Autism Spectrum Disorders

Indicators of Child and Youth Well-Being

Updated: May 2013
The prevalence of autism spectrum disorders (ASD) had risen markedly in recent years. However, it is too soon to know whether these data indicate a true increase in the numbers of children with this condition, or a growing recognition of the diagnosis by parents and health professionals.¹

**Importance**

Autism spectrum disorders include autistic disorder, pervasive developmental disorder—not otherwise specified, and Asperger’s Disorder. ASDs arise in childhood (generally before age three) and continue throughout a person’s life. Children with ASD exhibit a wide range of characteristics, but have in common problems with social and communication skills. Other features typical of children with ASD are unusual patterns of learning, paying attention, and reacting to sensory stimuli. The term, “spectrum,” conveys the fact that, among children with ASD, symptoms occur on a broad continuum of both type and severity. Children with ASD have highly idiosyncratic characteristics, which may include exceptionally advanced abilities.²

Although there is some evidence of a genetic association, currently diagnosis is made on the basis of clinical observation only.³ In addition to genetic factors, in utero insults, brain abnormalities, neurochemical imbalances, and immune-system problems have been implicated as contributing to autism.⁴ Evidence from a recent Swedish study suggests that preterm births, and more specifically, the prenatal and neonatal complications that may accompany such births, may play a role in the risk for autistic disorders.⁵ Among those diagnosed with ASDs, socioeconomic class appears to play an important role in mitigating symptoms. Non-Hispanic white children of highly educated mothers are much more likely to experience rapid improvement in functioning than other children.⁶

The lifetime societal costs associated with autism have been estimated at $3.2 million per person with autism. These costs are driven largely by behavioral therapies in childhood, and extensive adult care, along with large indirect societal costs due to lost productivity.⁷
**Trends**

In a nationally representative survey, the prevalence of a current ASD diagnosis among children ages 3-17, as reported by parents, grew from 1.0 percent to 1.8 percent between 2007 and 2011/12, a 72 percent increase in four years, which translates into an estimated additional 493,000 U.S. children with ASD. (Figure 1) A separate estimate, derived from health and education records in 14 study sites around the U.S., puts the average prevalence among eight-year-olds in 2008 at more than one percent (11.3 per thousand). However, there have been changes over time in the definition and identification of these conditions, including increased physician and parental awareness, complicating efforts to assess changes in prevalence.

![Figure 1](image)

**Differences by Gender**

Boys are more than four times more likely than girls to be diagnosed with ASD. In 2011/12, the estimated prevalence among boys was 2.9 percent, compared to 0.7 percent among girls. (Figure 1)
Differences by Race and Hispanic Origin

White children are more likely than blacks and Hispanics to be diagnosed with ASD. Among white children, prevalence in 2011/12 was 2.1 percent; among Hispanic and black children prevalence was 1.5 and 1.4 percent, respectively. Increases since 2007 have been greatest among black children, more than doubling over that period. (Figure 2)

Figure 2

Percentage of Children Ages 3-17 with Autism Spectrum Disorders (ASD), by Race/Hispanic Origin, 2007 and 2011/12

<table>
<thead>
<tr>
<th>Race/Hispanic Origin</th>
<th>2007</th>
<th>2011/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, non-Hispanic</td>
<td>1.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>0.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

State and Local Estimates


International Estimates

Prevalence data from studies conducted in selected countries are available from the National Center on Birth Defects and Disabilities, at


National Goals

Through its Healthy People 2020 Initiative, the federal government has set a national goal to increase the proportion of young children that are screened for autism spectrum disorder (ASD) by age two from 23 to 25 percent. There are also goals to increase the proportion of children with ASD who were evaluated before age three, and who enrolled in special services before age four.

More information is available at:


(Goal MICH 29)

What Works to Make Progress on the Indicator

Research to date has identified few interventions that can be considered more than “promising.” There are no credible claims for any intervention that can result in “cure” or “recovery” from autism or ASD. Some programs have demonstrated effectiveness in addressing specific symptoms or promoting specific skills.\(^1\)

In addition to evaluating the evidence for the overall effectiveness of an intervention, it is important to ascertain the appropriateness of any given approach to the needs of the individual child with ASD. A 2005 review of 33 methods designed for use with children and youth with ASD identified four practices that met criteria for “scientifically based”—i.e., those that have “significant and convincing empirical efficacy and support.” These were applied behavior analysis, discrete trial training, pivotal response training, and the program, Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP).\(^2\)
Related Indicators


Definition

Autism Spectrum Disorders include autistic and other “pervasive developmental” disorders: Rett’s Disorder, child disintegrative disorder, Asperger’s disorder, and pervasive developmental disorder—not otherwise specified.¹³

Data Source


Raw Data Source

National Survey of Children’s Health.

[http://www.childhealthdata.org](http://www.childhealthdata.org)
## Appendix 1 - Estimated Number and Percentage Distribution of Children Ages 2-17 Who Have Autism Spectrum Disorders (ASD), United States: 2007 and 2011/12

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>2007</th>
<th>2011/12</th>
<th>Percent</th>
<th>2007</th>
<th>2011/12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All children</strong></td>
<td></td>
<td>681,471</td>
<td>1,174,871</td>
<td>1.0</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>551,737</td>
<td>964,297</td>
<td>1.7</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>129,734</td>
<td>210,078</td>
<td>0.4</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td><strong>Race/Hispanic Origin</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td></td>
<td>434,659</td>
<td>711,098</td>
<td>1.2</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td></td>
<td>53,909</td>
<td>123,085</td>
<td>0.6</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Hispanic&lt;br&gt;3</td>
<td></td>
<td>124,208</td>
<td>217,223</td>
<td>1.0</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td><strong>Poverty level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below federal poverty level (FPL)</td>
<td>113,614</td>
<td>193,749</td>
<td>1.0</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-199% FPL</td>
<td></td>
<td>123,139</td>
<td>254,283</td>
<td>0.9</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>200-399% FPL</td>
<td></td>
<td>259,892</td>
<td>411,332</td>
<td>1.3</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>400% or more FPL</td>
<td></td>
<td>184,825</td>
<td>315,507</td>
<td>1.0</td>
<td>1.7</td>
<td></td>
</tr>
</tbody>
</table>

1 Currently have autism, Asperger’s Disorder, pervasive developmental disorder, or other autism spectrum disorder, as reported by parents.

2 Numbers are weighted estimates.

3 Hispanics may be of any race.

Source: Child Trends’ analyses of data from the National Survey of Children’s Health at Childhealthdata.org.
Endnotes


3 Ibid.

4 Ibid.


9 Ibid.

10 Hispanics may be of any race. Estimates for whites and blacks do not include Hispanics.


12 Simpson, R. L. (2005). Evidence-based practices and students with autism spectrum disorders. Focus on Autism and Other Developmental Disabilities, 20 (No. 3), 140-149. Further information on the programs cited may be found by following the references cited in this article.