

Researchers find genetic link to children's emotional problems precipitated by bullying

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Bullying victimization is common among children of school age, although its consequences are often anything but benign. The recent death of a Massachusetts teen by suicide prompted state lawmakers to pass one of the most far-reaching anti-bullying laws within the U.S. Whether such legislative actions result in measurable decreases in physical or emotional distress among school peers remains to be seen, but a team of researchers from Duke University and Kings College London have discovered a genetic variation that moderates whether victims of bullying will go on to develop emotional problems.

Gene and environment interactions are a burgeoning area of scientific research and an increasing body of evidence demonstrates that children who are victims of [bullying](#) are at risk for developing emotional problems including depression. However, not all children who are bullied go on to develop such problems. Whether a [gene variant](#) could contribute to emotional disturbance in children that are bullied is the focus of a study reported in the August 2010 issue of the *Journal of the American Academy of Child and Adolescent Psychiatry* (JAACAP).

In the article titled, "The [Serotonin Transporter Gene](#) Moderates the Development of Emotional Problems Among Children Following Bullying Victimization" Dr. Sugden and colleagues report on the findings in a study sample of 2,232 same-sex 5 year-old twins. Home visit-assessments were conducted in 1999-2000 when the children were 5 years of age, and follow-up assessments were made at 12 years of age.

The children were evaluated for emotional problems reported by their mothers and teachers using the Child Behavior Checklist and the Teacher's Report Form. In addition to interviews, [DNA samples](#) acquired via buccal swabs were evaluated to determine the presence or absence of the [genetic variation](#) under investigation.

The researchers observed that [genetic differences](#) in the 5-HTTLPR gene, specifically the SS genotype, interact with bullying victimization to exacerbate emotional problems. Second, the strength of this genetically influenced response is related to the frequency of the bullying experience (i.e., the gene and environment interaction was strongest for frequently bullied children).

In the article, Sudgen and colleagues state, "This genetic moderation persists after controlling for children's previctimization [emotional problems](#) and for other risk factors shared by children growing up within the same family environment." The present findings are consistent with the recent report by Benjet and colleagues² that SS genotype [victims](#) of relational aggression are prone to depression.

This article is discussed in an editorial by Dr. James J. Hudziak and Dr. Stephen V. Faraone in the Journal of the American Academy of Child and Adolescent Psychiatry.³ In talking about the use of twin studies to determine whether an illness or psychological disorder can be inherited, Drs. Hudziak and Faraone state, "These designs have moved us well beyond the fiery but misguided debates about nature versus nurture. We have learned that both domains affect psychopathology, exerting effects that sometimes act independently of one another and sometimes interactively, as when risk DNA variants make some children more susceptible to the onset of illness. Twin studies show that gene action can be complex, with DNA variants at a gene locus sometimes acting additively (in a dose-response manner) and sometimes with classic dominant or recessive modes of inheritance."

On the relevance of Dr. Sugden and colleagues' findings, Drs. Hudziak and Faraone report, "Candidate gene studies such as these could lead to public health interventions (e.g. greater efforts to decrease bullying) that may lower the prevalence of child psychopathology."

More information:

1. Sugden K, Arseneault L, Harrington H, Moffitt TE, Williams B, Caspi A. The Serotonin transporter gene moderates the development of emotional problems among children following bullying victimization. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2010; 49:830-840.
2. Benjet C, Thompson RJ, Gotlib IH. 5-HTTLPR moderates the effect of relational peer victimization on depressive symptoms in adolescent girls. *J Child Psychol Psychiatry Allied Disc*. 2009;51:173-179.
3. Hudziak JJ, Faraone SV. The new genetics in child psychiatry. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2010; 49:729-735.

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