

Mom can buffer effects of stress on teen's memory

1 November 2011, By Karene Booker

(Medical Xpress) -- Chronic stress in childhood can hurt children and teens physically, mentally and emotionally. However, having a sensitive, responsive mother can reduce at least one of these harmful effects, reports a new Cornell study. It shows that such moms can help buffer the effects of chronic stress on teens' working memories.

The study, published in *Development and Psychopathology* (23), sheds light on why some children are surprisingly resilient and seemingly unharmed despite growing up in difficult, high-stress situations. It was authored by Stacey N. Doan, Ph.D. '10, assistant professor of psychology at Boston University, and environmental psychologist Gary Evans, professor of design and environmental analysis and of human development in the College of Human Ecology.

Earlier research by Evans showed that the chronic high stress of children living in poverty was linked to working [memory deficits](#) in [young adults](#). Working memory -- the ability to temporarily hold information in mind -- is critical for tasks like learning and problem-solving, he said.

The new study used [longitudinal data](#) on children and families in rural upstate New York when the children were about 9, 13 and 17 years old. More than half of the families were low-income. Wave 1 included 1,342 children, wave 2 involved 195 and wave 3 involved 214. Allostatic load -- a measure of stress-induced changes in neuroendocrine hormonal systems, cardiovascular responses and metabolism that indicate the severity of wear and tear that cumulative strain puts on organs and tissues -- was assessed in the 9- and 13-year-olds. Maternal responsiveness was measured when the children were 13 years of age, by rating during games such maternal behaviors as cooperation, helping and adaptability to their child's mood and abilities, and by their children's perception of how much their mothers helped with homework, were

willingness to talk when needed, spent time doing enjoyable things with the child or knowing where the child was after school. Children's working memory was assessed when they were 17.

The study confirmed that low-income children with higher levels of allostatic load tended to have worse working memory -- but only when maternal responsiveness was medium to low.

"Although high [chronic stress](#) in childhood appears to be problematic for working memory among young adults, if during the childhood period you had a more responsive, sensitive parent, you have some protection," Evans said.

Next, the researchers plan to determine whether allostatic load has direct effects on brain areas associated with [working memory](#) and to explore whether maternal responsiveness buffers some of the effects of chronic stress via better self-regulation/coping strategies in their children or by influencing levels of stress hormone, for example.

Evans noted that the study underscores the potential for interventions to break the poverty-stress-working memory link, which may be one pathway by which [children](#) growing up in poverty fall behind in school. The authors also emphasize, however, that parenting is not sufficient or even the best way to overcome the adverse consequences of childhood poverty. The impacts of poverty, they said, far outweigh the protective effects of maternal [responsiveness](#). Ultimately poverty must be dealt with by more equitable and generous sharing of resources throughout society.

Provided by Cornell University

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