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# Study suggests genetic factors associated with common fears

April 7 2008

Genetic factors that are associated with fears appear to change as children and adolescents age, with some familial factors declining in importance over time while other genetic risk factors arise in adolescence and adulthood, according to a report in the April issue of *Archives of General Psychiatry*, one of the JAMA/Archives journals.

The nature of common fears changes during childhood and adolescent development, according to background information in the article. Two hypotheses have been proposed regarding genetic risk factors for these fears.

“The ‘developmentally stable’ hypothesis predicts that a single set of genetic risk factors impacts the level of fears at age 8 years and these same genes constitute the only genetic influences on fear-proneness throughout development,” the authors write. “By contrast, the ‘developmentally dynamic’ hypothesis predicts that genetic effects on fear-proneness will vary over time.”

Kenneth S. Kendler, M.D., of the Virginia Commonwealth University School of Medicine, Richmond, and colleagues studied 2,490 twins born in Sweden between 1985 and 1986. The twins were assessed for their level of fear four times: at age 8 to 9 by a questionnaire mailed to parents, at ages 13 to 14 and 16 to 17 with questionnaires mailed to twins and parents and at age 19 to 20 with questionnaires only to the twins.

Fears naturally divided into three categories: situational fears (such as

fear of closed spaces, flying or the dark), animal fears (including rats, dogs and snakes) and blood or injury fears (fears of dentists, injections and blood). Overall, genetic factors influenced all three types of fears, but did not remain stable over time. “We identified one set of genetic risk factors that act in childhood and have a steep decline in influence with age,” the authors write. “Furthermore, we see evidence for new sets of genetic risk factors ‘coming on line’ in early adolescence, late adolescence and early adulthood.”

As the twins aged, the effects of their shared environment on their fears diminished and the influence of their individual environment increased. “This is an expected pattern given that adolescence is a time of declining influence of the home environment as individuals spend less time with family and progressively make their own world, spending more time with friends,” the authors write.

Further research is needed to determine the exact mechanisms by which genetics influences fears, they note—for example, if genes influence mental processes such as sensitivity to disgust or are more closely linked to changes in neurobiology, including alterations in the brain circuits through which fear is processed.

Source: JAMA and Archives Journals