Family violence leaves genetic imprint on children

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A new Tulane University School of Medicine study finds that the more fractured families are by domestic violence or trauma, the more likely that children will bear the scars down to their DNA.

Researchers discovered that children in homes affected by domestic

violence, suicide or the incarceration of a family member have significantly shorter telomeres, which is a cellular marker of aging, than those in stable households. The findings are published online in the latest issue of the journal *Pediatrics*.

Telomeres are the caps at the end of chromosomes that keep them from shrinking when cells replicate. Shorter telomeres are linked to higher risks for heart disease, obesity, cognitive decline, diabetes, mental illness and poor health outcomes in adulthood. Researchers took genetic samples from 80 children ages 5 to 15 in New Orleans and interviewed parents about their home environments and exposures to adverse life events.

"Family-level stressors, such as witnessing a family member get hurt, created an environment that affected the DNA within the cells of the children," said lead author Dr. Stacy Drury, director of the Behavioral and Neurodevelopmental Genetics Laboratory at Tulane. "The greater the number of exposures these kids had in life, the shorter their telomeres were – and this was after controlling for many other factors, including socioeconomic status, maternal education, parental age and the child's age."

The study found that gender moderated the impact of family instability. Traumatic family events were more detrimental to young girls as they were more likely to have shortened telomeres. There was also a surprising protective effect for boys: mothers who had achieved a higher level of education had a positive association with telomere length, but only in boys under 10.

Ultimately, the study suggests that the home environment is an important intervention target to reduce the biological impacts of adversity in the lives of young children, Drury said.

More information: "The Association of Telomere Length With Family Violence and Disruption." Stacy S. Drury, Emily Mabile, Zoë H. Brett, Kyle Esteves, Edward Jones, Elizabeth A. Shirtcliff, and Katherine P. Theall. *Pediatrics* peds.2013-3415; published ahead of print June 16, 2014, DOI: 10.1542/peds.2013-3415

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