

What About The Children?



RESEARCH SUMMARY

Early-life Family Parental Discord Changes the Brain.

General and Specific Effects of Early-life Psychosocial Adversities of Adolescent Grey Matter Volume (2014)

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The effect of major stress in childhood, caused by severe neglect or maltreatment such as persistent child abuse or sexual abuse, affects the brain of the adult victim; the resulting psychopathologies have been well-documented. That type of major stress has a UK prevalence rate of 16%. A much more common problem for a developing infant is family discord (prevalence rate of 41%). The effect on the brain of family-focused discord during infancy (studied later at adolescence) is the subject of this paper. Discord can be defined as significant arguments and tension between parents.

From a group of 1200 young people, a sample of 58 teenagers were selected for brain neuro-imaging. Childhood adversity was determined by an interview (Cambridge Early Experiences Interview) with the child's primary caregiver. Adversity covered abuse, and/or family discord, physical violence, lack of affectionate warmth, and lack of family communication between members. 27 adolescents were deemed to have had childhood adversity (CA+) and 31 were not (CA-). All 27 people of the CA+ group had moderate to severe inter-parental discord, this discord being experienced from birth to 56 months; average period of exposure: 30 months.

Assessments of recent negative life events in the year before the ages of 14 and 17 were also determined from the child's own perception. A further assessment of the child's family during both time periods was also determined. A 'mood and feelings' questionnaire was carried out, on the day of the imaging scans, in order to determine whether the child had any depressive symptoms. Structural MRI scanning was carried out with state-of-the-art scanners and analytical procedures in Cambridge UK. Whole brain grey matter volumes (GMV) were determined.

Children from the childhood adversity group (CA+) had experienced lower familial socio-economic status, diagnoses of psychiatric disorder, parental psychiatric disorder, negative perceptions of family functioning, and increased depressive symptoms; at 17 all were significantly different ($P < 0.001$) compared with the children who were judged not to have childhood adversity (CA-). At 14 the children from the CA+ group showed an increased reporting of negative life events ($P < 0.05$).

The major neuro-imaging finding was that in CA+ individuals, there was a significantly reduced GMV in the cerebellum compared with CA- group. This reduced cerebellar GMV was not related to the age of CA+ onset, nor to the severity of the exposure. The authors suggest that moderate to chronic exposure to childhood adversity reduced cerebellar volume and that this adversity extends to family discord.

Childhood adversity causes physiological stress in the child by the release of glucocorticoid hormones. The neonatal cerebellum has the highest concentration of glucocorticoid receptors in the developing brain. It is possible that increased amounts of glucocorticoids, released in adversity, suppress the growth of the cerebellum giving rise to smaller cerebellar GMV. In CA+ individuals this difference in GMV is carried through into adolescence. This part of brain development appears to be sensitive to the common issues of moderate to chronic family discord.

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