications for policies aimed at reducing inequalities and using interventions to support the development of attention in infants.

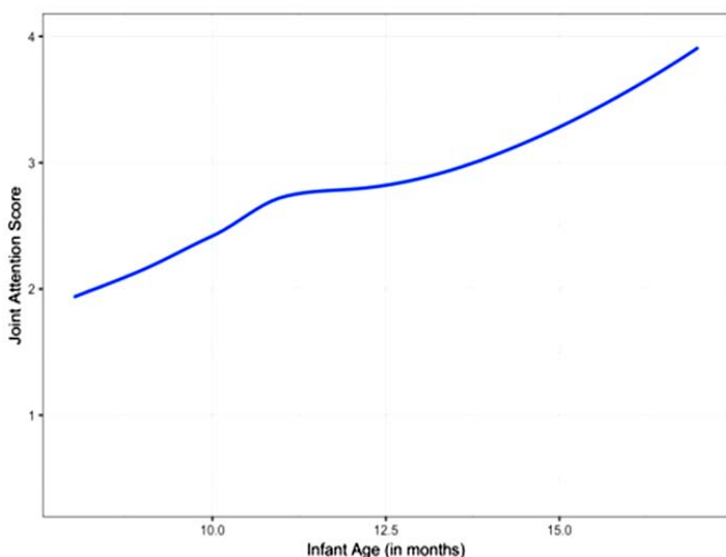


Figure 5. Joint attention improves with age.

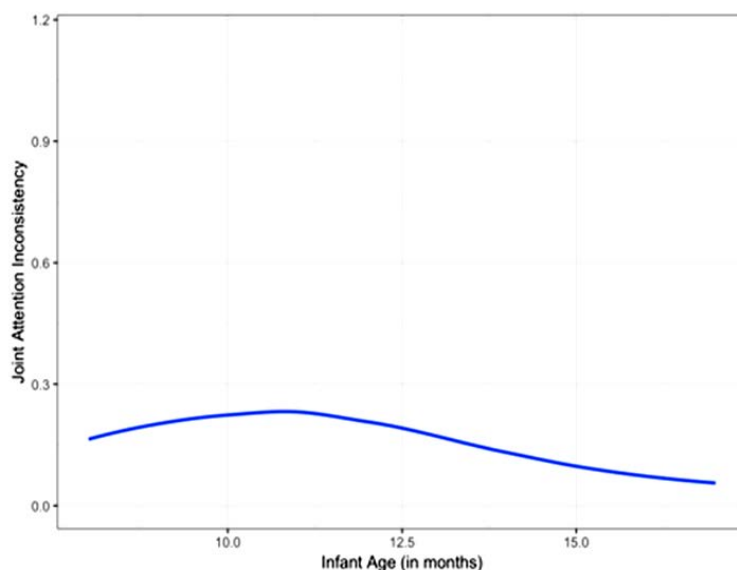


Figure 6. Joint attention gets more consistent with age.



Disinhibited Social Engagement: What Patterns of Parenting Help?

By Carrie DePasquale

Children adopted from orphanages are at risk for something called Disinhibited Social Engagement Disorder. That is, they are indiscriminate in who they approach, often being willing to go off with strangers and anyone who is “nice” to them. This pattern is seen among children still in institutional care and might be their way of getting their needs for affiliation met, even by people they have never seen before. In previous newsletters, we have reported that for most orphanage-adopted children, this behavior wanes over time. However, for some, it doesn’t go away and even increases.

Parents who adopted children from institutions worry about this behavior. They get lots of advice on what to do to reduce it. As part of the Transition into the Family Study that we completed in 2015, we observed and coded parent-child behavior four times over the first two years the child was in the family. We had parent and child play together, perform a difficult task together and then clean up toys. We also conducted assessments of how the children reacted to a stranger who tried to play with them.

In a recent analysis, we asked which dimensions of parenting were important for curbing disinhibited social approach. Developmental psychologists typically examine two dimensions of parenting: (1) how sensitive and responsive is the parent and (2) how skillfully and patiently does the parent impose limits and provide structure and guidance. The first dimension, sensitivity and responsiveness, examines the parent’s attempt to follow the child’s lead and respond when needed, but not intrusively when not needed. The second dimension examines the parent’s ability to set limits (“It is time to clean up now”) and provide structure (“in a few minutes we are going to clean up, so finish up what you are doing”). In a sense, the first dimension allows the child to be in the driver’s seat, while the second allows the parents to set the rules of the road.

Parenting that demonstrates
responding adaptively to
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cuddle up to.



It is important to note that nearly all of the parents in the Transition into the Family Study scored average to really high on both of these dimensions, especially on the sensitivity and responsiveness. Nonetheless, we did find that parenting helped explain some of the variation in disinhibited social approach, especially the more extreme aspect of it, which was making physical contact with the stranger (i.e., climbing in her lap, leaning up against her).

Figure 7 shows that being highly responsive seems to be a risk factor for the children continuing to show high levels of disinhibited behavior, unless it was accompanied by high levels of structure and limit setting. Generally speaking, developmental psychologists think that being high on both dimensions of parenting is a good idea. However, here we see that if we are going to put our kids in the

driver's seat and these kids come from institutions and are at risk for atypical social behavior, we had better also hone our skills at setting limits and providing lots of structure.

Why? We are not sure. It could be that lots of "following the child's lead" (a.k.a. sensitivity and responsiveness), led these parents to inadvertently reward their children for being friendly to strangers. After all, if this is what the child seemed to want to do, then the sensitive parents will go with that. Alternatively, it might be that the key to helping children who started out in institutions to figure out what and who they need to pay attention to is really clear "rules of the road" that are imposed carefully, logically, and consistently. In earlier work, we found that children who continued to show lots of disinhibited social approach behavior were also children who struggled with regulating their

attention. Parenting that demonstrates responding adaptively to children's needs and setting clear rules and limits may help children hone their attention skills and thus help with sorting who they should and should not cuddle up to.

As in any good study, one finding leads to many questions. For now, though, it is pretty clear that children who are adopted from orphanages benefit from parents who both "follow their lead" and gently, clearly, consistently, and calmly "set the rules for the road".

**Parenting note:* If you are now remembering every time that you "caved in" to a child's demand after setting a limit, please know that you are a normal parent. Remember we were scoring parents while they were in the laboratory knowing that we were watching what they and their child were doing.

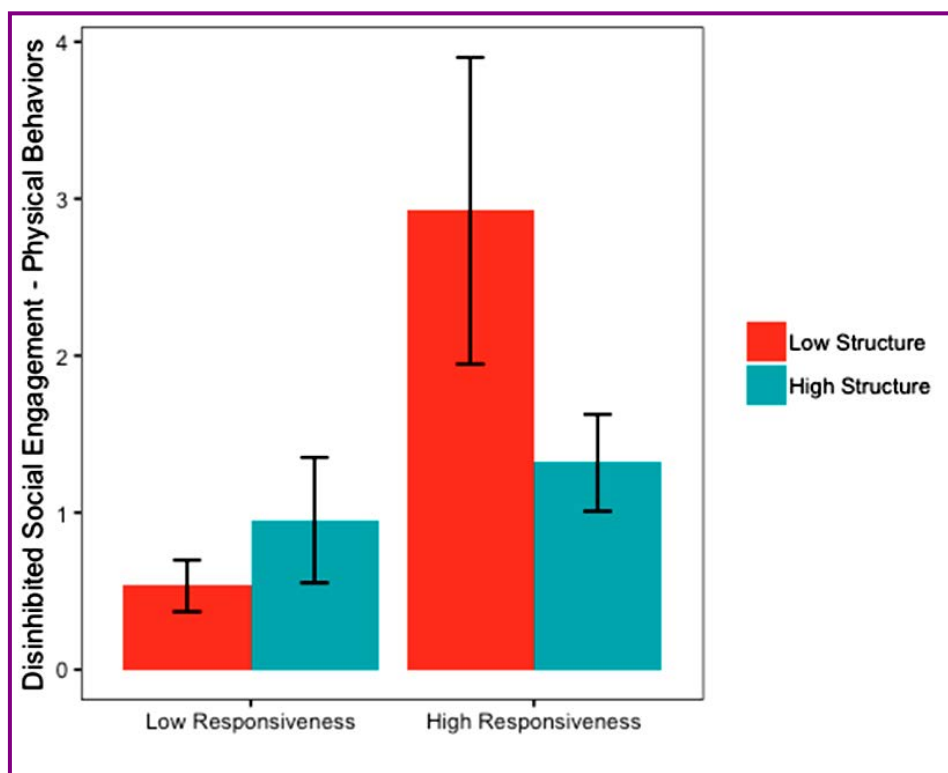


Figure 7. Parenting characterized by high responsiveness and low levels of structure results in the highest rates of disinhibited social engagement behaviors.

Full potential

Driven by a motivated leader with a personal passion, the Adoption Medicine Clinic expands to reach more children who tend to fall through the cracks

By Nicole Endres



JONATHAN CHAPMAN

Trauma. Neglect. Attachment issues. Prenatal exposure to drugs and alcohol.

These are some of the heartbreaking but familiar challenges [Judith Eckerle, M.D.](#), addresses every day at the [Adoption Medicine Clinic](#) at [University of Minnesota Masonic Children's Hospital](#).

The clinic opened more than 30 years ago to focus on these previously unmet or undiagnosed medical and developmental needs. And just this fall, the clinic got a \$1.7 million grant from the state of Minnesota to expand its services to more children in foster care, who face many of the same challenges.

"There are vulnerable kids living all around the world, but also kids we need to help right here in Minnesota," says Eckerle, an associate professor in the U of M Medical School's Department of Pediatrics.

In 2017, 16,600 children and young adults experienced foster care or out-of-home placement in Minnesota, according to the Minnesota Department of Human Services. On any given day in that same year, about 9,900 children in Minnesota were in the foster care system.

And when children lack a stable home, they often lack

"Kids who are in the foster care system, in orphanage care, or adopted all have the chance to do well with the right tools."

— Judith Eckerle, M.D.

consistent health care as well.

"It's very well documented that children in foster care often do not receive routine medical care, and about 50 percent have undiagnosed or undertreated chronic health conditions," Eckerle says. "It's an enormous need."

That's where the Adoption Medicine Clinic can help. It offers adopted and fostered children comprehensive health evaluations, which involve not only medical assessments but also screenings by experts in child psychology, occupational therapy, physical therapy, and child life, as well as genetics and neuropsychology when warranted.

"Having all of those services available to an adopted or fostered

child to get a comprehensive assessment is fairly rare in the country,” Eckerle says.

It’s personal, too

A serendipitous series of events brought Eckerle to her profession—starting when she was abandoned in an alley in South Korea as a baby.

At 5 months old, she was adopted by a loving Minnesota family. Later, as a teen in a program for gifted and talented kids, she shadowed [Dana Johnson, M.D., Ph.D.](#), a physician in the [neonatal intensive care unit](#) at University of Minnesota Masonic Children’s Hospital, who founded the U’s International Adoption Clinic in 1986. (That clinic would later become the Adoption Medicine Clinic.)

As fate would have it, Eckerle didn’t learn about Johnson’s adoption medicine work until several years later, when she was in medical school. She set up a rotation with him in quick order.

“The third day, I walked into his office and said, “This is what I want to do for the rest of my life, so you tell me how to go about it, and I’ll do it,”” Eckerle recalls.

So Johnson set up an adoption medicine research fellowship for Eckerle in 2007, and she joined him as a provider in the clinic in 2008. She became the Adoption Medicine Clinic’s director in 2013.

“I only had the chance to do what I’ve done because I have a family and I was adopted,” Eckerle says. “When I see kids who are in the foster care system, in orphanage care, or adopted, I know they all have the chance to do well with the right tools.”

Show of support

Because of current reimbursements for children in foster care, and the time required to complete a comprehensive assessment with multiple specialists, the Adoption Medicine Clinic loses money on almost every child it sees. But with its new four-year partnership with the state, the clinic can care for 1,000 foster children per year—twice as many as it had been able to previously—and stay afloat. “It was really a perfect partnership,” Eckerle says.

And behind the Adoption Medicine Clinic’s continued livelihood is its advisory board, made up of a dozen advocates who have supported the clinic through special events like marathons and galas and through marketing efforts.

The clinic also has a new \$500,000 endowment, thanks to catalytic gifts from the Jane N. Mootty Foundation and the Amy R. and Philip S. Goldman Foundation that will help to sustain the clinic’s work long term.

“Philanthropy is really how we will continue to grow our program,” says Eckerle, who in September was named a 2018 Congressional Coalition on Adoption Institute Angels in Adoption Honoree. “They believe in what we are doing.”

It’s a cause that’s easy to unite behind: ensuring that children, especially those from challenging beginnings, have a chance to reach their full potential.

“It’s just that they fall through the cracks,” Eckerle says, “and we want to make sure that that won’t happen anymore.”

PARTICIPATE IN RESEARCH

Greetings from the Korean Adoption Project!

In 2007, your family may have participated in a survey study on the Development and Well-Being of Korean Adoptees, conducted by Dr. Richard Lee in the Department of Psychology at the University of Minnesota. In 2014, we followed up with roughly half the families. Twelve years later in 2019, we would like to follow up with all the original families to see how everyone is doing!

We will be launching our study in a matter of weeks and are currently updating our participant registry list. This project is one of the largest ever undertaken on Korean adoptees and their families in the United States. This latest survey will provide an opportunity to learn more about the adult life experiences of Korean adoptees and their families -- we know very little about adult adoptees since most adoption research focuses only on childhood. We hope you will take a moment of your time to help us with this study.

As with years past, we will have both parent and adoptee complete separate surveys that should take no more than 15-20 minutes to complete. We will be compensating everyone who participates with a \$25 gift card for their time and effort. Please email us at koradopt@umn.edu if you would like to participate.

Thank you and we’re looking forward to hearing back from you soon!

Richard M Lee, PhD, LP
Principal Investigator of the Korean Adoption Project
Distinguished McKnight University Professor
Department of Psychology, University of Minnesota

IN THE COMMUNITY:

Greater Minneapolis Crisis Nursery

Dr. Gunnar and her students also work to give back to the community. One of the organizations they support with their research is the [Greater Minneapolis Crisis Nursery](#) (GMCN). The GMCN was created to reduce child abuse by providing highly stressed parents with a place where they could get respite care for their children when they really needed relief, no questions asked. The Greater Minneapolis Crisis Nursery, located in South Minneapolis, provides 72-hour crisis care for children aged birth to 6 years in Hennepin County. This means that parents encountering a crisis can bring their children to the Crisis Nursery for 3 days of overnight care, ensuring that their children are safe and cared for while they manage the crisis. They can do this up to 10 times (i.e., 30 days) in a calendar year.

This is an immensely important resource available to families who have inadequate social and economic support systems. Children in these families have typically experienced significant stress and trauma throughout their lives, and the Nursery can help buffer children from experiencing the worst of a current crisis. For the past 3-4 years, Dr. Gunnar and her graduate student, Carrie DePasquale, have partnered with the Nursery to continuously improve program quality. This ensures that children will get the best possible support during their stay at the Nursery.

For example, last year we shared with you our plans to implement and evaluate the impact of stress-reduction strategies on children's stress regulation at the Nursery. This year we discovered that

was associated with improvements in self-regulatory behavior and increased use of adaptive coping skills, which is shown in Figure 8, and Nursery staff rated the strategies as effective at least 60% of the time.

Furthermore, we have begun sharing brief info sheets with Nursery parents about the strategies that worked best with their children, which have been well-received.

While we do not have a comparison group to be certain that these changes in child behavior can be attributed only to the stress-reduction strategies, we are heartened by their simplicity and potential for improving children's ability to cope with daily stressors.

Want to use these techniques with your children? Try taking deep "belly breaths" with your child and doing a body scan. While breathing, draw attention to each part of their body (from their nose to their toes!) and ask your child how it feels.

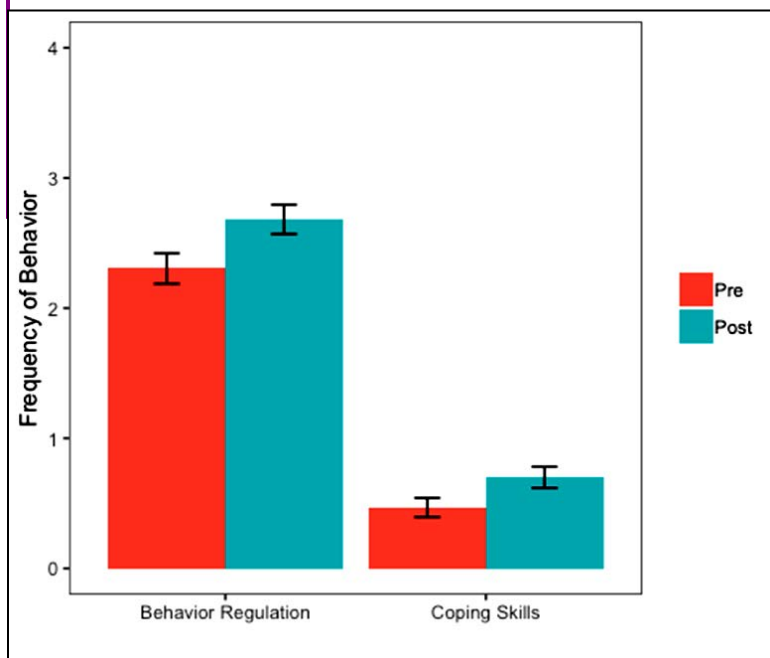
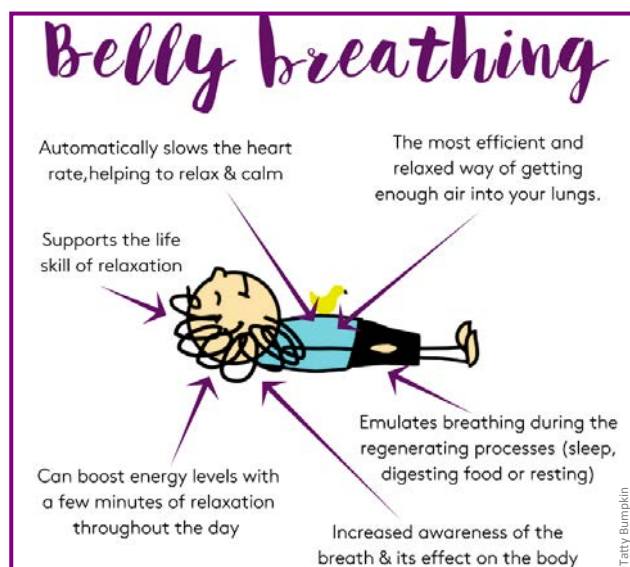


Figure 8. Increased rates of behavior regulation and coping skills at the Crisis Nursery after implementation of stress-reduction strategies compared to before.

the addition of these strategies to the Nursery



Social and Biological Functioning in Institutionalized and Maltreated Children

By Nicole Perry and Carrie DePasquale

Infants and toddlers who have experienced maltreatment in their family and those who have experienced institutional care are delayed in social and emotional development. What we don't know is whether these two groups of children show similar or different emotional and behavioral functioning soon after placement in a stable home.

We asked this question in a recently [published study](#). The children were 1.5- to 3-years old and had been removed from institutions and maltreating homes within the last 2 months. We found little support for the argument that either context results in uniformly poorer functioning. Maltreated children were less fearful and more positive when exposed to both positive and novel events

(i.e. blowing bubbles, bouncing balloons, mechanical cars) than institutionally-reared children. However, maltreated children were reported to have more behavior problems than institutionally reared children. Notably, while both groups showed dysregulation of the cortisol stress system, the maltreated children were significantly more dysregulated than the institutionally-reared children. By gaining more insight regarding the potential differential effects of both types of early adversity on development, researchers can focus on possible mechanisms producing those differences and use that information to develop more effective and targeted intervention and prevention efforts.



GUNNAR LAB

Institute of Child Development
University of Minnesota
51 East River Road
Minneapolis, MN 55455

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Gunnar Lab and Staff

PRINCIPLE INVESTIGATORS

Megan Gunnar, *Regents Professor*

STAFF & STUDENTS

Carrie DePasquale, *Graduate Student*
Christopher Desjardins, *Statistician*
Bonny Donzella, *Senior Research Fellow*
Colleen Doyle, *Graduate Student*
Melissa Engel, *Graduate Student*
Jan Goodwalt, *Registered Nurse*
Mariann Howland, *Graduate Student*
Terri Jones, *Registered Nurse*
Shreya Lakhan-Pal, *Graduate Student*
Keira Leneman, *Graduate Student*
Shanna Mliner, *Senior Research Fellow*
Bao Moua, *Principle Lab Tech*
Nicole Perry, *Post-doctoral Student*
Brie Reid, *Graduate Student*
Emmy Reilly, *Graduate Student*
Hannah Shryer, *Community Researcher*
Melissa Stoll, *Registered Nurse*
Heather Taylor, *Research Assistant*
Danruo Zhong, *Graduate Student*

COLLABORATORS & PARTNERS

Brad Miller, *Pediatric Endocrinologist*
Judith Eckerle, *Adoption Medicine
Physician, Pediatrician*
Richard Lee, *Distinguished McKnight
University Professor*
Center for Neurobehavioral
Development
Children's Minnesota
Elison Lab for Developmental Brain
and Behavior Research
International Adoption Project
Institute of Child Development
Participant Pool

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