

Chapter 3: Autism of U.S. Department of Health and Human Services. *Mental Health: A Report of the Surgeon General—Executive Summary*. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health, 1999.

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<http://www.surgeongeneral.gov/library/mentalhealth/chapter3/sec6.html#autism>

Autism

Autism, the most common of the pervasive developmental disorders (with a prevalence of 10 to 12 children per 10,000 [Bryson & Smith, 1998]), is characterized by severely compromised ability to engage in, and by a lack of interest in, social interactions. It has roots in both structural brain abnormalities and genetic predispositions, according to family studies and studies of brain anatomy. The search for genes that predispose to autism is considered an extremely high research priority for the National Institute of Mental Health (NIMH, 1998). Although the reported association between autism and obstetrical hazard may be due to genetic factors (Bailey et al., 1995), there is evidence that several different causes of toxic or infectious damage to the central nervous system during early development also may contribute to autism. Autism has been reported in children with fetal alcohol syndrome (Aronson et al., 1997), in children who were infected with rubella during pregnancy (Chess et al., 1978), and in children whose mothers took a variety of medications that are known to damage the fetus (Williams & Hersh, 1997).

Cognitive deficits in social perception likely result from abnormalities in neural circuitry. Children with autism have been studied with several imaging techniques, but no strongly consistent findings have emerged, although abnormalities in the cerebellum and limbic system (Rapin & Katzman, 1998) and larger brains (Piven, 1997) have been reported. In one small study (Zilbovicius et al., 1995), evidence of delayed maturation of the frontal cortex was found. The evidence for genetic influences include a much greater concordance in identical than in fraternal twins (Cook, 1998).

Treatment

Because autism is a severe, chronic developmental disorder, which results in significant lifelong disability, the goal of treatment is to promote the child's social and language development and minimize behaviors that interfere with the child's functioning and learning. Intensive, sustained special education programs and behavior therapy early in life can increase the ability of the child with autism to acquire language and ability to learn. Special education programs in highly structured environments appear to help the child acquire self-care, social, and job skills. Only in the past decade have studies shown positive outcomes for very young children with autism.

Given the severity of the impairment, high intensity of service needs, and costs (both human and financial), there has been an ongoing search for effective treatment.

Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior. A well-designed study of a psychosocial intervention was carried out by Lovaas and colleagues (Lovaas, 1987; McEachin et al., 1993). Nineteen children with autism were treated intensively with behavior therapy for 2 years and compared with two control groups. Followup of the experimental group in first grade, in late childhood, and in adolescence found that nearly half the experimental group but almost none of the children in the matched control group were able to participate in regular schooling. Up to this point, a number of other research groups have provided at least a partial replication of the Lovaas model (see Rogers, 1998).

Several uncontrolled studies of comprehensive center-based programs have been conducted, focusing on language development and other developmental skills. A comprehensive model, Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH), demonstrated short-term gains for preschoolers with autism who received daily TEACCH home-teaching sessions, compared with a matched control group (Ozonoff & Cathcart, 1998). A review of other comprehensive, center-based programs has been conducted, focusing on elements considered critical to school-based programs, including minimum hours of service and necessary curricular components (Dawson & Osterling, 1997).

The antipsychotic drug, haloperidol, has been shown to be superior to placebo in the treatment of autism (Perry et al., 1989; Locascio et al., 1991), although a significant number of children develop dyskinesias as a side effect (Campbell et al., 1997). Two of the SSRIs, clomipramine (Gordon et al., 1993) and fluoxetine (McDougle et al., 1996), have been tested, with positive results, except in young autistic children, in whom clomipramine was not found to be therapeutic, and who experienced untoward side effects (Sanchez et al., 1996). Of note, preliminary studies of some of the newer antipsychotic drugs suggest that they may have fewer side effects than conventional antipsychotics such as haloperidol, but controlled studies are needed before firm conclusions can be drawn about any possible advantages in safety and efficacy over traditional agents.