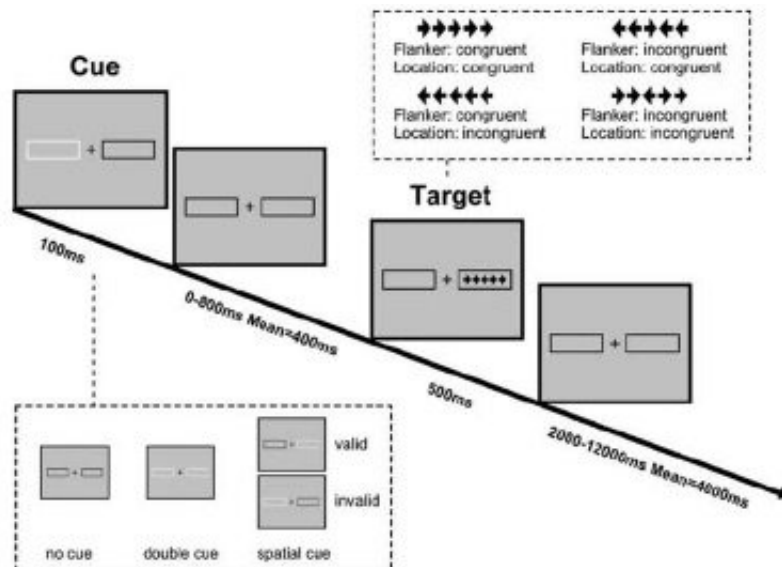


# Does 'mommy brain' last? Study shows motherhood does not diminish attention

June 23 2020, by Joseph Paul



Schematic of the ANT-R. For each cue condition (non, double, valid, and invalid), a cue box is displayed for 100 milliseconds. After the variable duration (zero, 400, or 800 milliseconds), five arrows appear for 500 milliseconds on one side of the display. The participant is asked to press the button that corresponds to the direction of the middle arrow only. Credit: Purdue University

"Mommy brain" is a long-held perception that mothers are more forgetful and less attentive.

"In most studies, however, attention and [memory tests](#) are given to mothers very early postpartum," said Valerie Tucker Miller, a Ph.D.

student in Purdue University's Department of Anthropology department. Miller is studying the effects of motherhood on attention, memory and other psychological processes.

"There are few issues with that," she added. "When you first have a child, you have a cascade of hormones and sleep deprivation that might be affecting attention and memory processes in the brain."

In a new study testing the prevalence of "mommy brain," Miller used a revised version of the Attention Network Test (ANT), called the ANT-R, to compare reaction times among 60 mothers, all of whom were at least one year postpartum, and 70 non-mothers. The results, published online in the journal *Current Psychology*, show that mothers performed equally as well or better compared with women who had never been pregnant or had children.

"For this particular study, we recruited moms who were past that first year postpartum because we wanted to see the long-term effects of maternity," she said. "Overall, moms did not have significantly different attention than non-mothers, so we did not find evidence to support 'mommy brain' as our culture understands it. It's possible, if anything, that maternity is related to improved, rather than diminished, attentiveness."

Co-author Amanda Veile, an assistant professor of anthropology at Purdue, said the mixed-method study may be the first to investigate the long-term effects of biological motherhood on real-life attention network functioning. Lisa A. VanWormer, a Purdue University alumna and visiting associate professor of psychology at St. Norbert College, also is a co-author.

Researchers used a seven-point scale to measure participants' responses to survey questions such as, "How sleepy do you feel?" and "How do you

think your attentiveness is?" Women's perceived attention functioning was strongly associated with their tested attention scores, regardless of motherhood status, Veile said.

"This means that women have accurate awareness of their cognitive state, and that their concerns regarding their perceived attentional functioning should be taken seriously," she said. "We also believe that 'mommy-brain' may be a culture-bound phenomenon, and that mothers will feel the most distracted and forgetful when they feel stressed, overextended and unsupported. Unfortunately, many U.S. moms feel this way, especially now in the midst of economic and [political instability](#) and pandemic."

During the computer test, a cue box flashes for 100 milliseconds in one of two possible locations where a target image will appear on the screen. Next, an image of five arrows, each pointing left or right in consistent or conflicting directions, flashes on the screen for 500 milliseconds. Participants are then asked to press a button that corresponds to the direction of only the middle arrow.

Miller said the test measures response times and provides scores for the three main networks of attention: The alerting network helps the brain prepare for incoming stimuli; the orienting network directs the brain's attention to something new; and the executive control network helps resolve conflicting information.

Mothers in the study were, on average, 10 years older than non-mothers. Even after controlling for age, however, the researchers found that mothers had similar alerting and orienting attention, and better executive control attention, compared to non-[mothers](#).

"Moms were not as distracted by those outside, incongruent items," Miller said. "It makes perfect sense that moms who have brought

children into this world have more stimuli that needs to be processed to keep themselves and other humans alive, and then to continue with all the other tasks that were required before the children."

Heightened attention isn't always a good thing. It could become amplified with feelings of stress and isolation, which many U.S. moms experience, causing them to develop anxiety, Veile said.

"We plan to do cross-cultural investigations to further examine how narratives of motherhood and [social support](#) are associated with maternal tested attention and well-being around the world," she said.

**More information:** Valerie Miller et al. Assessment of attention in biological mothers using the attention network test - revised, *Current Psychology* (2020). [DOI: 10.1007/s12144-020-00826-w](https://doi.org/10.1007/s12144-020-00826-w)

Provided by Purdue University

Citation: Does 'mommy brain' last? Study shows motherhood does not diminish attention (2020, June 23) retrieved 2 May 2024 from <https://medicalxpress.com/news/2020-06-mommy-brain-motherhood-diminish-attention.html>

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