

Growing up in disadvantaged areas may affect teens' brains, but good parenting can help

June 22 2017, by Sarah Whittle, Julian G. Simmons And Nick Allen



Disadvantaged neighbourhoods can be a source of stress for young people.
Credit: Dielok/Flickr, CC BY-SA

[New research](#) has found growing up in a disadvantaged neighbourhood may have negative effects on children's brain development. But for males, at least, positive parenting negated these negative effects, providing some good lessons for parents.

Living in a disadvantaged [neighbourhood](#) (where there are more people who have low income jobs or are unemployed, are less educated, and have less access to resources) can cause stress, and [has been linked with](#) psychological and social problems in [children](#) and adolescents.

This may come about because of limited access to resources such as quality education and medical care, or because adults in these neighbourhoods have fewer ties to the community and are less likely to monitor children.

But how could neighbourhood disadvantage lead to problems? During childhood and adolescence the brain is growing and changing rapidly, making it "plastic" or malleable, and susceptible to being changed by experience. So one way neighbourhood disadvantage might lead to negative outcomes in children and adolescents is by changing the way the brain develops.

Stress and the brain

We studied adolescents aged 12 to 19 from a broad range of neighbourhoods in Melbourne. We investigated whether neighbourhood disadvantage and family socioeconomic status were associated with brain [development](#) and functioning (including school completion).

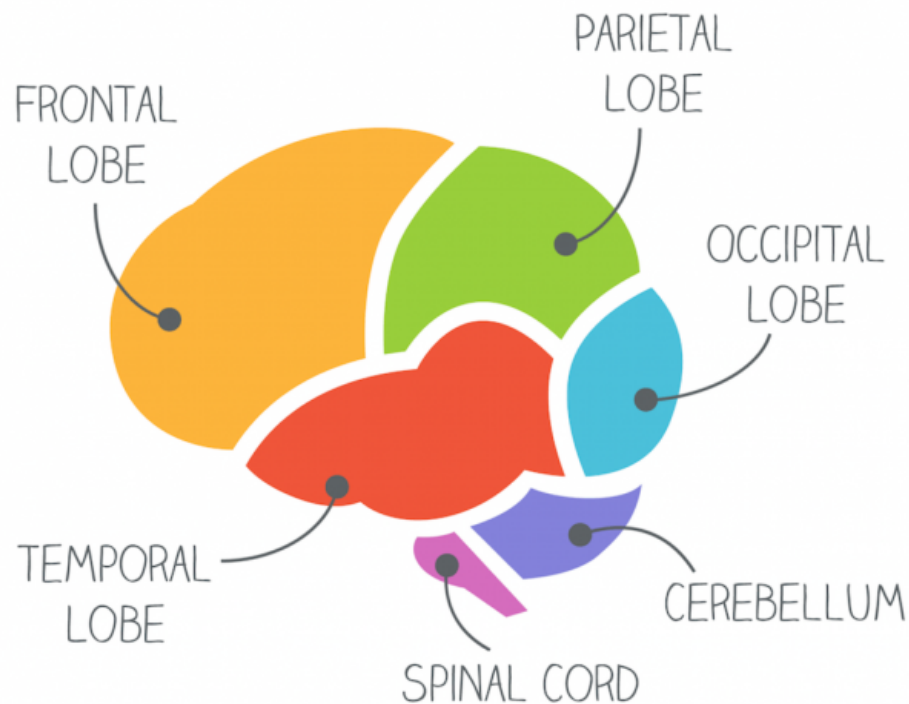
We found growing up in a disadvantaged neighbourhood had detrimental effects on adolescent brain development, but that measures of family-based socioeconomic status (such as parental income, occupation or education) were not related to brain development.

Our results suggest growing up in more disadvantaged neighbourhoods may lead to slower cortical brain development. The cortex is the outer layer of brain, and plays a role in nearly all brain processes related to attention, perception, memory, thought, problem solving, language,

motor functions and social abilities.

The altered development may be due to increased stress associated with living in a disadvantaged neighbourhood. The [effects of stress on the structure of the brain](#) are well known. Stress hormones might lead to changes in brain development by damaging brain cells, or disrupting the normal processes by which brain cells (and their connections with each other) mature over time.

It's important to note, though, that while we found altered brain development was associated with disadvantaged neighbourhoods, we can't prove one caused the other.



Maturation of the frontal lobes helps adolescents to better manage their emotions and behaviour. Credit: www.shutterstock.com

Overcoming disadvantage with positive parenting

Our study also investigated whether [positive parenting](#) practices might buffer any [negative effects](#) of neighbourhood disadvantage.

Our research focused on parents expressing positive emotions and behaviours during disagreements with their children. Such behaviours included displays of affection, comments that validated children's feelings, and use of humour. These positive parenting behaviours are thought to help children express and regulate their own emotions in healthy ways.

[We've previously shown](#) a parent's ability to be positive when having disagreements with their child is a strong predictor of future mental health outcomes during adolescence. For example, adolescents who have parents that tend to express more positive behaviours during such interactions have lower rates of depression.

We found more positive parenting during disagreements with children "buffered" some of these effects, but only in males. Specifically, growing up in disadvantaged neighbourhoods did not result in slowed brain development if a child's parents showed high levels of positive behaviour as described above.

These buffering effects were specific to brain regions in the frontal lobes. These brain regions are important for regulating emotions and behaviour, and they are one of the last parts of the brain to mature.

Importantly, positive parenting appears to counteract neighbourhood effects by promoting "normal" maturation of the frontal lobes. Also, we found these positive changes on the [brain](#) lead to boys being more likely to finish high school. This may be because normal maturation of the frontal lobes helps adolescents to better manage their emotions and behaviour.

It's not clear why the parenting findings were specific to male adolescents. One possibility is the timing of frontal lobe development during adolescence. Male brains, on average, develop later than female brains.

It may be that later frontal lobe development in males makes them more sensitive to the influences of both negative and positive environments in this age range.

Alternatively, it may be that females are as "sensitive", but are affected by other things we didn't study. This is likely as [adolescent](#) girls have higher rates of depression, and this has been [linked to interpersonal stress](#). Importantly, [we've previously shown](#) positive parenting is protective against depression in girls.

Our findings do not suggest that growing up in a disadvantaged neighbourhood necessarily means children and adolescents will have poor outcomes. Rather, there are increased risks. Parents can be a source of support for their children, and if they can engage in positive parenting practices they can affect their children's [brain development](#) in adaptive ways and improve outcomes.

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