November 2022

FAMILY AND CHILD NEUROSCIENCE LAB

NEWSLETTER

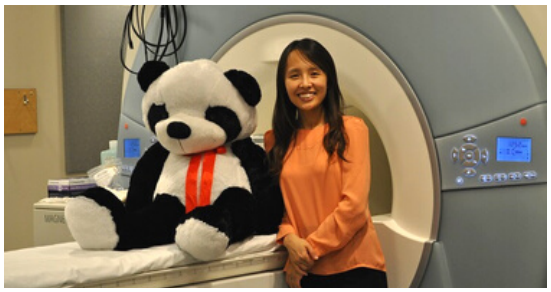
RISE PROJECT 2022

UNIVERSITY of DENVER

Edited by Rachael Ruff & Lydia J. Mathis

PROJECT UPDATE

The RISE Project researches how everyday stress impacts mental and emotional demands related to pregnancy and parenting in mothers, as well as how it impacts a newborn's body and brain development. Visits continue to be conducted in a hybrid model, with in-person visits following COVID-19 safety protocols.
We currently have 231 participants recruited, and 156 babies complete the first postnatal visit.



OUR TEAM

This Year we have five new members! Read more about them on the new member page!

Did you move or change your phone number?
If you have changed location or phone number in the past year, please send us your updated address and contact information so that we can share lab updates!

Give us a call at 303-871-3096, send us a text at 720-507-7326 or email us at fcnlab@du.edu

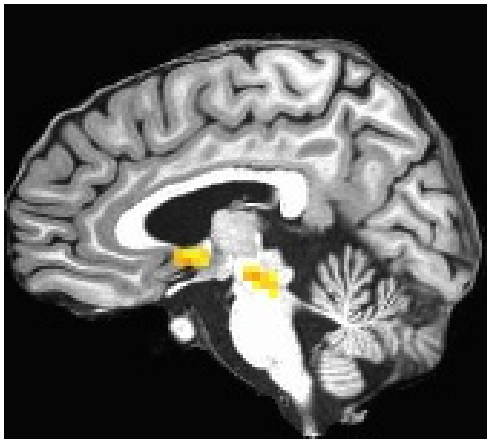
IN THIS ISSUE

STRESS AND COPING

DR. PILYOUNG KIM

New parents experience drastic changes in their bodies, brains, and life circumstances: these changes often lead to high levels of stress that the parents experience. We asked our participants what type of coping strategies they use when they experience stress. There are largely two types of coping strategies: **active** and **passive**. Active coping strategies include seeking or receiving emotional support, finding new meanings of stressful situations, or planning on what to do to remove the source of stress, while passive coping strategies include denial of problems, disengaging with problems, or blaming oneself. We found that the participants who more often use active coping strategies reported lower levels of stress related to parenting, and lower negative moods (e.g. depression, anxiety). Moreover, compared to passive coping strategies, active coping strategies were associated with increased responses to infant sounds in brain regions that support parenting and caregiving for infants. Thus, the use of active coping may enhance resilience among new parents during the transition to parenthood.

Article Featured on Brain and Behavior Research Foundation

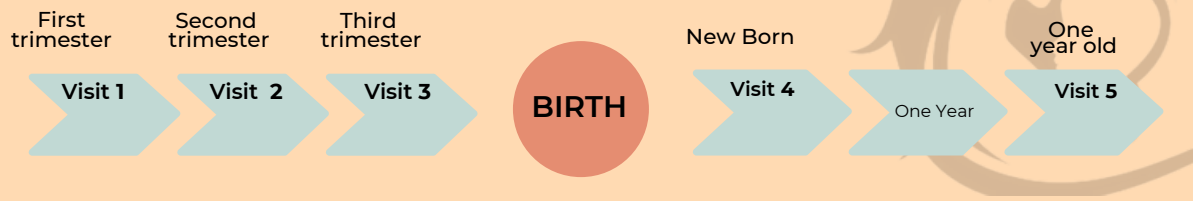


Active coping and greater brain activation

RESEARCH IN THE NEWS

See our research featured in this BBC short documentary!
How Motherhood Changes the Brain - BBC Reel

RISE PROJECT VISITS



GRADUATE STUDENTS AND RESEARCH

JENNA

Jenna is a 2nd year graduate student in the Developmental Psychology program at DU interested in learning about different types of stress people might experience during pregnancy. Previous research has shown that stressful experiences may affect brain regions involved in how we process and regulate our emotions. Given that pregnancy can be an exciting yet stressful time, Jenna is interested in further unpacking these experiences. To do this, she is using interview and MRI data from the RISE project to understand how experiencing various major life events during pregnancy may affect the brain postpartum. Jenna is also interested in learning how these prenatal experiences might influence baby's brain development. Overall, she hopes that the findings from this research will teach us new ways to support parent and child wellbeing.

GENEVIEVE

Genevieve is a 3rd year graduate student who just completed a project looking at how newborn infants' brains respond to the sound of their own mother's voice compared to a stranger's. She found infants show greater brain activation in response to their own mother's voice in the right lateral prefrontal cortex. This area of the brain is broadly involved in cognitive processes and responds differently based on the presence of rewarding information. This finding suggests that mom's voice is particularly important for young babies as they learn to process the world! Genevieve also looked at whether infants respond differently to happy versus angry voices but did not see any evidence of a different brain response. Finally, Genevieve also found that lower maternal symptoms of depression during pregnancy and after birth were associated with a greater infant brain response to their mother's voice. This suggests that supporting the mental health of parents is important not only for their own well-being, but also for supporting their baby's development.

YUN

Yun is a 2nd year graduate student in the Developmental Psychology program at DU. Yun focuses her research on how hormones such as oxytocin and cortisol relate to new parents' mental health, caregiving, and neural responses to infant faces. Using data from the IDEA Project, the lab's previous study, she found that parents' oxytocin levels decreased over the course of a 10 minute interaction with their little ones. This decrease was related to more optimal parenting behaviors. Yun also found the decrease in oxytocin was related to elevated brain responses while parents viewed sad infant faces. These results are consistent with previous research indicating oxytocin is closely related to parenting and interpersonal stress. Yun is continuing to research these interactions with the RISE Project.

SHANNON

Shannon is a 4th year graduate student in the Developmental Psychology program at DU researching the mechanism of brain changes during pregnancy, and how cannabis exposure might affect these changes. She is currently writing her dissertation, which focuses on how the maternal brain responds to infant cries. Through her research with the RISE Project, Shannon found that during the second trimester, pregnant individuals exposed to cannabis had more activation to white noise in the region of the brain broadly responsible for functions including selective attention, and more activation to infant cries in the brain region involved in determining emotional states of others compared to individuals without exposure. Potentially, this could mean cannabis exposure might alter processing of white noise and infant cry. She plans to follow up on whether there are any effects to parenting postpartum.

SUPPORTING YOUR MENTAL HEALTH

- Don't compare yourself to other moms
- Limit your social media time
- Ask for help; from family, friends, a therapist or pediatrician
- Appreciate all your body and brain does for you and baby
- Remember to spend time doing small things you love

NEW LAB MEMBERS

SABRINA VILLEGAS

Graduate student. Sabrina's hobbies include reading, watching tv, and spending time with friends!

JACKSON MILLER

Undergraduate student. In his free time, Jackson enjoys going hiking, spending time in the mountains, and playing basketball and soccer with friends.

JAMIE CROSS

Graduate student. Getting my Master in social work. Jamie loves playing with her 1.5 year old very handsome pitbull, Jasper, visiting family back in Boston, going for hikes in the mountains, and camping.

ERIN SCHALL

Graduate student. She loves the mountains, reading, her puppy, and her family.

LINDSAY PIKE

Undergraduate student. In her free time Lindsay enjoys being outside, hiking, snowboarding, and camping. She also enjoys being active in the music scene and going to concerts and festivals.

Thank you to all our incredible RISE Participants! We have enjoyed working with you and your families throughout the project. We truly appreciate you taking the time to share your stories with us!

To learn more about our research projects and publications, please visit our website at: https://liberalarts.du.edu/psychology/family-child-neuroscience

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