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The importance of the environment in the transmission of anxiety between parents and their adolescent offspring

Article

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Author's declarative title: The importance of the environment in the transmission of anxiety between parents and their adolescent offspring.

Commentary

What is already known on this topic

Anxiety disorders can run in families and both genetic and environmental influences have been implicated in this association. Although pediatric twin studies are able to ascertain the proportion of variance in child/adolescent phenotypes due to genetic and environmental influences, to date, they have not been able to specify the extent to which genes and the environment contribute to the transmission of anxiety between parents and their children, ie whether similarities in the amount of anxiety experienced by parents and their offspring are accounted for by sharing genes, living together or both. For this, other genetically sensitive designs are needed. The children-of twins model is one such design and involves adult twin pairs and their offspring.[1]

Methods of the study

The study by Eley and colleagues drew on data from the Twin and Offspring Study of Sweden. It used a novel Children of Twins design, involving 387 monozygotic (MZ) and 489 dizygotic (DZ) adult same-sex twin pairs, each twin's spouse and one of each of their offspring (aged 11–22 years old). Participants completed measures of anxious personality or symptoms (and neuroticism among a subset). Structural equation modelling was used to explore genetic and environmental transmission from one generation to the next. To examine the influence of living with a parent over and above receiving 50% of their genes, correlations between adolescent and parent anxiety were compared to equivalent correlations between adolescents and their parent's identical co-twin. In addition, the authors examined differences in the extent that anxiety levels correlated between adolescents and their twin uncle/aunt from MZ and DZ families.

What does this paper add

- Consistent with existing studies,[1] comparisons between MZ and DZ adult twins supported genetic influences on anxious personality among adults. For adult twin pairs from MZ families, the correlation for anxiety was 0.51, whereas in DZ families it was 0.17.
- However, genetic effects on the intergenerational transmission of anxiety were small (0.11 for MZ families and 0.02 for DZ families) and a model reflecting only environmental transmission was the best fit for the data ($p = 0.47$).
- This is the first time it has been shown that the association between parent and offspring anxiety is accounted for by environmental factors over and above the genetic links between family members.

Limitations

- The cross-sectional design of the study means that we cannot be clear about the direction of environmental mediated effects. One possibility is that parental behaviours, such as expressed anxiety, overprotective or critical parenting, invoke adolescent anxiety. However, it may be equally plausible that adolescent anxiety leads parents to become more anxious themselves and adopt more negative parenting behaviours. Thus, environmental factors, such as parenting behaviours, may influence the development and maintenance of adolescent anxiety symptoms, but may also be a response to the adolescent's anxiety.

- Ratings of adolescent anxiety included a parent report which may have led to bias.

What next in research

This research highlights two important questions for future prospective research: 1) can genetic innovation account for the discrepancies in genetic and environmental influences on family aggregation of anxiety in adulthood and adolescence? 2) Does the association between parent and offspring anxiety reflect parental factors (eg anxious, controlling or negative behaviours) influencing and/or being a response to their offspring's anxiety? Treatment research could contribute to resolving this second question through the inclusion of observational assessments of parent-adolescent interactions before and after treatment and the examination of associations between parental behaviours and adolescent treatment outcome. This would establish whether particular parenting behaviours are associated with poorer treatment outcome or whether parental behaviours improve in response to good adolescent outcomes.

Do these results change your practices and why?

No. Further research to establish causality will be required before committing additional resources to addressing specific environmental factors (such as particular parenting behaviours) within treatment. Indeed, findings from recent prospective studies[2,3] suggest that high levels of anxiety in adolescents may provoke negative parenting practices and effective treatment of offspring anxiety may improve parenting behaviours.[4] Nonetheless, the message that genetic factors are not a significant contributor in the transmission of anxiety between parents and adolescents may be reassuring to those concerned that their offspring has inherited anxiety and who believe that this may make symptoms difficult to treat.

Commentator details

Name: Polly Waite and Cathy Creswell
Affiliation: University of Reading - School of Psychology & Clinical Language Sciences
City: Reading
Country: UK

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Competing interests

None

Section heading: Causes and risk factors

Your postal, email and telephone/fax details (not for publication)

Name	Polly Waite; Cathy Creswell

Title	Dr; Professor
Institution	University of Reading - School of Psychology & Clinical Language Sciences
Postal Address	Whiteknights, Reading, RG6 6AL,UK
Email	p.l.waite@reading.ac.uk