

Genetically at-risk youth can lower risk of alcohol problems by taking part in prevention program

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For people with a genetic predisposition to alcohol problems, participating in a family based prevention program during adolescence

reduced the likelihood that they would develop those problems as an adult, according to a new study led by Virginia Commonwealth University researchers.

The study, "The Family Check-Up Intervention Moderates Polygenic Influences on Long-Term Alcohol Outcomes: Results from a Randomized Intervention Trial," explored whether participating in a family-centered intervention called the Family Check-Up during adolescence could protect youth, particularly those who are genetically predisposed to alcohol problems, from developing alcohol dependence in young adulthood, roughly 15 years after they participated in the intervention program.

"Our study showed that participation in a family based [prevention program](#) in [middle school](#) during adolescence reduced the risk of developing alcohol problems in adulthood for children who were genetically at risk," said the lead author, Sally I-Chun Kuo, Ph.D., a postdoctoral fellow in the Department of Psychology in the College of Humanities and Sciences. "These results demonstrate the importance of the environment in mitigating the likelihood of developing alcohol problems for those who are genetically at risk."

The study was published recently in the journal *Prevention Science*.

The study involved 271 European American and 192 African American individuals who took part in the Family Check-Up intervention program. For the European American individuals, the intervention moderated the association between alcohol dependence polygenic scores and lifetime alcohol dependence diagnosis in young adulthood. No moderation was found among African Americans.

While the study did not find the interaction effect among African Americans in the sample, Kuo said it is likely because of a lack of

diversity in genomic research broadly.

"The majority of genomic data focuses on individuals of European ancestry, and we are not doing a good job of characterizing genetic risks for non-European populations," she said. "So this doesn't mean that there isn't an effect in African American individuals, or that the effect is different, it just means that at this point we don't have the power to do these kinds of studies well in African Americans."

For study participants in the control condition—people with a [genetic predisposition](#) to alcohol problems but who did not take part in the Family Check-up program—the researchers found that they had a greater likelihood of an alcohol dependence diagnosis.

"These results demonstrate that modifying environments of genetically vulnerable youth could reduce the likelihood of developing [alcohol dependence](#) and underscore the significance of environmentally focused prevention and intervention efforts," the study concludes.

Researchers know that [alcohol](#) problems are influenced by genetic and environmental factors, and previous research has found that family centered interventions may protect genetically susceptible youth from developing substance use problems.

The Family Check-up program, Kuo said, aims to reduce adolescent problem behaviors and improve their mental health and well-being by promoting family management skills and supporting parents to improve their supervision, involvement and monitoring of their child's behaviors.

Family resource centers were established in participating public middle schools as part of the intervention. Participating families had access to services such as brief consultations with parents, telephone consultations, in-person contact and access to videotapes relevant to parents' concerns.

"I think one of the reasons the program was efficacious is that the intervention was delivered and embedded in public middle schools, a place that most parents trust," Kuo said. "I think that this helped reduce barriers in participation and thus promote engagement in the preventive intervention program. This kind of intervention delivery strategy also does not single out high-risk children (e.g., only focusing on youth already exhibiting behavioral problems) and can reduce labeling and help promote relationships to school and community."

The study's findings show that such programs could be effective in helping to prevent people's predisposition to [alcohol problems](#) from manifesting in adulthood.

"This study was a really profound demonstration of how you can modify the likelihood that a genetically at-risk individual will develop problems in adulthood by intervening to promote positive family relationships early in adolescence," said Danielle M. Dick, Ph.D., Commonwealth Professor of Psychology and Human and Molecular Genetics, and senior author on the paper. "It is the first study to find this striking effect, using state-of-the-art genetic methods to characterize children's risk and examine how [intervention](#) can modify that risk."

More information: Sally I-Chun Kuo et al. The Family Check-up Intervention Moderates Polygenic Influences on Long-Term Alcohol Outcomes: Results from a Randomized Intervention Trial, *Prevention Science* (2019). [DOI: 10.1007/s11121-019-01024-2](https://doi.org/10.1007/s11121-019-01024-2)

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