SEXUAL ABUSE
AND THE DEVELOPING BRAIN

Researchers have discovered that sexual abuse early in childhood may affect the very architecture of the developing brain.

People who experience adversity early in life show a much greater risk of developing a wide range of psychiatric disorders and medical conditions later in life. One common consequence of childhood sexual abuse, for example, is the development of sexual dysfunction. Yet the precise mechanism behind this association is poorly understood.

A group of researchers now believe that when young children are exposed to abuse, their brain adapts to prevent them from fully processing the experience, to shield the child. "But because this happens during a critical development period, at a time when the brain is still forming its connections, the individual does not develop their neural network normally," explains Jens C. Pruessner, a professor in the department of psychiatry at McGill University, and a researcher at the Douglas Mental Health University Institute.

Pruessner and fellow researchers sought to determine whether different forms of childhood abuse were linked to changes in associated areas of the brain. Using magnetic resonance imaging (MRI), they measured the cortical thickness of various regions of the brain in 50 adult women.

They found that exposure to childhood sexual abuse (as reported by study participants) was directly associated with pronounced cortical thinning in the somatosensory field related to the genitals, while emotional abuse was associated with thinning in the regions related to self-awareness and self-evaluation.

"What was striking was that the type of abuse was highly specific to the type of change observed," says Pruessner. "This points to the idea that the brain specifically reacted to the abuse by shielding and protecting itself in the area affected, while leaving other areas intact."

Yet while this adaptation protects the child at the time of the adversity, the authors suggest this lack of development of the genital sensory representation field may lead to impaired sexual perception later in life, which may explain the frequent clinical reports of sexual dysfunction.

Jean-Yves Frappier, head of the social pediatric division at CHU Sainte-Justine in Montreal, says this study fits into a growing body of research on brain plasticity. "There's a lot of research on the long-term impact of early childhood abuse and adverse events, and how that impact is not only a question of behaviour but is mediated by changes in the brain, and even possibly changes in the expression of genes."

To some degree, Frappier says, these findings do not affect prevention and intervention strategies: any child abuse should be prevented and acted on immediately, and interventions for resulting disorders in adulthood focus on treating the behaviours.

Eventually, however, there may be ways to treat certain problems medically, if we know the biological or "chemical" cause in the brain and we can target the physiology of the brain. He points to current trials with medications targeting specific genes expression. "If we can say that this part of the brain or this mediator is damaged, is there anything we can do to treat, change or reverse it? One day, we may be able to find treatment that will target these specific changes."

"This is very interesting research," he concludes, "because we are now discovering that adverse events leading to many diseases and disorders seem to have a physiological basis in the brain."

BY EVE KRAKOW

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