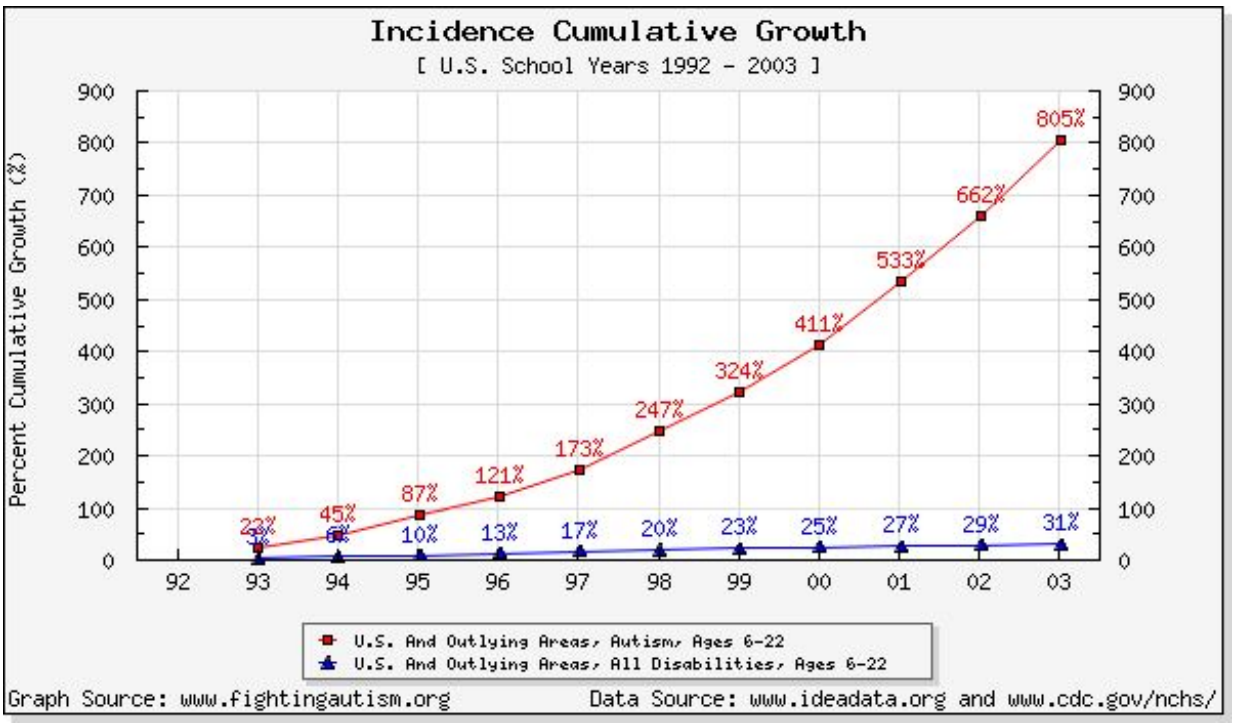
Medical Xpress

Are increasing cases or increasing diagnoses responsible for the 'autism epidemic?'

May 11 2015, by Lindsay Kobayashi



"Increase in autism diagnosis." Credit: fightingautism.org – Licensed under Public Domain via Wikimedia Commons

An interesting new study was recently published in the *British Medical Journal* about the 'autism epidemic' we have been experiencing in recent years. The Swedish authors of the study used data from children born between 1993 and 2002 to compare time trends in the rates of the autism

symptom phenotype (i.e. the symptoms upon which a diagnosis of autism is based) and registered clinical diagnoses of autism spectrum disorder.

Why was this study done?

The prevalence of autism has jumped dramatically since about the 1970s. A review of U.S. studies found that prevalence increased 10-fold between the 1970s and 1990s, from less than 3 cases per 10,000 children to over 30 cases per 10,000 children. The U.S. CDC also found rising cases throughout the 1990s, but that prevalence has actually declined between 2000 and 2010.

The reasons for this 'autism epidemic' are controversial. The falsified autism-vaccine link received torrid media coverage over the past decade, causing a sharp drop in childhood vaccination rates and subsequent rise in measles among children. Other potential causes are thought to be environmental, given that the human genome is stable over a 30-40 year period. If some secular environmental exposure is causing increased rates of autism, then it would be a major public health crisis.

Bucking this 'environmental causes' line of thought, the authors of the current study hypothesised that the 'autism epidemic' may be due to how autism has been diagnosed and registered over time. They provide four reasons for this hypothesis:

- The rise in prevalence was reported during the same time period that the diagnostic criteria widened;
- Increasing awareness of autism spectrum disorder causes 'diagnostic substitution': when children who would have previously been diagnosed with a learning disability or other mental illness or retardation are now diagnosed with autism;
- Patient referral and availability of services increases due to

increasing awareness; and,
- Differential availability of case records and the way in which cases are diagnosed between similar geographical regions leads to wide variation in measured and actual prevalence.

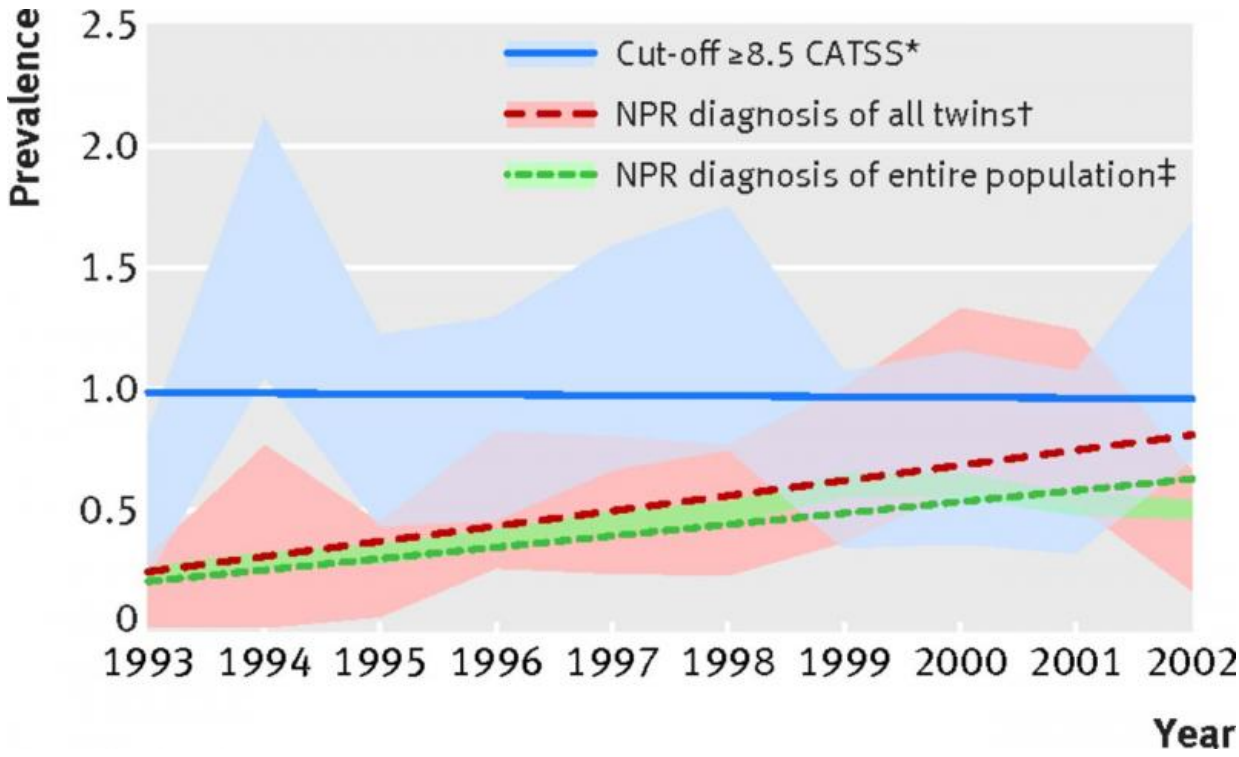
What did they do?

Data from the Swedish national patient register on over 1 million Swedish children born between 1993 and 2002 were used. The register contains data on registered, diagnosed cases of autism spectrum disorder based on ICD-9 and ICD-10 codes (international classification of diseases, 9th and 10th revisions).

The comparison data came from the Child and Adolescent Twin Study in Sweden. The twins' parents were interviewed over the telephone, using the 'Autism-Tics, ADHD, and other Comorbidities' (CATSS) inventory, which is designed to be administered by a layperson over the telephone to assess symptoms of autism spectrum disorder, including language and communication, social interaction, and restricted and repetitive behaviours. It is independent of the interviewer's clinical knowledge or preferences, does not disclose which symptoms belong to which disorder, and evaluates lifetime symptoms. Hence, it should remove the biases listed by the authors in their hypotheses about the 'autism epidemic.'

The prevalence of registered diagnosed cases in the general population of Swedish children was compared to the prevalence of autism symptoms in the Child and Adolescent Twin Study over a ten-year period.

What did they find?



Annual prevalence of autism spectrum disorder in Child and Adolescent Twin Study in Sweden (CATSS), national patient register (NPR), and NPR diagnoses in Swedish twins. *Prevalence calculated on 19 993 people responding in twin study born 1993-2002. †Prevalence calculated on all twins, irrespective of response in CATTS (n=26 953). Diagnosis in NPR was ascribed before the children's 10th birthday. ‡Prevalence calculated on all births in Sweden 1993-2002 (n=1 078 975). Diagnosis in NPR was ascribed before the children's 10th birthday. Regression lines are depicted within 95% confidence intervals.

In the Swedish national patient register, the authors found that the population prevalence of autism spectrum disorder was 0.42%, ranging from 0.23% to 0.60% at different time points. They observed a linear increase in prevalence over the ten-year period (P for trend