Self-cutting on hidden parts of the body is a more serious form of the behavior than cutting of the arms, and it is associated with greater risk of mental health problems and suicide, according to a survey of adolescents.

**Methods:** Study participants were community-dwelling Finnish youths, aged 13–18 years, surveyed in their high schools. Students were administered a questionnaire, devised for this study, about cutting and other self-injury. They also were asked about smoking, alcohol, and cannabis use; depressive symptoms (using the Beck Depression Inventory [BDI]); adaptive functioning and psychological problems (with the Youth Self-Report); and dissociative symptoms (using the Adolescent Dissociative Experience Scale).

**Results:** Of the 4019 adolescents who completed the questionnaires, 440 (nearly 11%) reported cutting. The majority (89%) of the self-harming adolescents were girls. A total of 144 of the self-harming adolescents (33%) reported cutting parts of the body other than or in addition to the upper arms. The thighs, shins, and ankles each accounted for 10–15% of the "other" sites. Among girls who self-injured, 35% cut themselves on hidden sites, compared with 11% of boys.

Self-cutting on other parts of the body was associated with higher scores on the 4-point BDI suicidal-thoughts item than cutting of the upper arms. Sixty-five percent of those who cut themselves on other sites reported having suicidal thoughts, compared with 42% of those who cut only their upper arms (p=0.006). Significantly more adolescents who cut hidden areas than those who cut only their arms reported making a suicide attempt (13% vs. 3.5%; p<0.001). Those who reported self-cutting had higher levels of most types of psychiatric symptoms than controls, and rates were highest in the adolescents who cut themselves on hidden sites. After adjustment for age, gender, demographic, and social factors, self-cutting at other locations was most strongly associated with withdrawn/depressive symptoms (odds ratio* [OR], 1.15); internalizing problems (OR, 1.05); somatic complaints (1.09); and dissociative symptoms (OR, 1.25). Mothers or others adults (e.g., teacher, school nurse) were aware of the cutting behavior significantly more
often among those who cut hidden body areas (7–38%) than among those who cut only arms (3–25%). Cutting on visible body sites was viewed by adolescents as a cry for help, while cutting on hidden sites was associated with self-punishment or stress relief.

Discussion: Adolescents who seek help for depression should be asked about self-harm as well as suicidal thoughts and behavior. Any sort of self-cutting should be viewed as a cry for help, not as a manipulative type of behavior.


*See Reference Guide.

Prevalence of Disruptive Mood Dysregulation Disorder

In community-based samples of children and adolescents, disruptive mood dysregulation disorder was relatively uncommon and tended to occur with other psychiatric disorders. Primary symptoms of the disorder were fairly common, but few children met the diagnostic criteria for duration, episode frequency, and occurrence of outbursts across multiple settings. These observations highlight the importance of the disorder but raise questions about the validity of the diagnosis, which is proposed for DSM-5.

Methods: Investigators analyzed data from 3 studies of children and adolescents in North Carolina. One sample consisted of 918 children, aged 2–6 years, selected from a larger population attending a pediatric clinic. Parents completed diagnostic interviews for their children, including all who had high scores on a screening instrument for anxiety and depression and randomly selected comparison children. The other 2 samples were based in rural areas, were longitudinal, and consisted of older children and adolescents, aged 9–13 years in 1 study and aged 9–17 years in the other. Annual assessments were carried out until age 16 years for the 1420 children in the second group, and up to 3 interviews were completed for 920 youths in the third group before they reached the age of 18 years. Frequencies of symptoms were adjusted to estimate rates in the general population.

Results: The primary symptom of severe tantrums occurred in 81% of the preschool children and in nearly half of the older children. The second primary symptom, persistently negative mood, was present in 21% of the younger children and in 8–13% of the older samples. However, only a small number met the full diagnostic criteria for disruptive mood dysregulation disorder, which also includes frequency of ≥3 tantrums per week, presence for >12 months, and occurring in multiple settings. The full diagnostic criteria were met by 3.3% of the preschool children and about 1% of the older children. Two other criteria, aged ≥6 years at diagnosis and aged <10 years at onset, were disregarded for the sake of including the preschool sample.

Disruptive mood dysregulation disorder frequently occurred with other psychiatric disorders, most commonly depressive disorders (odds ratios,* 9.9–23.5) and oppositional defiant disorder (odds ratios, 52.9–103.0). Applying the exclusion of concomitant depression, another DSM-5 diagnostic criterion, would reduce the prevalence rates somewhat. Disruptive mood dysregulation disorder was equally common in boys and girls. The disorder was associated with increased levels of social impairment, school suspension, and service utilization.


Axelson D: Taking disruptive mood dysregulation disorder out for a test drive [editorial]. American Journal of Psychiatry 2013;170 (February):136–139. From the University of Pittsburgh Medical Center, PA. The author declared no conflicts of interest.

*See Reference Guide.
Folic Acid Supplementation and Autism

Maternal use of folic acid supplements around the time of conception was associated with lower risk of autism spectrum disorders in children, according to results of a longitudinal cohort study.\(^1\) This finding supports the hypothesis that the supplements, which are recommended to prevent neural tube defects, may reduce risk of other neurodevelopmental defects.

**Methods:** The study cohort was derived from the Norwegian Mother and Child Cohort Study, which previously demonstrated an inverse association between folic acid supplementation and language delay. At 18 weeks of gestation, mothers answered a questionnaire about use of folic acid supplements during the 4 weeks before conception through the first 8 weeks of pregnancy. No foods were fortified with folic acid at the time the mothers were recruited. Children in the cohort were born between 2002 and 2008 and followed through March 2012. After excluding children with low birth weight or preterm delivery and those with other known risk factors for autism, the study sample included >85,000 children, aged 3–10 years (mean age, 6 years).

**Results:** About 35% of the women reported folic acid supplementation in the 4 weeks before conception; this increased to nearly 70% at 8 weeks after conception. A total of 270 children (0.32%) received a diagnosis of an autism spectrum disorder by age 10 years: 0.13% with autism, 0.07% with Asperger syndrome, and 0.12% with pervasive developmental disorder—not otherwise specified (PDD-NOS).

Autistic disorder was present in 0.1% of children whose mothers took folic acid supplements, compared with 0.21% of those whose mothers did not (odds ratio,* 0.61). Folic acid supplementation was associated with a lower rate of Asperger syndrome (odds ratio, 0.65), but the number of cases was too small to reach statistical significance. The rate of PDD-NOS was only slightly lower with supplementation. Maternal folic acid use in mid-pregnancy was not associated with lower autism risk.

Because folic acid supplements were associated with favorable maternal factors, such as higher education, having planned the pregnancy, and not smoking, the investigators repeated the analysis for omega-3 fatty acid supplements. Omega-3 was associated with the same favorable maternal factors but not with a lower incidence of autism spectrum disorders.

**Discussion:** A few other studies have suggested that folic acid supplementation can improve a child’s cognitive function and reduce risk of autism.\(^2\) Autism spectrum disorders are believed to be caused by a combination of genetic and environmental risk factors. It is feasible that one contributing factor could be impaired folate metabolism, either inherited or due to undernutrition, which may be a modifiable cause.

\(^1\)Suren P, Roth C, Bresnahan M, Haugen M, et al: Association between maternal use of folic acid supplements and risk of autism spectrum disorders in children. *JAMA* 2013:309 (February 13):570–577. From the Norwegian Institute of Public Health, Oslo; and other institutions. **Funded by the Norwegian Ministry of Health and Care Services; and other sources. The authors disclosed no competing interests.**

\(^2\)Berry R, Crider K, Yeargin-Allsopp M: Periconceptional folic acid and risk of autism spectrum disorders [editorial]. *JAMA* 2013:309 (February 13):611–613. From the CDC, Bethesda, MD. **The authors disclosed no competing interests.**

*See Reference Guide.*

Caffeine Intake and Violence, Conduct Disorder

In a population-based study of adolescents, caffeine consumption was associated with violent behaviors and conduct disorders. The association was particularly strong for girls.

**Methods:** The periodic Youth in Icelandic surveys enroll all eligible 10th-grade students (aged 15 and 16 years) in Iceland. The sample for the present study consisted of 3747 students—approximately 85% of the national population in this age group—surveyed in February 2012. Questionnaires were administered at school and completed without identifying
information to ensure confidentiality. Participants were asked about their average daily consumption of coffee, tea, cola, and energy drinks. Exposure measurement was weighted for the difference in caffeine content of each beverage type. Students were also asked how often during the past year they engaged in 6 different types of violence directed against other persons, and they were also administered a screening questionnaire for conduct disorders. The adolescents also provided information about their families; substance use (i.e., cigarettes, alcohol, and marijuana); delinquency of their peer group; ADHD; and other potential influences.

**Results:** A total of 63% of participants reported consuming caffeine on a typical day. Cola represented 52% of drinks, followed in frequency by energy drinks, at 20%. In multivariate models, male gender and peer delinquency were predictive of violence. Caffeine exposure was also strongly associated with violence (p<0.001), with a particularly strong influence in girls (p<0.01 in a model in which gender and caffeine, separately, remained predictive).

A similar analysis was conducted for the outcome of conduct disorder. A positive screen was associated with male gender; not living with both parents; lower family financial status; ADHD; and peer delinquency. When added to this model, caffeine was predictive of conduct disorder (p<0.001), and again had a greater influence in girls than boys (p<0.001). For both outcomes, the effects of caffeine and substance use were largely independent.

**Discussion:** Consumption of caffeine-containing soda is common in adolescents, and energy drinks containing large doses of caffeine are marketed specifically to this age group. The present study suggests that caffeine plays a role distinct from that of substance use in contributing to violent behavior and conduct disorder, although when combined in this study, they had a greater effect.

Krisjønnson A, Sigfusdottir I, Frost S, James J: Adolescent caffeine consumption and self-reported violence and conduct disorder. *Journal of Youth and Adolescence* 2013; doi 10.1007/s10964-013-9917-5. From West Virginia University, Morgantown; and other institutions. Funded by the Icelandic Prevention Fund; and other sources. The authors did not include disclosure of potential conflicts of interest.

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### Clozapine in Severe Conduct Disorder

In a small naturalistic study of boys with severe, treatment-resistant conduct disorder, clozapine (*Clozaril*) treatment resulted in clinically significant reductions in aggression. This finding reinforces previous observations of a similar effect in children and adolescents with schizophrenia, mental retardation, and autism, suggesting that clozapine may be useful in reducing aggression in general.

**Methods:** Study subjects were 7 boys, aged 10–14 years, with conduct disorder and high levels of aggression resulting in disciplinary and legal issues. The patients were referred to a university hospital clinic after many failed attempts at treatment and were given a prescription for clozapine by clinic psychiatrists. The patients had not responded to ≥3 previous adequately-dosed antipsychotics of different chemical classes, or to various psychosocial interventions. They attended regular schools and lived at home. Clozapine was started at 25 mg/day and increased by 25 mg every other day, to final dosages ranging from 100 to 600 mg/day. All patients were willing to comply with weekly blood tests. Comorbidity was common: 1 patient had mild mental retardation, 1 had a learning disorder, and 3 had ADHD. Three boys had a history of psychiatric hospitalization; 2 had been court ordered for treatment. None of the patients had a history of substance abuse. Patients were evaluated before starting medication and after 26 weeks with the Clinical Global Impression (CGI) scales and the Child Behavior Checklist (CBCL).

**Results:** Before treatment, CGI-Severity* scores were 6 or 7 in all patients. In 6 of the 7 boys, clozapine was associated with significant improvement. Final CGI-Improvement* scores were
1 or 2 in all but 1 patient. CBCL subscale scores for aggression, conduct problems, and rule-breaking showed significant improvement. (See table.) Patients continued to have some aggression but had an overall decrease in the number and severity of aggressive episodes and were able to interact better socially and to resume education. Patients and families both reported improved quality of life. Drugs used concomitantly with clozapine were withdrawn completely in 2 cases; 4 other patients had some concomitant medications withdrawn or reduced. One patient—the only not to show improvement—underwent diagnostic reevaluation, and his diagnosis was changed to childhood-onset schizophrenia. He remained aggressive and unimproved on clozapine. Two patients gained >20% of their initial weight and were referred for dietary management. The other adverse effects, somnolence and hypersalivation, were managed with dosage modification or alterations in administration time. Patients had modest reductions in total leucocytes and neutrophils, but hematologic values remained within the safety limits of clozapine.

Teixeira E, Celeri E, Jacintho A, Dalgalarrondo P: Clozapine in severe conduct disorder. Journal of Child and Adolescent Psychopharmacology 2013; doi 10.1089/cap.2011.0148. From the State University of Campinas, Brazil. Source of funding not stated. The authors disclosed no competing interests.

*See Reference Guide.

### Evidence for Nonpharmacological ADHD Treatments

There is little unbiased evidence to support the efficacy of dietary or psychological treatments for ADHD, according to a systematic review and a series of meta-analyses. When limited to blinded outcome assessments, the data support a small positive effect for omega fatty acid supplementation and a somewhat larger effect for elimination of artificial food color in individuals with food sensitivity.

**Background:** A variety of data-synthesis studies have supported the use of nonpharmacological ADHD treatments, but these studies’ efficacy estimates are often based on assessments by persons likely to know patients’ treatment assignment. The present study attempted to eliminate this bias by analyzing outcomes separately from studies clearly incorporating blinding and from those with symptom ratings completed by adults unlikely to be aware of treatment assignment. These were termed "probably blinded evaluations".

**Methods:** Randomized controlled trials of nonadjunctive dietary interventions (i.e., elimination diets, artificial food color exclusions, and omega fatty acid supplementation) and psychological interventions (i.e., ADHD-specific cognitive training, neurofeedback, and learning-based behavioral interventions) were identified by literature search of peer-reviewed journals. Participants were aged 3–18 years old and had a diagnosis of ADHD, confirmed using a validated rating scale. Control treatments included sham or placebo, attention, treatment as usual (which could include medication), and waiting list. The outcome measure was pre- to post-treatment change on a validated ADHD symptom scale.

**Results:** A total of 54 trials were identified that met criteria for the analysis. The number of studies of individual treatments ranged from 6 (cognitive training) to 15 (behavioral intervention). All types of treatment were associated with significant improvement, based on ratings by an observer closest to the therapeutic setting (usually a parent). However, when the probably blinded assessments were used, treatment effects were no longer statistically significant for most
interventions. (See table.) Results of the combined analysis of 11 trials of omega fatty acid supplementation remained significant according to probably blinded assessments (standard mean difference,* 0.16; effect size,* 2.05; p=0.04). Eight trials of artificial food color exclusion also had significant results according to blinded assessments (standard mean difference, 0.42; effect size, 2.86; p=0.004). All studies of fatty acids and most studies of food color exclusions were of medium-to-high methodologic quality.

**Discussion:** Evidence based on probably unbiased raters did not support any of the psychological interventions, and effects of dietary restrictions were smaller than reported in previous meta-analyses. Because participants in many of the food color exclusion studies were pre-selected to be sensitive to foods, results of these studies may not apply more broadly.

**Study Rating*— 18 (100%):** This study met all criteria for a systematic review / meta-analysis.


*See Reference Guide.

### Reference Guide

**Clinical Global Impression-Improvement (CGI-I) Scale:** A 7-point rating of patient improvement. A score of 1 corresponds to a rating of very much improved; 2=much improved; 3=minimally improved; 4=no change; 5=minimally worse; 6=much worse; 7=very much worse.

**Clinical Global Impression-Severity (CGI-S Scale:** A 7-point rating of the severity of illness. A score of 1 corresponds to a rating of normal; 2=borderline mentally ill; 3=mildly ill; 4=moderately ill; 5=markedly ill; 6=severely ill; 7=extremely ill.

**Effect Size:** The effect size represents the amount of change in outcome that can be attributed to treatment, where 0.2 indicates a small effect, 0.5 a medium effect, and 0.8 a large effect. It is relatively independent of clinical significance, and large effect sizes do not ensure treatment efficacy.

**Odds Ratio:** A comparison of the probability of an event in 2 groups. An odds ratio of 1 implies that the event is equally likely in both groups. An odds ratio >1 indicates that the event is more likely to occur in that group than in the comparison group.

**Standardized Mean Difference:** The difference between 2 normalized means—i.e. the mean values divided by an estimate of the within-group standard deviation. The standardized mean difference is used for comparison of data obtained using different scales.

**Study Rating:** A measure of how well a study conforms to quality standards. The study rating uses a checklist system based on the comprehensive Strength of Evidence Report from the Evidence-based Practice Center Program of the Agency for Healthcare Research and Quality (AHRQ). The checklists have been posted at www.alertpubs.com.

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