

Childhood defiance correlated with drug dependence whereas inattention suggests susceptibility to smoking

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Children who exhibit oppositional behavior run the risk of becoming addicted to nicotine, cannabis and cocaine whilst Inattention symptoms represent a specific additional risk of nicotine addiction. Nevertheless, hyperactivity in itself does not seem to be associated with any specific risk of substance abuse or dependence. This is what researchers at the Sainte-Justine University Hospital Center's (UHC) Research Center and the University of Montreal concluded following a 15-year population-based study published in *Molecular Psychiatry*.



In order to delineate the roles played by inattention, hyperactivity, opposition, anxiety and adversity, the behavior of 1,803 children between 6 and 12 years of age were evaluated annually by their mothers and teachers. Over half the participants were females. The study revealed that by the age of 21, 13.4% were either abusing or addicted to alcohol, 9.1% to cannabis, and 2.0% to cocaine. Tobacco addiction was a problem for 30.7 % of the participants.

The link between attention deficit hyperactivity disorder (ADHD) in childhood and substance abuse in adulthood was already known. However, very few studies have been undertaken into the particular and respective roles of behavioural symptoms such as opposition that are often concomitant with ADHD (without being part of the disorder), attention deficit and hyperactivity. Furthermore, at least as many girls as boys were sampled in order to assess the potential impact of gender on the findings.

“By taking into account the unique effect of inattention and hyperactivity, which had seldom been considered separately before, we came to realize that the link between ADHD symptoms in childhood and substance abuse in adulthood was overestimated and hyperactivity in itself did not seem, in this study, to predispose for future substance abuse,” observed [Dr. Jean-Baptiste Pingault](#), a postdoctoral fellow and first author of the study conducted under the supervision of Drs [Sylvana Côté](#) and [Richard E. Tremblay](#), both researchers at the Sainte-Justine UHC's Research Center and professors at the University of Montreal.

“We have rather observed strong oppositional behaviors to be associated with cannabis and cocaine abuse. In ADHD symptoms, only inattention is closely correlated with nicotine addiction,” he continued. As for the impact of gender on findings, the study reveals opposition and inattention play a largely identical role in girls and boys. However, within the context of the study, it was established that boys consumed more cannabis and alcohol, while girls smoked more cigarettes.

Opposition and Drug Addiction

The strongest behavioral predictor of substance abuse lies in frequent oppositional behavior in childhood, which can be recognized through traits such as irritability, being quick to “fly off the handle,” disobedience, refusal to share materials with others to carry out a task, blaming others and being inconsiderate of others. In fact, in strongly oppositional children, the risk of tobacco abuse, once other factors were taken into account, was 1.4 times higher than in children who exhibited little oppositional behavior. The risk is 2.1 times higher for cannabis abuse and 2.9 times higher for cocaine abuse. It should be noted that the mothers' evaluations provided further essential information in relation to the teachers' evaluations. In fact, some children who were declared highly

oppositional by their mothers, but not at all by their teachers, also ran a higher risk of substance abuse and addiction.

Inattention and Smoking

The other important correlation established by the study was the link between inattention and smoking. Very inattentive children had a 1.7-fold increased risk of becoming addicted to tobacco. The degree of inattention even reveals the intensity of future nicotine addiction. The link supported the hypothesis that inattentive people would use tobacco as a “treatment” to help them concentrate.

“If other studies can establish a chemical relation of cause and effect between ADHD symptoms and smoking, we could suppose that treating inattention symptoms would make it easier to quit smoking. Until this is demonstrated, our study’s findings nonetheless suggest that the prevention or treatment of inattention and opposition symptoms in children could reduce the risk of smoking and drug abuse in adulthood,” concluded Dr. Pingault.

About the CHU Sainte-Justine Research Center

The Sainte-Justine University Hospital Research Center is a leading mother-child research institution affiliated with the University of Montreal, officially known as Université de Montréal. It brings together more than 1200 people, including over 200 researchers and 450 graduate and post-graduate students who carry out fundamental, clinical, translational, and evaluative research on mother and child health. Research work falls under six research axes, namely Health Outcomes; Brain Diseases; Musculoskeletal Diseases and Movement Sciences; Viral and Immune Disorders and Cancers; Fetomaternal and Neonatal Pathologies; and Metabolic Health. It is focused on finding innovative prevention means, faster and less invasive treatments, as well as personalized approaches to medicine. The Center is part of the Sainte-Justine University Hospital Centre, which is the largest mother-child centre in Canada and second most important in North America. More on www.chu-sainte-justine.org/research/

Entrevues

Dr Jean-Baptiste Pingault is available for interviews in French and English upon request.

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