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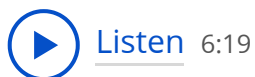
## Lasting effects of trauma reaches across generations through DNA



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Amy Bombay is Anishinaabe from Rainy River First Nation. She's an assistant professor of psychiatry at Dalhousie University in Halifax. (courtesy Amy Bombay)



Indigenous elders often say that memory is in the blood and bone, that our stories are passed not just verbally but through a kind of genetic memory.

Well, it turns out that may not be far from the truth. Amy Bombay is Anishinaabe from Rainy River First Nation in Ontario.



Amy Bombay with her family. (courtesy Amy Bombay)

She's an assistant professor of psychiatry at Dalhousie University in Halifax, and has been studying the impact of trauma and how it reverberates through generations. She was drawn to this field of study, specifically related to residential schools, because of its effect on her own family.

"Both my grandparents on my father's side attended, and most of my aunts and uncles on that side as well," she explained.

When she started her research 10 years ago, Bombay said she began by focusing on mental health outcomes, exploring why Indigenous Peoples in Canada and elsewhere suffer from higher levels of psychological distress.

"What we found was that ... those who had a parent or grandparent who went to residential

school seemed to be at increased risk for psychological distress, suicidal ideation, suicide attempts and this is in both adults and youth," she said.

Though our bodies are designed to deal with stress, Bombay said when the stress becomes chronic, our bodies are no longer able to keep up. That's when problems happen.

Bombay said in addition to the psychological and social pathways, there is evidence epigenetic pathways are involved in the transmission of trauma. That evidence has been studied in the children of Holocaust survivors, in regard to changes in the expression of DNA, not changes to underlying DNA.

"We now know that experiences and the environment can turn on or off genes, so the function of those genes is changed," Bombay explained. "In terms of how that is transmitted generationally, we know that if those changes happen to be in the germ line, so in the egg or the sperm, they have the potential to be transmitted across generations."

Though Bombay said you cannot draw exact correlations between the children of Holocaust and Residential School survivors, there are clear similarities between the two groups.

"We conducted our own research in relation to the residential school system and found a lot of the same issues like this conspiracy of silence around talking about this issue. And this research is consistent with populations that have undergone collective and historical trauma around the world," she said.

"So not only in relation to the Holocaust, but we know these big historical and collective traumas are associated with a number of negative outcomes. Which are expected."

Bombay has seen this research play a role in the process of reconciliation. And said taking the data out into communities and explaining it, has broken the silence.

"A lot of people didn't know why their parents had so many problems, or they didn't know why their parents acted the way they do," she said. "Learning about these intergenerational effects really helped a lot of people heal and elicited forgiveness within families and communities."

Click the listen button above for the full interview with Amy Bombay.