Mental abuse changes kids' brains, makes them more susceptible to violence as adults,...
Mental abuse changes kids' brains, makes them more susceptible to violence as adults, study finds

by LYZ HOFFMAN
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Kids who suffer psychological damage undergo brain changes that render them less able to control their aggression as adults, according to a study published this week by Swiss researchers.

Over the past four years, researchers from the Ecole Polytechnique Federale de Lausanne in Switzerland studied the brains of more than 200 male rats that prior to puberty (aged 28-40 days) and during early adolescence (40-45 days) were exposed to fear-inducing stressors such as fox scent. Upon the rats’ maturity (aged 45-60 days) — when the researchers noticed increased instances of aggression — the scientists looked at certain areas of the rats' brains and found significant changes.

Although the findings are from an animal model, they are, according to researchers, in line with similar studies conducted on the brains of violent people.

Researcher Carmen Sandi, the director of the Brain Mind Institute at the Laboratory of Behavioral Genetics at the institute, said in a phone interview that the results highlight the importance of understanding the science behind societal problems. “We have a cycle of violence in which the biology should be taken into account,” she said.

The regions of the brain most affected by the psychological trauma, the researchers found, are the orbitofrontal cortex and the amygdala, which have a sort of push-pull dynamic.

Dr. Emil Coccaro, a professor and chair of the department of psychiatry and behavioral neuroscience at the University of Chicago, likened the relationship between the two areas to the one between a car’s accelerator and its brakes. The orbitofrontal cortex is supposed to inhibit the amygdala, which regulates emotions. In the rats, though, the researchers discovered that the orbitofrontal cortex was not as switched on as it should have been, which led to it having less influence over the amygdala, and thus the amygdala producing more emotional — and negative — reactions.

Sandi stressed the role of age in psychological trauma, saying that “childhood and puberty is a time of development of different brain areas” and that “all these interactions between hormones and the brain are important for programming of the brain.” (Male rats, she said, were used because they have a higher incidence, but she is working on a study involving female rats.)

Coccaro cautioned that not all children who are abused will be violent and not everyone who is violent was abused during childhood, but that something needs to be done about those who are abused.

“The other issue is going to be if we want to reduce aggression in children, adolescents and of course adults, we’re going to have to go back down to the family units and treat aggression there, because these kids are being abused,” he said. “We’re not talking about people who shoot at schools. We’re talking about people who we live with, who live on our block.”

Sandi said that there needs to be a culture shift. “I think we have to be aware that we are bringing a lot of stress to children, and this is affecting already the way they are going to behave later,” she said. “It brings opportunity to scientists, politicians and human beings in how we deal with this issue.”
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